

Module Handbook

Programme

, Q G X V W U

(Bachelor)

Faculty

Faculty of Applied Natural Sciences
and Industrial Engineering

Contents

Module W-01: Basic Principles of Mathematics for Engineers	4
W1101: Mathematics for engineers.....	5
W2101: Applied Mathematics.....	6
Module W-02: Information Technology for Engineers	7
W1102: Information Technology 1.....	8
W1103: Information Technology Practical	9
W2102: Information Technology for Engineers.....	10
Module W-03: Technical Mechanics.....	11
W1104: Technical Mechanics 1 (Statics).....	12
W2103: Technical Mechanics 2 (Strength of Materials).....	13
Module W-04: Marketing	14
W1105: Marketing.....	15
Module W-05: Basic Principles of Business Administration.....	16
W1106: Basic Principles of Economics	17
W2105: Basic Principles of Private Business Law	19
Module W-06: Accounting.....	21
W1107: Balance sheets	22
W2106: Taxation.....	23
Module W-07: Physics.....	24
W2104: Physics1	25
W3104: Physics 2	26
W3105: Physics Practical.....	28
Module W-08: Technical English.....	30
W2107: English for Industrial Engineers.....	31
W3108: Technical English.....	32
Module W-09: Design and Material Engineering	33
W3101: Design engineering	34
W4101: Material Engineering	35
Module W-10: Electrical Engineering.....	36
W3102: Basic Principles of Electrical Engineering	37
W4102: Measurement and Control Engineering.....	39
Module W-11: Energy Management	41
W3103: Fluid Technology and Power Engineering.....	42
W4103: Regenerative Energies and Material Technology.....	43

Module W-12: Investment and Finance	44
W3106: Finance.....	45
W3107: Capital Expenditure Budgeting and Technical Controlling	46
Module W-13: Optional Module	47
W5105: General Scientific Compulsory Option.....	48
W4104: Specialised Scientific Compulsory Option	49
Module W-14: Strategic Management	50
W4105: Innovation management.....	51
W5106: Business Succession und Business Simulation	52
Modul W-15: Operational Quality and Optimisation	53
W4106: Quality Management.....	54
W4107: Statistics	55
W5107: Operations Research	56
Module W-16: Plastics Technology and Production Engineering	57
W5101: Plastics Technology	58
W5102: Production Engineering.....	59
Module W-17: Management	60
W5103: Techniques in Management and Decision-making.....	61
W5104: Personnel Management and Labour Law.....	62
Module W-18: Practical Module	63
W6101: Practical Seminar.....	64
W6102: Project Management.....	65
W6103: Presentation and Negotiation Techniques.....	66
Module W-19: Industrial Internship	67
W6104: Internship.....	68
Module W-20: Corporate Planning	69
W7103: Business Information Systems	70
W7104: Start-up Management und Business Plan	71
Module W-21: Company Organisation and Logistics	72
W7105: Production Planning und Logistics	73
W7106: Company Organisation, Purchasing and Sales	74
Module W-22: Bachelor Module	75
W7102: Bachelor Thesis	76
W7101: Bachelor Seminar	77

Modul	W-01
Module name	Basic Principles of Mathematics for Engineers
Module components (LV)	W1101 Mathematics for Engineers W2101 Applied Mathematics
Curriculum classification:	Industrial Engineering (Bachelor)
Study focus	General
Credit points (ECTS)	10
Form of assessment	The final grade of the module results from the part-grades weighted with the ECTS-Points from the module components
Module supervisor	Prof. Dr. rer. nat. Stefan Schulte
Entry conditions and recommendations	---
Learning objectives	<ul style="list-style-type: none"> ○ Knowledge of basic mathematical principles (i.e. definitions and problem-solving methods) in so far as required for the course of study (i.e. esp. achieving basic mathematical knowledge needed for lectures eg. physics, technical mechanics, strength of materials, fluid technology, power engineering, statistics and operations research, ...) ○ Capability to develop mathematical methods independently for engineering applications, (esp. from literature) ○ Understanding of mathematical procedures appropriate for problem-solving in engineering (i.e. esp. dealing with mathematical model descriptions, (eg. linear equation systems, differential equations) which are independent of the individual specialised area of application (eg. calculation of framework, transport optimisation, mechanical vibration, economic model....) ○ Ability to co-operate in a team on a technical basis (i.e. creating the conditions for technical dialogue with colleagues from related areas of study such as physical or natural sciences, allied branches of engineering, economics, ...)

Course	W1101
Course name	Mathematics for Engineers
Course tutor	Prof. Dr. rer. nat. Stefan Schulte
Module classification	W-01 Basic Principles of Mathematics for Engineers
Curriculum classification	Industrial Engineering (Bachelor)
Study focus	General
No. Of Semesters	1
Hrs. Per week per semester	4
Credit points (ECTS)	5
Attendance/assignments	150hrs: attendance 60hrs, assignments 60h, exam prep. 30hrs
Examination	Wr. 90 min. or oral 30 min.
Final grading	Wr. exam 100 %, or oral 100%
Language	German
Form of tuition	Seminar tuition and exercises
Tuition media	Writing on board in combination with script
Literature	Script
Module supervisor	Prof. Dr. rer. nat. Stefan Schulte
Previous knowledge required	---
Course content	<ul style="list-style-type: none"> ○ Basic principles of mathematics for engineers (eg. values of real and complementary numbers, diagrammatic terms, ...) ○ Linear equation systems, matrices, determinants ○ Sequences and series (real numbers) ○ Functions of a real variable ○ (planar) curves and their mathematical descriptions ○ Functions of several variables ○ Observations on functions in n-dim. space

Course	W2101
Name	Applied Mathematics
Course tutor	Prof. Dr. rer. nat. Stefan Schulte
Module classification	W-01 Basic Principles of Mathematics for Engineers
Curriculum classification	Industrial Engineering (Bachelor)
Study focus	General
No. of semesters	2
Hrs. per week per semester	4
Credit points (ECTS)	5
Attendance/assignments	150hrs: attendance 60hrs, assignments 60hrs, exam preparation 30hrs
Examination	Wr. 90 min. or oral 30 min.
Final grading	Wr. examination 100 % or oral 100%
Language	German
Form of tuition	Seminar tuition and exercises
Tuition media	Writing on board in combination with script
Literature	Script
Module supervisor	Prof. Dr. rer. nat. Stefan Schulte
Previous knowledge required	---
Course content	<ul style="list-style-type: none"> ○ Differential calculus (for the functions of one variable) ○ Integral calculus ○ Power series ○ Basic terms of differential geometry of planar curves ○ Surface calculation of planar fields limited by (any type of) curves. ○ Differential calculus for the functions of several variables ○ Optimisation, method of the smallest squares ○ Multiple integrals ○ Fourier-series

Module	W-02
Module name	Information Technology for Engineers
Module components (LV)	W1102 Information Technology 1 W1103 Information Technology Practical W2102 Information Technology for Engineers
Curriculum classification:	Industrial Engineering (Bachelor)
Study focus	General
Credit points (ECTS)	10
Form of assessment	Examination of completed module: wr. 90 min. or oral 30 min.
Module supervisor	Prof. Dr.-Ing. Stefan Götze
Entry requirements and recommendations	---
Learning objectives	<p>By way of basic knowledge requirements such as number systems, coding, Boole's algebra, algorithms and programming, a fundamental understanding will be achieved of the electronic functions of computers.</p> <p>Through the introduction of hardware and peripherals the student should be capable of reliably estimating performance data. Topics such as the organisation of software projects or the introduction to internet/web technologies should enable the student to form his/her own opinions in the course of discussions on business information management and to develop his/her own ideas on these subjects.</p> <p>The introduction to macro- and databank programming should facilitate the use of applications available in everyday business life for the independent development of individual (software-) tools, with a view to increasing one's own work efficiency.</p>

Course	W1102
Name	Information Technology 1
Course tutor	Prof. Dr.-Ing. Stefan Götze
Module classification	W-02 Information Technology for Engineers
Curriculum classification	Industrial Engineering (Bachelor)
Study focus	General
No. of semesters	1
Hrs. per week per semester	2
Credit points (ECTS)	3
Attendance/assignments	90hrs: attendance 30hrs, 40hrs private study (partly homework), exam prep. 20hrs
Examination	See module
Final grading	Examination of completed module
Language	German
Form of tuition	Seminar tuition and integrated exercises/tests
Tuition media	Writing on board, script , exercises, OHP slides and print-outs, PC/Laptop, Beamer, PC-Practical
Literature	<i>Duden Informatik – Fachlexikon für Studium und Praxis</i> , Dudenverlag
Module supervisor	Prof. Dr.-Ing. Stefan Götze
Previous knowledge required	---
Course content	<ul style="list-style-type: none"> ○ The history of Information Technology: Mechanical calculating machines, electro-mechanical/electronic calculators, development of the PC ○ Number systems: coding and code safeguarding (ASCII/Unicode, Barcodes, length and position sensors), binary/ octal/ hexadecimal system, Transfer between number systems, basic forms of arithmetic in binary system ○ Boole's algebra: operators and laws of Boole's algebra, logic circuits, half-adders ○ Algorithms and programs: features of algorithms, notation forms, programming languages, software engineering, V-Model ○ Computer technology: von-Neumann-architecture, microprocessors, bus system, assemblers, memory chips, mass storage, monitors and printers, colour systems, file formats, interfaces, operating systems ○ Networks : topologies, protocols, internet / internet services ○ Web: Data encryption, anti-virus guards, data protection, software-laws ○ Applications, PC-Practical (MATLAB-introduction)

Course	W1103
Name	Information Technology Practical
Course tutor	Prof. Dr.-Ing. Stefan Götze
Module classification	W-02 Information Technology for Engineers
Curriculum classification	Industrial Engineering (Bachelor)
Study focus	General
No. of semesters	1
Hrs. per week per semester	2
Credit points (ECTS)	2
Attendance/assignments	60hrs: attendance 30hrs, 20hrs private study (partly homework), exam prep.10hrs
Examination	See module
Final grading	Examination of completed module
Language	German
Form of tuition	Seminar tuition and integrated exercises/tests
Tuition media	Writing on board, script , exercises, OHP slides Folienumdruck, PC/Laptop, Beamer, PC-Practical
Literature	<i>Duden Informatik – Fachlexikon für Studium und Praxis,</i> Dudenverlag
Module supervisor	Prof. Dr.-Ing. Stefan Götze
Previous knowledge required	---
Course content	<ul style="list-style-type: none"> ○ Introduction to Excel ○ The working environment of Excel. ○ Working with formulae ○ Simple functions ○ Designing tables ○ Presentation of data (diagrams) ○ Data output on the printer ○ Data exchange between applications ○ Introduction to MATLAB ○ MATLAB as a“ pocket calculator“ ○ Calculation of vectors and matrices in MATLAB ○ Simple scripts in MATLAB ○ Program structures

Course	W2102
Name	Information Technology for Engineers
Course tutor	Prof. Dr.-Ing. Stefan Götze
Module classification	W-02 Information Technology for Engineers
Curriculum classification	Industrial Engineering (Bachelor)
Study focus	General
No. of semesters	2
Hrs. per week per semester	4
Credit points (ECTS)	5
Attendance/assignments	150hrs: Attendance 60hrs, 60hrs private study (partly homework), exam preparation 30hrs
Examination	See module
Final	Examination of completed module
Language	German
Form of tuition	Seminar tuition and integrated exercises/tests
Tuition media	Writing on board, script , exercises, OHP slides PC/Laptop, Beamer, PC-Practical
Literature	P. Rechenberg: <i>Was ist Informatik?</i> , Hanser Online- Tutorials for VBA, EXCEL and ACCESS
Module supervisor	Prof. Dr.-Ing. Stefan Götze
Previous knowledge required	Information technology 1
Course content	<ul style="list-style-type: none"> ○ Software Engineering: procedure models, Organisation of software projects, programming guidelines ○ Data types, data structures, arithmetical, relational and logical operators, control structures, ○ Data modelling, algebra of relations ○ Environments: MS-EXCEL, MS-ACCESS, mySQL ○ VBA: EXCEL / ACCESS-macro-programming ○ SQL: programming with ACCESS and mySQL

Modul	W-03
Modulname	Technical Mechanics
Modulbausteine (LV)	W1104 Technical Mechanics 1 (Statics) W2103 Technical Mechanics 2 (Strength of Materials)
Zuordnung zum Curriculum:	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Creditpoints (ECTS)	10
Bewertungsmodus	Examination of completed module: wr. 90 min. or oral 30 min.
Modulverantwortlicher	Prof. Dr.-Ing. Franz Bergbauer
Zugangs- und empfohlene Voraussetzungen	---
Lernziele	<p>Students will be able to :</p> <ul style="list-style-type: none"> ○ Interpret mechanical substitution systems ○ Apply the method of sections ○ Establish the conditions of equilibrium and solve the resulting equation systems ○ Calculate internal pressures (stress resultants) of mechanical systems ○ Identify centres of gravity ○ Take into account the influence of friction ○ Ascertain stresses and deformations of mechanical substitution systems for the three main types of strain (tension/pressure, bending, torsion) as well as calculate elementary buckling loads (Euler) ○ Calculate equivalent stresses ○ Dimension elementary machine components ○ Understand the function of more complex machine components (limited dimensioning capability).

Lehrveranstaltung	W1104
Name	Technical Mechanics 1 (Statics)
Dozent	Prof. Dr.-Ing. F. Bergbauer
Zuordnung zum Modul	W-03 Technical Mechanics
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	1
Semesterwochenstunden	4
Creditpoints (ECTS)	5
Aufwand	150 hrs: lectures 60 hrs, Exercises 60 hrs (incl. 30 hrs as supervised practice exercises) Exam prep. 30 hrs
Prüfungsleistungen	See module
Endnotenbildung	See module
Sprache	German
Lehrform	Seminar tuition and practice
Medienform	Writing on board, exercises and supplementary lecture notes from PC-Network
Literatur	Gross/Hauger/Schröder/Wall, <i>Technische Mechanik 1</i> , Springer Verlag
Modulverantwortlicher	Prof. Dr.-Ing. F. Bergbauer
Vorkenntnisse	---
Inhalt	<ul style="list-style-type: none"> ○ Basic concepts ○ Forces with common weak point ○ General force systems and equilibrium of a rigid body ○ Centre of gravity ○ Bearing reactions ○ Frame structures ○ Internal forces of beams, frames, arches, Arbeit ○ Adhesion and friction

Lehrveranstaltung	W2103
Name	Technical Mechanics 2 (Strength of Materials)
Dozent	Prof. Dr.-Ing. T. Petersmeier
Zuordnung zum Modul	W-03 Technical Mechanics
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	2
Semesterwochenstunden	4
Creditpoints (ECTS)	5
Aufwand	150 hrs: Lectures 60 hrs, Exercises 60 hrs (incl. 30 hrs as supervised practice) Exam prep. 30 hrs
Prüfungsleistungen	See module
Endnotenbildung	See module
Sprache	German
Lehrform	Seminar tuition and practice
Medienform	Writing on board, exercises and supplementary lecture notes from PC-Network
Literatur	Gross/Hauger/Schröder/Wall, <i>Technische Mechanik 2</i> , Springer Verlag 9. Auflage Roloff/Matek, <i>Maschinenelemente</i> , Vieweg Verlag
Modulverantwortlicher	Prof. Dr.-Ing. F. Bergbauer
Vorkenntnisse	Technical Mechanics 1 (W1104) Mathematics for Engineers (W1101)
Inhalt	<ul style="list-style-type: none"> ○ Tension, pressure, and buckling in bars ○ Tension; equivalent stresses ○ Bending of beams ○ Torsion

Modul	W-04
Modulname	Marketing
Modulbausteine (LV)	W1105 Marketing
Zuordnung zum Curriculum:	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Creditpoints (ECTS)	5
Bewertungsmodus	Examination of completed module : Wr. 90 min. or oral 30min.
Modulverantwortlicher	Prof. Dr.-Ing. MBA Heinrich Bürstner
Zugangs- und empfohlene Voraussetzungen	---
Lernziele	<p>Professional marketing communication is gaining in importance as it becomes increasingly difficult for companies to establish themselves in their own particular sphere of a market with interchangeable products and extreme information overload.</p> <p>In this course students will learn to understand and apply the control lever of Marketing. They should grasp the concept of interplay between the instruments of the Marketing-Mix, understand the basic principles and methods of market research and learn about target-oriented use of those instruments which are available.</p> <p>Finally, they should be aware of the differences and peculiarities in the marketing of consumer goods and industrial goods.</p>

Lehrveranstaltung	W1105
Name	Marketing
Dozent	Prof. Dr.-Ing. MBA Heinrich Bürstner
Zuordnung zum Modul	W-04 Marketing
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	1
Semesterwochenstunden	4
Creditpoints (ECTS)	5
Aufwand	150 hrs; Attendance 60 hrs, Follow-up work/practice exercises 30 hrs, Private study 30 hrs, Exam prep.30hrs
Prüfungsleistungen	See module
Endnotenbildung	See module
Sprache	German
Lehrform	Seminar tuition / assignments
Medienform	Beamer, wring on board in combination with scripts, skrip
Literatur	Peter Kotler, Armstrong, Saunders, Wong, <i>Grundlagen des Marketing</i> , Prentice Hall Europe, München Pride, Ferrell, <i>Marketing – Basic Concepts and Decisions</i> , Houghton Mifflin Company, Boston Heribert Meffert, <i>Marketing – Grundlagen marktorientierter Unternehmensführung</i> , Gabler, Wiesbaden Backhaus, <i>Industriegütermarketing</i> , Vahlen, München Backhaus, Büschken, Weiber, <i>Industriegütermarketing – Übungsfälle</i> , Vahlen, München
Modulverantwortlicher	Prof. Dr.-Ing. MBA Heinrich Bürstner
Vorkenntnisse	---
Inhalt	In the end, every purchase is a matter of confidence between the customer and the producer. This confidence is supported through the measures involved in technical marketing. Using examples, the four basic principles of the marketing process (product, price, promotion, distribution) are explained. After that the peculiarities of industrial goods marketing are explained, with the four types of business – systems business, supplies business, investment business, product business. In this way the student learns to analyse and adequately apply the marketing processes and learns about the peculiarities of industrial marketing.

Module	W-05
Module name	Basic Principles of Business Administration
Module components (LV)	W1106 Basic Principles of Business Administration/Economics W2105 Basic Principles of Private Business Law
Curriculum classification:	Industrial Engineering (Bachelor)
Study focus	General
Credit points (ECTS)	9
Form of assessment	The overall grade of the module arises from the grades of the module components, weighted with the ECTS-points.
Modul supervisor	Dr. Jutta Hübscher
Entry requirements and recommendations	---
Learning objectives	<p>The student should recognise the significance of the business activity of the staff of a company and be able to analyse and assess business issues. This should enable the student to acquire the fundamental knowledge necessary for the perception of management tasks, so as to be in a position to make and implement entrepreneurial decisions appropriate to the situation whilst understanding business and economic connections.</p> <p>To help course participants discover the typical legal risks in a company and shows them possible concrete solutions. This module brings fundamental skills in the area of risk and compliance management and makes the students aware of the guidelines, regulations and standards which staff and companies must know about, observe and the compliance of which must be documented.</p> <p>Possible consequences for company of mistakes in this area and organisational measures to prevent these will be shown. The students will not be trained as lawyers with knowledge of specific cases, but primarily sensitized to the issues involved. Furthermore, the students should be able to recognize quickly in their professional lives, whether any legal problems arising can be solved within the company or require the intervention of lawyers.</p>

Lehrveranstaltung W1106	
Name	Basic Principles of Business Administration/Economics
Dozent	Dr. Jutta Hübscher
Zuordnung zum Modul	W-05 Business Administration
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	1
Semesterwochenstunden	4
Creditpoints (ECTS)	5
Aufwand	150hrs; Attendance: 60 hrs, Assignments 60 hrs, Exam prep. 30hrs
Prüfungsleistungen	Wr. 90 min. or oral 30 min.
Endnotenbildung	Examination 100 % or oral 100%
Sprache	German
Lehrform	Seminar tuition and practice/case studies
Medienform	Script, writing on board, OHP presentations
Literatur	Wöhe, Günter, <i>Einführung in die allgemeine Betriebswirtschaftslehre</i> , Vahlen Verlag, München, 2005 Steven, Marion, <i>BWL für Ingenieure</i> , Oldenbourg Verlag, München, 2006 Thommen, Jean-Paul, Achleitner, Ann-Kristin, <i>Allgemeine Betriebswirtschaftslehre Arbeitsbuch</i> , 5. Auflage, Gabler Verlag, Wiesbaden 2007 Mankiw, Nicholas Gregory, <i>Grundzüge der Volkswirtschaftslehre</i> , Schäffer-Poeschel, Stuttgart, 2008
Modulverantwortlicher	Dr. Jutta Hübscher
Vorkenntnisse	---
Inhalt	<ul style="list-style-type: none"> ○ Basic Principles of accounting and costing ○ Introduction to drawing up and analysing a balance sheet ○ Financing possibilities for companies ○ Legal forms ○ Basic principles of materials management and logistics ○ Introduction to market research and marketing ○ Basic concepts of human resource management and organisation ○ Overview of decision-making techniques ○ Micro- and macro-economic principles ○ The science of economics ○ Patterns of offers and demand behaviour of companies ○ Pricing in various market and competition circumstances

	<ul style="list-style-type: none">○ Agents, aims and means of economic policy○ Possibilities and limits of economic policy in the face of changing social and ecological challenges○ Internal and external causes and effects of macro-economic instability○ Insight into the significance of state revenue and expenditure, as well as public debt.○ Basic principles of foreign trade and monetary policy
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Lehrveranstaltung	W2105
Name	Basic Principles of Private Business Law
Dozenten	Prof. Dr. Josef Scherer/LB Andreas Mühlbauer/ LB RA Matthias Braun
Zuordnung zum Modul	W-05 Basic Principles of Business Administration
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	2
Semesterwochenstunden	4
Creditpoints (ECTS)	4
Aufwand	120hrs; Attendance: 60hrs, Private study/assignments 30hrs, Exam prep. 30hrs
Prüfungsleistungen	Wr. 90 min. or oral 30 min.
Endnotenbildung	Examination 100 % or oral 100%
Sprache	German
Lehrform	Seminar tuition and practice
Medienform	Powerpoint/Flipchart/Board
Literatur	Scherer/Mühlbauer/Unterwiener u. a. <i>Den Rücken frei: No risk, much fun !: Praxiswissen Risikomanagement und Compliancemanagement</i> , ISBN-Nr. 3-937520-10-4 Scherer/Friedrich u. a. <i>Wer den Schaden hat.... Band 1 + 2</i> , ISBN-Nr. 3-937520-00-7 bzw. 3-937520-01-5 Scherer/Friedrich u. a. <i>Verträge – Praxiswissen Vertragsmanagement</i> , ISBN-Nr. 3-937520-02-3
Modulverantwortlicher	Dr. Jutta Hübscher
Vorkenntnisse	---
Inhalt	<ul style="list-style-type: none"> ○ Individual areas of risk in business ○ Types of contract: purchasing contract, contract for services contract, contract for labour and materials, , service contract ○ Possible consequences of product defects ○ Overview of legal relationships and the most important claims in the delivery chain ○ The new legal position relating to liability for material defects ○ Quality assurance agreements ○ Product liability according to product liability law ○ Responsibility regarding of managers, department leaders, and other colleagues under criminal and civil law in cases of product liability. ○ Product liability insurance ○ Product liability (USA, within/outside the EU) ○ Main features of reform of law of obligation ○ Limits of freedom of contract

	<ul style="list-style-type: none">○ Terms and conditions – inclusion and judicial control according to new law○ Overview of general economic law (commercial and company law)○ Basic features of commercial law○ Insolvency
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Modul	W-06
Modulname	Accountancy
Modulbausteine (LV)	W1107 Balance sheets W2106 Taxation
Zuordnung zum Curriculum:	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Creditpoints (ECTS)	9
Bewertungsmodus	The overall grade of the module arises from the grades of the module components, weighted with the ECTS-points.
Modulverantwortlicher	Dr. Jutta Hübscher
Zugangs- und empfohlene Voraussetzungen	---
Lernziele	<ul style="list-style-type: none"> ○ Basic knowledge of accounting, balancing of accounts, and German tax laws. The students should be able to analyse and justify the financial situation of the company as represented in the balance sheets. Application-oriented knowledge of external accounting and knowledge of basic legal principles of commercial and tax laws thus form the basis of behaviour in accordance with the law. ○ In the “Accounting“ section, among other things, the basic rules of the German Commercial Code regarding accounting and the calculation of profit and loss will be examined more closely in association with the accounting law. Besides the peculiarities of the individual legal forms, the areas of disclosure and basic principles of the end of year analysis will be dealt with. ○ In addition, the section “Taxes“ deals with the basic rules of company taxation as well as selected specific details of the legal forms of tax law. An overview of the basic features of the law relating to income tax and VAT, as well as the fundamental differences between the taxation of private individuals and capital companies completes the lecture programme.

Lehrveranstaltung	W1107
Name	Accounting
Dozent	Ingrid Stockinger, Diplom-Finanzwirtin (FH)
Zuordnung zum Modul	W-06 Accounting
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	1
Semesterwochenstunden	4
Creditpoints (ECTS)	5
Aufwand	150hrs; Attendance 60 hrs, Private study/Assignments 60 hrs, Exam preparation 30hrs
Prüfungsleistungen	Wr. 90 min. or oral 30 min.
Endnotenbildung	Examination 100 % or oral 100%
Sprache	German
Lehrform	Seminar tuition and practice
Medienform	Presentations, OHP slides, board, script
Literatur	Legal texts Däumler, K.-D./Grabe J.: <i>Kostenrechnung 1, Grundlagen</i> , 9.Auflage 2003 Joos-Sachse Th., <i>Controlling, Kostenrechnung und Kostenmanagement</i> , 3.Auflage 2004 Meyer, <i>Bilanzierung nach Handels- und Steuerrecht</i> , 17.Aufl. 2006 Thiel / Lüdtker-Handjery, <i>Bilanzrecht</i> , 5.Auflage 2005
Modulverantwortlicher	Dr. Jutta Hübscher
Vorkenntnisse	---
Inhalt	<ul style="list-style-type: none"> ○ Duties and allocation of business accounting ○ Legal obligation to keep accounts according to commercial and tax law. ○ Principles of proper accounting ○ Accounts, transactions ○ Principles of the balance sheet ○ Principle that tax accounting should be based on commercial accounting ○ Calculation of profit and loss ○ Balance sheet analysis ○ Auditing duty, disclosure, and company accounting

Lehrveranstaltung	W2106
Name	Taxes
Dozent	Ingrid Stockinger, Diplom-Finanzwirtin (FH)
Zuordnung zum Modul	W-06 Accounting
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	2
Semesterwochenstunden	4
Creditpoints (ECTS)	4
Aufwand	120hrs; Attendance 60 hrs, Private study/assignments 30 hrs, Exam prep. 30hrs
Prüfungsleistungen	Wr. 90 min. or oral 30 min.
Endnotenbildung	Examination 100 % or oral 100%
Sprache	German
Lehrform	Seminar tuition and practice
Medienform	Presentation, OHP slides, board, script
Literatur	Herrler, Hans u.a., <i>Betriebliche Steuern, Band 2, Ertragsteuern</i> ; 2. Auflage, Schäffer-Poeschel Verlag, Stuttgart, 2006 Zenthöfer, Wolfgang, Leben, Gerd, <i>Körperschaftsteuer, Gewerbesteuer, Band 11</i> , Schäffer-Poeschel Verlag, Stuttgart, 2001
Modulverantwortlicher	Dr. Jutta Hübscher
Vorkenntnisse	W1107 Accounting
Inhalt	<ul style="list-style-type: none"> ○ Structure of income tax law ○ Essential terms of income tax law ○ Methods of determination of income ○ Consideration of loss in income tax law ○ Structure of company tax law ○ Determination of taxable income ○ Deductible and non-deductible and expenditure ○ Hidden profit distribution and deposits ○ Structure of trade tax law ○ Chargeable events of business tax law

Modul	W-07
Modulname	Physics
Modulbausteine (LV)	W2104 Physics 1 W3104 Physics 2 W3105 Physics Practical
Zuordnung zum Curriculum:	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Creditpoints (ECTS)	9
Bewertungsmodus	Examination of completed module : Wr. 90 min. or oral 30 min.
Modulverantwortlicher	Prof. Dr. rer. nat. Robert Geigenfeind
Zugangs- und empfohlene Voraussetzungen	No formal requirements, but basic principles of mathematics (Differential and Integral calculus) are recommended
Lernziele	<ul style="list-style-type: none"> ○ Insight into the importance of physics as a fundamental basis of engineering work ○ Ability to use formulae, equipment, and measurement results in the solving of physical tasks. ○ Skill in dealing with formulae when using the SI: physical values and units. ○ Understanding of mechanics (Kinematics, Dynamics of mass points), especially the mechanics of rigid and d deformable bodies ○ Understanding of thermodynamics, carrying out appropriate calculations and dimensioning of vibrations and waves, as well as optics

Lehrveranstaltung	W2104
Name	Physics 1
Dozent	Dr. Thomas Stirner
Zuordnung zum Modul	W-07 Physics
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	2
Semesterwochenstunden	4
Creditpoints (ECTS)	5
Aufwand	150hrs; Attendance 60rsh, Exercises/assignmentsn 60hrs, Exam prep 30hrs
Prüfungsleistungen	See module
Endnotenbildung	See module
Sprache	German
Lehrform	Seminar tuition and practice
Medienform	Board and OHP
Literatur	P. A. Tipler und G. Mosca, <i>Physik für Wissenschaftler und Ingenieure</i> , 2. Auflage (Elsevier, München, 2006) D. Mills et al., <i>Arbeitsbuch zu Tipler/Mosca</i> , 2. Auflage (Elsevier, München, 2005)
Modulverantwortlicher	Prof. Dr. rer. nat. Robert Geigenfeind
Vorkenntnisse	---
Inhalt	<ul style="list-style-type: none"> ○ Systems of units ○ Part1: Mechanics of one-dimensional motion, Motion in 2 and 3 dimensions, Newton's axioms, applications of Newton's axioms, work and energy, energy conservation, particle systems and the conservation of the linear impulse, rotations, the conservation of rotational i impulse, gravitation, fluids ○ Part 2: vibrations and waves, vibrations and propagation of waves, superposition of standing waves

Lehrveranstaltung	W3104
Name	Physics 2
Dozent	Prof. Dr.-Ing. Rudi Marek
Zuordnung zum Modul	W-07 Physics
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	3
Semesterwochenstunden	3
Creditpoints (ECTS)	3
Aufwand	90 hrs; Attendance 45hrs, Evaluations, reports/assignments 30hrs, Exam prep. 15hrs
Prüfungsleistungen	See module
Endnotenbildung	See module
Sprache	German
Lehrform	Seminar tuition and practice / testing
Medienform	Classroom teaching with blended e-Learning
Literatur	Marek R., Nitsche K.: <i>Praxis der Wärmeübertragung</i> , Carl Hanser Verlag, München, 2007, ISBN 978-3-446-40999-6 Krawitz R., Heimke W.: <i>Physik im Bauwesen</i> , Carl Hanser Verlag München, 2007, ISBN 978-3-446-40276-8 <i>Energieeinsparverordnung</i> in der gültigen Ausgabe Leute, Ulrich, <i>Physik und ihre Anwendungen in Technik und Umwelt</i> ; Hanser Fachbuchverlag; Auflage: 2., aktualis. A. (September 2004) ISBN-13: 978-3446228849 Walcher, <i>Praktikum der Physik</i> , Vieweg+Teubner; Auflage: 9. überarb. A. (August 2006) ISBN-13: 978-3835100466
Modulverantwortlicher	Prof. Dr. rer. nat. Robert Geigenfeind
Vorkenntnisse	Mathematics: differential and integral calculus of one and more variables ; Taylor and Fourier Series;
Inhalt	<ul style="list-style-type: none"> ○ Introduction and basic concepts (temperature, temperature scales, temperature fields, heat, heat flux, heat flux density) ○ Heat transport mechanism (conduction, convection, radiation) ○ General Fourier heat differential equation (initial and border conditions, solutions); simple mass and energy balances ○ Electric analogy (thermal resistance and conductance), series and parallel circuit) heat transfer and transmission; Heat transfer coefficients (U-values of single and multi-layer

	<p>homogeneous components; contact resistance; heat transfer in curved geometries</p> <ul style="list-style-type: none">○ Air layers; heat transfer coefficients in homogeneous components; heat transfer coefficients of windows and doors; thermal bridges○ Energy-saving heat insulation (heating periods balance process, yearly heating needs and yearly primary energy needs of buildings)○ Transient thermal conduction (standardisation, ideal agitated vessel, exact solution, approx. Solution for long periods)
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Lehrveranstaltung	W3105
Name	Physics Practical
Dozent	Prof. Dr. rer. nat. Robert Geigenfeind
Zuordnung zum Modul	W-07 Physics
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	3
Semesterwochenstunden	1
Creditpoints (ECTS)	1
Aufwand	30 hrsa; Attendance 15hrs, Evaluations/reports/assignments 10rsh, Exam prep. 5hrs
Prüfungsleistungen	See module
Endnotenbildung	Examination of completed module Successful completion of the practical is an admission requirement for entry to the examination
Sprache	German
Lehrform	Seminar tuition and practice /testing
Medienform	Classroom teaching with blended e-Learning
Literatur	Marek R., Nitsche K.: <i>Praxis der Wärmeübertragung</i> , Carl Hanser Verlag, München, 2007, ISBN 978-3-446-40999-6 Krawitz R., Heimke W.: <i>Physik im Bauwesen</i> , Carl Hanser Verlag München, 2007, ISBN 978-3-446-40276-8 <i>Energieeinsparverordnung</i> in der gültigen Ausgabe Leute, Ulrich, <i>Physik und ihre Anwendungen in Technik und Umwelt</i> , Hanser Fachbuchverlag; Auflage: 2., aktualis. A. (September 2004) ISBN-13: 978-3446228849 Walcher, <i>Praktikum der Physik</i> , Vieweg+Teubner; Auflage: 9. überarb. A. (August 2006) ISBN-13: 978-3835100466
Modulverantwortlicher	Prof. Dr. rer. nat. Robert Geigenfeind
Vorkenntnisse	Mathematics: differential and integral calculus of one and more variables; normal and. partial differential equations; Taylor- und Fourier series scalar und vector fields
Inhalt	Experiments in the field of mechanics: <ul style="list-style-type: none"> ○ Ballistic pendulum ○ Moment of inertia Experiments from the field of optics: <ul style="list-style-type: none"> ○ Optical equipment ○ Diffraction ○ Polarisation Experiments from the field of thermal dynamics

	<ul style="list-style-type: none">○ Gas laws○ Heat conduction○ Heat transfer and an experiment in surface tension
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Modul	W-08
Modulname	Technical English
Modulbausteine (LV)	W2107 Business English W3108 Technical English
Zuordnung zum Curriculum:	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Creditpoints (ECTS)	4
Bewertungsmodus	The overall grade of the module arises from the grades of the module components, weighted with the ECTS-points.
Modulverantwortlicher	Maria Schönauer
Zugangs- und empfohlene Voraussetzungen	English at equivalent level to (vocational) Abitur/baccalaureat corresponding to B1/B2 level of the Common European Framework (GER)
Lernziele	The course module aims to extend the general knowledge of English in technical and commercial areas, preparing the students for the demands of future professional life in a globalised world and giving them the opportunity to overcome their doubts and reservations about using a foreign language through active training. Through the inclusion of up-to-date reports and texts in class, the necessary vocabulary in both technical and commercial spheres will be reinforced and expanded. The future industrial engineers should thus be enabled to co-operate with international colleagues, communicate with each other and hold conversations on technical matters.

Lehrveranstaltung	W2107
Name	Business English
Dozent	Maria Schönauer
Zuordnung zum Modul	W-08 Technical English
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	2
Semesterwochenstunden	2
Creditpoints (ECTS)	2
Aufwand	60 hrs; Attendance 30hrs, Private study 15hrs, Exam prep. 15hrs
Prüfungsleistungen	Wr. 90 min. or oral 30 min.
Endnotenbildung	Examination 100 % or oral 100%
Sprache	English
Lehrform	Seminar tuition and practice
Medienform	Work with materials provided by the tutor, listening exercises, participation in group and pair work, presentations
Literatur	Böhler, Wilfried, Hinck, Michael, <i>Wirtschaftsenglisch</i> , Merkur-Verlag, Rinteln, 2003 Cullen, William, <i>B for Business</i> , München 2004 Cotton, David; Falvey, David, <i>Market Leader, Intermediate Business English</i> , Harlow 2000 <i>Current texts from newspapers and the internet</i> <i>Additional teaching materials</i> will be compiled by the tutor and made available at the beginning of the course.
Modulverantwortlicher	Maria Schönauer
Vorkenntnisse	Basic business knowledge, English at (vocational) Abitur/baccalauret level (B1/B2 of GER)
Lernziele	<ul style="list-style-type: none"> ○ Extension of vocabulary in general and business contexts ○ Ability to summarize business texts both verbally and in writing ○ Confident use of the written and spoken language
Inhalt	<ul style="list-style-type: none"> ○ dealing with complaints ○ online shopping ○ EU car manufacturers ○ GDP per capita ○ revision of tenses, passive ○ letter writing ○ Business and environment ○ cultural awareness ○ business organisations and company structure

Lehrveranstaltung	W3108
Name	Technical English
Dozent	Maria Schönauer
Zuordnung zum Modul	W-08 Technical Englisch
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	3
Semesterwochenstunden	2
Creditpoints (ECTS)	2
Aufwand	60hrs; Attendance 30hrs, Private study 15hrs, Exam prep. 15hrs
Prüfungsleistungen	Wr. 90 min. or oral 30 min.
Endnotenbildung	Examination 100 % or oral 100%
Sprache	English
Lehrform	Seminar tuition and practice
Medienform	Work with materials provided by the tutor, listening exercises, participation in group and pair work, presentations
Literatur	Bauer, Hans-Jürgen, Fairman, Danica, <i>English for technical purposes</i> , Cornelsen und Oxford Verlag, Berlin Büchel Wolfram, Borril, Mark, <i>Englisch für technische Berufe</i> , Klett Verlag, Stuttgart <i>Current texts from newspapers and the internet</i> <i>Additional teaching materials</i> will be compiled by the tutor and made available at the beginning of the course.
Modulverantwortlicher	Maria Schönauer
Vorkenntnisse	Basic technical knowledge; English at (vocational) Abitur/baccalaureat level (B1/B2 of GER)
Lernziele	<ul style="list-style-type: none"> ○ Extension of general and technical vocabulary ○ Ability to summarize texts verbally and in writing ○ Confident use of the written and spoken language
Inhalt	<ul style="list-style-type: none"> ○ Dealing with technical reading and listening texts ○ Short presentation in English ○ Grammar: Main focus- passive, further topics as required by students ○ Topic areas : materials and their properties, energy, job applications, alternators, bridges, HDTV

Modul	W-09
Modulname	Design and Material Engineering
Modulbausteine (LV)	W3101 Design W4101 Material Engineering
Zuordnung zum Curriculum:	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Creditpoints (ECTS)	9
Bewertungsmodus	The overall grade of the module arises from the grades of the module components, weighted with the ECTS-points.
Modulverantwortlicher	Prof. Dr.-Ing Rudolf Strohmayer
Zugangs- und empfohlene Voraussetzungen	---
Lernziele	<p>Students are taught how to sketch machine components and represent them spatially in a technical drawing according to standard practice, as well as executing components with regard to functional and technical-commercial aspects.</p> <p>The module should also give students a detailed overview of the principles of materials science. This will first involve closer study of topics such as material categories, states and properties. Finally the students should gain more advanced knowledge of the processing and testing of plastics.</p>

Lehrveranstaltung	W3101
Name	Design Engineering
Dozent	Prof. Dr.-Ing. Rudolf Strohmayer
Zuordnung zum Modul	W-09 Design and Material Engineering
Zuordnung zum Curriculum	Industrial Engineering
Studienschwerpunkt	General
Semester	3
Semesterwochenstunden	4
Creditpoints (ECTS)	4
Aufwand (Workload)	120rsh; Attendance 60hrs, Assignments 15 hrs, Performance record/exam prep.45 hrs
Prüfungsleistungen	Wr. 90 min. or mdl. 30 min.
Endnotenbildung	Klausur 100 % oder mdl.P. 100%
Sprache	German
Lehrform	Seminar tuition with integrated design exercises, assignments
Medienform	Writing on board /OHP/ Beamer
Literatur	Conrad, K. J.: <i>Grundlagen der Konstruktionslehre</i> , München: Hanser, 1998. Hoischen, H.: <i>Technisches Zeichnen</i> , Berlin: Cornelsen, 1998. Klein, P.: <i>Einführung in die DIN-Normen</i> , Berlin; Wien; Zürich: Beuth, 2001.
Modulverantwortlicher	Prof. Dr.-Ing. Rudolf Strohmayer
Vorkenntnisse	---
Inhalt	<ul style="list-style-type: none"> ○ Basic geometrical design ○ Orthogonal projection (stereo projection) ○ Axonometric projection / free-hand drawing ○ Standard dimensioning ○ Development of production documents ○ Bolted connections ○ Dimensional tolerances and fits ○ Form and positional tolerances ○ Surface finish ○ Standard numbers and standard series ○ Systematic arrangement of drawings

Lehrveranstaltung	W4101
Name	Material Engineering
Dozent	Prof. Dr.-Ing. Thomas Petersmeier
Zuordnung zum Modul	W-09 Design and Material Engineering
Zuordnung zum Curriculum	Industrial Engineering(Bachelor)
Studienschwerpunkt	General
Semester	4
Semesterwochenstunden	4
Creditpoints (ECTS)	5
Aufwand	150hrs; Attendance 60hrs, Assignments 40hrs, Exam prep. 50hrs
Prüfungsleistungen	Wr. 90 min. or oral30 min.
Endnotenbildung	Examination 100 % or oral 100%
Sprache	German
Lehrform	Seminar tuition
Medienform	Board, OHP, Beamer
Literatur	W. Bergmann <i>Werkstofftechnik Teil 1 und Teil 2</i> ; Bargel Schulze <i>Werkstoffkunde</i> , Schatt Worch <i>Werkstoffwissenschaft</i> , H. Berns <i>Stahlkunde für Ingenieure</i>
Modulverantwortlicher	Prof. Dr.-Ing. Rudolf Strohmayer
Vorkenntnisse	---
Inhalt	Classification of materials, crystalline state, elastic and plastic behaviour of metals, thermally activated processes, phase transitions, alloy formation, equilibrium diagrams, the iron carbon system, heat treatment of steels, hardenings, mechanically destructive testing procedures, abbr. designation of iron-steel materials

Modul	W-10
Modulname	Electrical Engineering
Modulbausteine (LV)	W3102 Basic Principles of Electrical Engineering W4102 Measurement and Control Engineering
Zuordnung zum Curriculum:	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Creditpoints (ECTS)	10
Bewertungsmodus	The overall grade of the module arises from the grades of the module components, weighted with the ECTS-points.
Modulverantwortlicher	Prof. Dr.-Ing. Peter Firsching
Zugangs- und empfohlene Voraussetzungen	No requirements but recommended: Physical and mathematical knowledge at Abitur/baccalaureat level.
Lernziele	<ul style="list-style-type: none"> ○ Knowledge and understanding of basic physical and mathematical principles of electrical engineering ○ Application of simple principles of measurement and control technology to problems in practice ○ Ability to apply the acquired knowledge to specific technical problems.

Lehrveranstaltung	W3102
Name	Basic Principles of Electrical Engineering
Dozent	Prof. Dr.-Ing. P. Firsching
Zuordnung zum Modul	W-10 Electrical Engineering
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	3
Semesterwochenstunden	4
Creditpoints (ECTS)	5
Aufwand	150hrs: Attendance 60 hrs, Private study/assignments 45rsh, Exam prep.45rs
Prüfungsleistungen	Wr. 90 min. or oral 30 min.
Endnotenbildung	Examination 100 % or oral 100%
Sprache	German
Lehrform	Seminar tuition and practice
Medienform	Script, writing on board
Literatur	Frohne, Löcherer, Müller: Moeller, <i>Grundlagen der Elektrotechnik</i> . Teubner-Verlag, 19. Auflage Bernstein H.: <i>Elektrotechnik / Elektronik für Maschinenbauer – Grundlagen und Anwendungen</i> . Vieweg-Verlag, 2004. Merz H.: <i>Elektrische Maschinen und Antriebe</i> . VDE-Verlag, 2001.
Modulverantwortlicher	Prof. Dr.-Ing. Peter Firsching
Vorkenntnisse	Basic knowledge of physics and mathematics
Lernziele	Basic principles of electrical engineering <ul style="list-style-type: none"> ○ Knowledge and understanding of the laws of physics and the mathematical calculation processes underpinning electrical engineering ○ Ability to apply electrical engineering knowledge to technical problems.
Inhalt	Basic principles of electrical engineering <ol style="list-style-type: none"> 1. Electrical base items <ul style="list-style-type: none"> ○ Electric charges and electrical circuit ○ Current density ○ Current types ○ Electric potential ○ Ohms Law ○ Work and power 2. The DC circuit <ul style="list-style-type: none"> ○ Counting arrow system ○ Passive two-terminal networks ○ Aktive two-terminal networks ○ Two-terminal networks

	<ul style="list-style-type: none">○ Ideal sources○ Real linear sources○ Ascertaining operating point○ Power adjustment3. Calculation of DCD circuits<ul style="list-style-type: none">○ The KIRCHHOFF laws○ Series- and parallel circuits of resistance○ Measurement of electric current and voltage○ Networks with one source○ Superposition theorem○ Alternative sources○ Star/triangle conversion4. Basic concepts of alternating current technology<ul style="list-style-type: none">○ Periodic Zeitfunktionen○ Sinusl values○ Complex alternating current calculation○ Operating ideal passive two-terminal networks with sinus values○ Sinusoidal current networks
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Lehrveranstaltung	W4102
Name	Measurement and Control Engineering
Dozent	Prof. Dr. Roswitha Giedl-Wagner Prof. Dr.-Ing. Klaus Nitsche
Zuordnung zum Modul	W-10 Electrical Engineering
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	general
Semester	4
Semesterwochenstunden	4
Creditpoints (ECTS)	5
Aufwand	150hrs: Attendancet 60hrs, Assignments 60hrs, Exam prep. 30hrs
Prüfungsleistungen	Wr. 90 min. or oral 30 min.
Endnotenbildung	Examiantion 100 % or oral 100%
Sprache	German
Lehrform	VorlesuLectures and exercises
Medienform	Presentation with Beamer, writing on board
Literatur	Parthier, R.: <i>Messtechnik</i> , Vieweg-Verlag; Unbehauen, H.: <i>Regelungstechnik I</i> , Vieweg-Verlag
Modulverantwortlicher	Prof. Dr.-Ing. Peter Firsching
Vorkenntnisse	Differential and integral calculus
Inhalt	<p>Measurement engineering:</p> <ul style="list-style-type: none"> ○ Measuring: Measurements, system of units ○ Measuring signals: classification and conversion, characterisation ○ Measuring methods: deflection, difference method, compensation ○ Measuring equipment : basic structure, static and dynamic parameters ○ Evaluation of measuring results: deviations, Error propagation of systematic and random deviations; types of error ○ Measurement of electrical values: current, voltage, power, resistance, condensers, coils, time, frequency ○ Measurement of non-electrical values: measuring chain, sensors for measurement of geometry, power, vibration, temperature, and flow; co-ordinate measuring technology ○ Automatised measuring systems <p>Control technology</p> <ul style="list-style-type: none"> ○ Examples of controlled systems, modelling ○ Loops and loop sizes ○ DGLen, System of DGL 1. order, time domain ○ Laplace-transformation

	<ul style="list-style-type: none">○ Standard transmission members○ Bode and Nyquist diagrams○ Stability according to Hurwitz○ Behaviour of continuous linear control systems
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Modul	W-11
Modulname	Energy Management +
Modulbausteine (LV)	W3103 Fluid Technology and Power Engineering W4103 Regenerative Energies and Material Technology
Zuordnung zum Curriculum:	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Creditpoints (ECTS)	9
Bewertungsmodus	The overall grade of the module arises from the grades of the module components, weighted with the ECTS-points.
Modulverantwortlicher	Prof. Dr.-Ing. K. Nitsche, M.Sc.
Zugangs- und empfohlene Voraussetzungen	Functions of several variables, differential and integral calculus
Lernziele	<ul style="list-style-type: none"> ○ Students should learn the basic principles of flow mechanics, thermal dynamics, heat transfer, and thus gain an understanding of the transport processes of mass, impulse and energy in machines which take place in machines, technical installations, and in nature. The students should be able to reproduce technical installations as abstract systems and to balance mass and energy within the appropriate system limits. At the same time analytical problem-solving competences should be learned. ○ An overview of regenerative energies and the use of alternative raw materials should complete the lectures within the framework of the module "Energy Management" and sensitize the students to topics in environmental politics in preparation for their future professional lives.

Lehrveranstaltung	W3103
Name	Fluid Technology and Power Engineering
Dozent	Prof. Dr.-Ing. Klaus Nitsche, M.Sc., N.N.
Zuordnung zum Modul	W-11 Energy Management
Zuordnung zum Curriculum	Industrial Engineering Bachelor)
Studienschwerpunkt	General
Semester	3
Semesterwochenstunden	4
Creditpoints (ECTS)	5
Aufwand	150hrs: Attendance 60hrs, Assignments 60hrs Exam prep.30hrs
Prüfungsleistungen	Wr. 90 min. or oral 30 min.
Endnotenbildung	Examination 100 % or oral 100%
Sprache	German
Lehrform	Seminar tuition with integrated practice, assignments
Medienform	Presentation, writing on board supplementary materials
Literatur	Langeheinecke, K., Jany, P., Thieleke, G., <i>"Thermodynamik für Ingenieure"</i> , Vieweg+Teubner-Verlag Böswirth, Leopold, <i>"Technische Strömungslehre"</i> , ViewegVerlag R. Marek, K. Nitsche: <i>Praxis d. Wärmeübertragung</i> , Hanser Verlag, 2007, ISBN: 978-3-446-40999-6
Modulverantwortlicher	Prof. Dr.-Ing. K. Nitsche, M.Sc.
Vorkenntnisse	Functions of two variables, differential and integral calculus
Inhalt	<ul style="list-style-type: none"> ○ Real, ideal behaviour of materials ○ Balance of mass and energy, first fundamental theorem ○ Thermodynamic cycles ○ Hydrostatics ○ Bernoulli equation ○ Stationary tube flow with loss of pressure ○ Principles of linear and singular momentum ○ Boundary layer, (fluid) flow, resistance ○ Overview of heat transfer mechanisms <ul style="list-style-type: none"> - Basic principles of heat conduction - free and forced convection - transient energy balances

Lehrveranstaltung	W4103
Name	Regenerative Energis and Material Technology
Dozent	Prof. Dr. rer. nat. Robert Geigenfeind
Zuordnung zum Modul	W-11 Energy Management
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	4
Semesterwochenstunden	4
Creditpoints (ECTS)	4
Aufwand	120hrs; Attendance 60hrs, Private study 30hrs, Exam prep.30hrs
Prüfungsleistungen	Wr. 90 min. or oral 30 min.
Endnotenbildung	Examination 100 % or oral 100%
Sprache	German
Lehrform	Seminar tuition and practice
Medienform	Presentation , OHP slides, board, script
Literatur	Script
Modulverantwortlicher	Prof. Dr.-Ing. K. Nitsche, M.Sc.
Vorkenntnisse	---
Inhalt	Familiarity with all forms of renewable energies. Knowledge of recycling methods; capacity to develop disposal strategies Use of renewable energy sources; water power, hydro-electric power stations, and storage power stations; tidal power stations; solar power: thermal solar power stations, photovoltaic energy conversion; wind power: operation of wind farms, solar chimney power stations; use of geo-thermal energy; energy supply in the near future and future perspectives. Process-optimised technology of recycling; material balance; energy balance; disposal systems; laws and guidelines of conservation; managing the environment

Modul	W-12
Modulname	Investment and Finance
Modulbausteine (LV)	W3106 Financing W3107 Capital Expenditure Budgeting and Technical Controlling
Zuordnung zum Curriculum:	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Creditpoints (ECTS)	10
Bewertungsmodus	The overall grade of the module arises from the grades of the module components, weighted with the ECTS-points.
Modulverantwortlicher	Prof. Dr.-Ing. Rolf Rascher
Zugangs- und empfohlene Voraussetzungen	Attendance at lectures for Module W-05 Basic Principles of Business Administration
Lernziele	Based upon the fundamental principles of business administration, in this module the basic principles of investment and financing in company management will be discussed from the point of view of controlling. The processes and dependencies arising in the course of these should be recognized and understood by the students. The necessary tools for financing, investment, and the controlling of these should be taught, together with their mode of application and use.

Lehrveranstaltung	W3106
Name	Financing
Dozent	Prof. Dr. Hans Paul Bisani, Dr. Jutta Hübscher
Zuordnung zum Modul	W-12 Investment and Finance
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	3
Semesterwochenstunden	4
Creditpoints (ECTS)	5
Aufwand	150rsh; Attendance 60hrs, Private study 60hrs, Exam prep.30hrs
Prüfungsleistungen	Wr. 90 min. or oral 30 min.
Endnotenbildung	Examination 100 % or oral 100%
Sprache	German
Lehrform	Seminar tuition, case studies, business planning game on PC
Medienform	Script, presentations, board, simulation
Literatur	Olfert, Klaus, <i>Kompakt-Training Finanzierung</i> , Kiehl Verlag, Ludwigshafen, 2005 Bisani, Hans Paul, <i>Entwicklung der Kreditpreise unter Einfluss von Basel II</i> , in: Übelhör/Warns (Hrsg.), <i>Basel II</i> , PD-Verlag, Heidenau, 2004
Modulverantwortlicher	Prof. Dr.-Ing. Rolf Rascher
Vorkenntnisse	Basic Principles of Business Administration and Economics (W1106)
Inhalt	<ul style="list-style-type: none"> ○ Simple interest calculations, compound interest calculations; calculation of interest rates and calculations of repayment and returns; ○ Basic concepts, aims and instruments of finance. Liquidity, capital requirements, financial equilibrium, organisation of the appropriate finance, payments, instruments of financial management (financial key figures, financial plan, controls) ○ Knowledge of forms and sources of capital ○ Types of financing (esp. sales and investment financing), relevant financial markets, alternative forms of finance (Leasing, Factoring), credit discussion, , preparation for credit rating , credit assurance ○ Overview of the possibilities and restrictions of finance management with regard to various time horizons ○ Basic principles of financial planning, balance analysis, finance analysis, rules of finance, significance of financial products within the context of risk management

Lehrveranstaltung	W3107
Name	Capital Expenditure Budgeting and Technical Controlling
Dozent	Prof. Dr.-Ing. Rolf Rascher
Zuordnung zum Modul	W-12 Investment and Finance
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	3
Semesterwochenstunden	4
Creditpoints (ECTS)	5
Aufwand	150hrs; Attendance 60hrs, Preparation and follow-up/ dealing with case studies 60hrs, Exam prep. 30hrs
Prüfungsleistungen	Wr. 90 min. or oral 30 min.
Endnotenbildung	Examination 100 % or oral 100%
Sprache	German
Lehrform	Seminar tuition and practice
Medienform	Lecture with visuals
Literatur	Script
Modulverantwortlicher	Prof. Dr.-Ing. Rolf Rascher
Vorkenntnisse	W1106 Basic Principles of Business Admin/Economics
Inhl	<p>Modern business enterprises must be able to reach each business decisions fast, efficiently and comprehensibly, in order to withstand competition.</p> <ul style="list-style-type: none"> ○ Familiarity with the methods of capital expenditure budgeting as an aspect of business accounting and part of the information and controlling system is an essential precondition for successful cooperation as an industrial engineer. ○ In addition to the basic principles of costing, the processes in general use today of static and dynamic capital expenditure budgeting will be discussed and taught with the use of examples. . The decisions, such as investment, Make or Buy will be demonstrated, deriving from the application of these processes. ○ Amongst other things, key figure systems, product and customer analyses and the collaboration of the controlling department are an essential part of business planning. ○ Case studies will be discussed and worked on by students as extension and reinforcement exercises

Modul	W-13
Modulname	Optional Module
Modulbausteine	W5105 General Scientific Compulsory Option W4104 Specialised Scientific Compulsory Option
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Creditpoints (ECTS)	6
Bewertungsmodus	The overall grade of the module arises from the grades of the module components, weighted with the ECTS-points.
Modulverantwortlicher	Dr. Jutta Hübscher
Zugangs- und empfohlene Voraussetzungen	---
Lernziele	<ul style="list-style-type: none"> ○ Acquisition of interdisciplinary competences ○ Achievement of key qualifications ○ Insight into topics, methodologies, ways of thinking from currently related subjects or specialisms ○ Ability to evaluate interdisciplinary topics and their applications

Lehrveranstaltung	W5105
Name	General Scientific Compulsory Option
Dozent	Various tutors
Zuordnung zum Modul	W-13 Optional module
Zuordnung zum Curriculum	Industrial Engineer (Bachelor)
Studienschwerpunkt	General
Semester	5
Semesterwochenstunden	2
Creditpoints (ECTS)	2
Aufwand	60hrs: 30hrs attendance, 15hrs assignments 15hrs Exam prep.
Prüfungsleistungen	Wr. 90 min. or oral 30 min.
Endnotenbildung	Examiantion 100 % or oral 100%
Sprache	German
Lehrform	Lectures with integrated practice, assignments,
Medienform	Writing on board in combination with script
Literatur	To be announced in the lectures
Modulverantwortlicher	Dr. Jutta Hübscher
Inhalt	<ul style="list-style-type: none"> ○ Insight into methodologies, and ways of thinking in general scientific subject areas ○ Achievement of key competences, such as team skills, languages etc. ○ Ability to evaluate interdisciplinary topics and their applications. ○ Acquisition of intercultural, social competences

Lehrveranstaltung	W4104
Name	Specialised Scientific Compulsory Option
Dozent	Various tutors
Zuordnung zum Modul	W-13 Optional module
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	4
Semesterwochenstunden	4
Creditpoints (ECTS)	4
Aufwand	120hrs: 60 hrs attendance, 30 hrs assignments 30 hrs Exam prep.
Prüfungsleistungen	Wr. 90 min. or oral 30 min.
Endnotenbildung	Examination 100 % or oral 100%
Sprache	German
Lehrform	Lectures with integrated examples and exercises, Assignments
Medienform	Writing on board in combination with script
Literatur	Will be announced in the lectures
Modulverantwortlicher	Dr. Jutta Hübscher
Inhalt	<ul style="list-style-type: none"> ○ Insight into topics, methodologies, and ways of thinking in course-related subject areas ○ Insight into current problems and developments in course-related subject areas

Modul	W-14
Modulname	Strategic Management
Modulbausteine (LV)	W4105 Innovation Management W5106 Business Succession and Business Simulation
Zuordnung zum Curriculum:	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Creditpoints (ECTS)	10
Bewertungsmodus	Examination of completed module.: Wr. 90 min. or oral. 30 min.
Modulverantwortlicher	Dr. Jutta Hübscher
Zugangs- und empfohlene Voraussetzungen	Module W-06 Accounting Module W-12 Investment and Finance
Lernziele	Understanding of the theoretical principles of Strategic Management. Application of the tools of analysis and management in business theory and Praxis. Training in entrepreneurial thinking and dealing. Clarification of business connections and areas of strategic decision through practical application of course content in a business planning game. Detailed representation and visualisation of the process of strategic decision-making using the example "Business Succession" Teaching of basic principles of innovation management and Business Development. The student will understand the importance of continuous and structured active business development and being able to choose and apply adequate management tools in professional practice. Through the teaching of the fundamental elements of innovation management, the student should be in a position to analyse the innovation process in a company, recognize the opportunities and risks of innovations and be able to actively organise the innovation management of a company.

Lehrveranstaltung	W4105
Name	Innovation Management
Dozent	Dr. Jutta Hübscher
Zuordnung zum Modul	W-14 Strategic Management
Zuordnung zum Curriculum	Business Engineering (Bachelor)
Studienschwerpunkt	General
Semester	4
Semesterwochenstunden	4
Creditpoints (ECTS)	5
Aufwand	150hrs; Attendance 60hrs, Private study 60hrs, Exam prep. 30hrs
Prüfungsleistungen	See Module
Endnotenbildung	See Module
Sprache	German
Lehrform	Seminar tuition and practice
Medienform	Presentations, OHP slides, board, script
Literatur Areas of decision	Brockhoff, Klaus, <i>Management von Informationen</i> , Gabler Verlag, Wiesbaden, 1995 Strebel, Heinz, Gelbmann, Ulrike, <i>Innovations- und Technologiemanagement</i> , Facultas-Verlag, Wien, 2007 Glazinski, Bernd, <i>Strategische Unternehmensentwicklung</i> , Gabler Verlag, Wiesbaden, 2004 Wittmann, Robert, <i>Innovation erfolgreich steuern</i> , Verlag Redline Wirtschaft, Heidelberg, 2006
Modulverantwortlicher	Dr. Jutta Hübscher
Vorkenntnisse	---
Inhalt	<ul style="list-style-type: none"> o Basic concepts and duty of innovation managements o Dimensions of innovations o Innovation process o Innovation-strategic areas of decision evaluation of opportunity o Introductoin to Business Development o Basic Principles of technology management o Industrial property rights o Growth and sustainability management o Business models and business plans o Evaluation processes and investment calculation o Business development through corporate venture

Lehrveranstaltung	W5106
Name	Business Succession and Business Simulation
Dozent	Dr. Jutta Hübscher
Zuordnung zum Modul	W-14 Strategic Management
Zuordnung zum Curriculum	Industrial Engineering(Bachelor)
Studienschwerpunkt	General
Semester	5
Semesterwochenstunden	4
Creditpoints (ECTS)	5
Aufwand	150hrs; Attendance60hrs, Private study /evaluation 60hrs, Exam prep. 30hrs
Prüfungsleistungen	Siehe Module
Endnotenbildung	See Module
Sprache	German
Lehrform	Seminar tuition and practice
Medienform	Presentations, OHP slides, board, script, simulation
Literatur	Hering, Thomas, Olbrich, Michael, <i>Unternehmensnachfolge</i> , Oldenbourg Verlag, München, 2003 Sobanski, Holger, <i>Erfolgreiche Unternehmensnachfolge</i> , Gabler Verlag, Wiesbaden, 1998 Felden, Birgit, Pfannenschwarz, Armin, <i>Unternehmensnachfolge</i> , Oldenbourg, München 2008
Modulverantwortlicher	Dr. Jutta Hübscher
Vorkenntnisse	---
Inhalt	<ul style="list-style-type: none"> ○ Basic principles of business succession (significance of small and medium-sized businesses in Germany, perspectives for business succession) ○ The transfer of business (Description of business, choice of successor, role of family members/transferors) ○ Taking over a business (Choice of a suitable business, business plan, company culture, acceptance of successor in the company, promotion opportunities, and financing) ○ The handover process (succession processes, value of the company, forms of business handover, problems and conflicts, communication and co-operation with business partners) ○ Will and inheritance, taxes and succession, aspects of corporate law ○ Virtual business start-up on PC and presentation of business success

Modul	W-15
Modulname	Operational Quality and Optimisation
Modulbausteine (LV)	W4106 Quality Management W4107 Statistics W5107 Operations Research
Zuordnung zum Curriculum:	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Creditpoints (ECTS)	10
Bewertungsmodus	Examination of completed module. Wr. 90 min. or oral 30 min.
Modulverantwortlicher	Prof. Dr.-Ing. Heinrich Bürstner
Lernziele	<p>Students should learn to understand the functional connections of managing and steering an industrial business through the methods of quality management. Students will also acquire basic knowledge of descriptive and evaluative statistics and will be introduced to the relevant applications by means of (practice) examples.</p> <p>Using examples, key topic areas of Operations Research will be introduced together with the basic mathematical optimisation processes for dealing with these problems.</p>

Lehrveranstaltung	W4106
Name	Quality Management
Dozent	Prof. Dr.-Ing. Heinrich Bürstner
Zuordnung zum Modul	W-15 Operational Quality and Optimisation
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	4
Semesterwochenstunden	4
Creditpoints (ECTS)	5
Aufwand	150hrs: Attendance 60hrs, Follow-up and practice tasks exercise/private study 60hrs, Exam prep. 30hrs
Prüfungsleistungen	See Module
Endnotenbildung	See Module
Sprache	German
Lehrform	Seminar tuition / assignments
Medienform	Beamer, writing on board in combination with script
Literatur	Gerhard Linß, <i>Qualitätsmanagement für Ingenieure</i> , Hanser, München-Wien Pfeifer, <i>Praxisbuch Qualitätsmanagement</i> , Hanser, München-Wien Mathieu Weggemann, <i>Wissensmanagement</i> , mitp- Verlag, Landsberg
Modulverantwortlicher	Prof. Dr.-Ing. Heinrich Bürstner
Vorkenntnisse	---
Inhalt	<ul style="list-style-type: none"> ○ Process-oriented quality management. ○ ISO 9000 ff. ○ Set-up and introduction of a quality management system. ○ Methods and tools of quality planning. ○ Total Quality Management.

Lehrveranstaltung	W4107
Name	Statistics
Dozent	Prof. Dr. rer. nat. Stefan Schulte
Zuordnung zum Modul	W-15 Operational Quality and Optimisation
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	4
Semesterwochenstunden	2
Creditpoints (ECTS)	2
Aufwand	60hrs: Attendance 30hrs, Assignments 15hrs, Exam prep. 15hrs
Prüfungsleistungen	See Module
Endnotenbildung	See Module
Sprache	German
Lehrform	Lectures with integrated exercises, assignments
Medienform	Writing on board
Literatur	Statistics
Modulverantwortlicher	Prof. Dr. rer. nat. Stefan Schulte
Vorkenntnisse	Mathematics for Engineers, applied mathematics
Inhalt	<ul style="list-style-type: none"> ○ Introduction/Overview ○ Descriptive statistics ○ Basic concepts of probability calculation ○ Evaluative statistics

Lehrveranstaltung	W5107
Name	Operations Research
Dozent	Prof. Dr. rer. nat. Stefan Schulte
Zuordnung zum Modul	W-15 Operational Quality and Optimisatoin
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	5
Semesterwochenstunden	2
Creditpoints (ECTS)	3
Aufwand	90hrs: Attendance 30h rs Assignments 30hrs, Exam prep. 30hrs
Prüfungsleistungen	See Module
Endnotenbildung	See Module
Sprache	German
Lehrform	Lectures with integrated exercises, assignments
Medienform	Writing on board
Literatur	Script
Modulverantwortlicher	Prof. Dr. rer. nat. Stefan Schulte
Vorkenntnisse	Mathematics for engineers, applied mathematics
Inhalt	<ul style="list-style-type: none"> ○ Introduction/Overview ○ Linear optimisation ○ Special linear optimisation problems ○ Quadratic optimisation ○ Non-linear ptimisation ○ Observations on further topics and processes of optimisation

Modul	W-16
Modulname	Plastics Technology and Production Engineering
Modulbausteine (LV)	W5101 Plastics Technology W5102 Production Engineering
Zuordnung zum Curriculum:	Industrial Engineering
Studienschwerpunkt	General
Creditpoints (ECTS)	10
Bewertungsmodus	The overall grade of the module arises from the grades of the module components, weighted with the ECTS-points.
Modulverantwortlicher	Prof. Dr. Martin Aust
Zugangs- und empfohlene Voraussetzungen	---
Lernziele	<p>The module Production Engineering should provide the students with the basis knowledge of modern-day production methods and plastics. The lectures are planned as foundation lectures, so that the future industrial engineers may understand and evaluate the significance of modern production as well as possible difficulties involving the use and design of production installations.</p> <p>With the knowledge gained in the Module Production Engineering, the industrial engineer should be able to work in the planning and design of production facilities at the interface of technology and business efficiency, combining both spheres with competence and specialised technical knowledge.</p>

Lehrveranstaltung	W5101
Name	Plastics Technology
Dozent	Prof. Dr. Martin Aust
Zuordnung zum Modul	W-16 Plastics Technology and Production Engineering
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	5
Semesterwochenstunden	4
Creditpoints (ECTS)	5
Aufwand	150hrs: Attendance 60hrs, Assignments 50hrs Exam prep. 40hrs
Prüfungsleistungen	Wr. 90 min. or oral 30 min.
Endnotenbildung	Examination 100 % or oral 100%
Sprache	German
Lehrform	Seminar tuition
Medienform	Board, OHP, Beamer
Literatur	O.Schwarz, F.-W. Ebeling, B. Furth: <i>Kunststoffverarbeitung</i> , Vogel, 8. Aufl., 1999 O. Schwarz: <i>Kunststoffkunde</i> , Vogel, 6. Aufl., 2000 W. Michaeli: <i>Einführung in die Kunststoffverarbeitung</i> , Hanser, 4. Aufl., 1999 H-G. Elias: <i>Makromoleküle, Band 1+2</i> , Wiley-VCH, 6. Aufl., 1999
Modulverantwortlicher	Prof. Dr. Martin Aust
Vorkenntnisse	Structure of Materials and covalent bonding concepts e in molecules
Inhalt	<ul style="list-style-type: none"> ○ Knowledge of the most important types of plastic and their uses. ○ Overview of manufacturing and production. Overview of structure: macromolecular structure: macromolecules, bonding powers, chain structure, effect of additives. ○ Knowledge of characteristic properties and areas of use: mechanical, thermal, electric, optic, chemical properties and the testing of them. ○ Overview of production processes : polymerisation, poly-condensation, poly-addition. ○ Basic principles of plastics manufacture, eg injection moulding, extrusion, thermoforming, joining techniques. ○ Capability to select the most suitable manufacturing process on the basis of selected examples.

Lehrveranstaltung	W5102
Name	Production Engineering
Dozent	Prof. Dr.-Ing. Rolf Rascher
Zuordnung zum Modul	W-16 Plastics Technology and Production Engineering
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	5
Semesterwochenstunden	4
Creditpoints (ECTS)	5
Aufwand	150hrs; Attendance 60hrs, Private study 60hrs, Exam prep. 30hrs
Prüfungsleistungen	Wr. 90 min. or oral 30 min.
Endnotenbildung	Examination 100 % or oral 100%
Sprache	German
Lehrform	Seminar tuition and practice
Medienform	Lecture with visuals
Literatur	Script
Modulverantwortlicher	Prof. Dr. Martin Aust
Vorkenntnisse	---
Inhalt	<p>The lectures on production engineering are divided into machined and chipless processes. The lectures should provide knowledge about the technology and application of modern processes of chipless production technology. In each case the fundamentals of the production and calculation process and its peculiarities are discussed. With the acquired knowledge of the process-related production technology, students should achieve the capability to select a production process according to business conditions and for the execution of the work plan. Chipless processes have special significance in the manufacture of simple and complex components in large quantities. Emphasis is on the moulding processes and selected processes from metal and mass moulding. Machined production technology includes, among other things, the fundamental processes of turning, boring, milling and grinding, as well as methods of calculation of occurring forces and required performance. Special attention is paid in each case to the possible applications and their limitations in respect of precision and technology. Tools and materials for tools are discussed. Calculation exercises are worked out, using examples from practice.</p>

Modul	W-17
Modulname	Management
Modulbausteine (LV)	W5103 Techniques in Management- and Decision-making W5104 Personnel Management and Labour Law
Zuordnung zum Curriculum:	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Creditpoints (ECTS)	10
Bewertungsmodus	Examination of completed module: schr. 90min. oder mdl. 30min.
Modulverantwortlicher	Dr. Jutta Hübscher
Zugangs- und empfohlene Voraussetzungen	Module W-06 Accounting Module W-12 Investment and Finance
Lernziele	<p>Paramount importance in managing a company is given to correct decision-making and the avoidance of making wrong decisions as far as possible. The aim of this module is therefore to provide the student with the necessary knowledge to analyse concrete structures and processes in a company and its environment, and on this basis to make robust business decisions in an integrated process..</p> <p>Besides knowledge of selected management and decision techniques, in-depth knowledge of management and dealings with colleagues is also essential for this, as well as the legal framework conditions. To this end, the participants should get to know the modern instruments of personnel management and concrete application possibilities for later professional life. Furthermore, they should be given the relevant knowledge of labour law, as necessary for correct dealings with their colleagues and superiors.</p>

Lehrveranstaltung	W5103
Name	Techniques of Management and Decision-making
Dozent	Prof. Dr.-Ing. Heinrich Bürstner
Zuordnung zum Modul	W-17 Management
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	5
Semesterwochenstunden	4
Creditpoints (ECTS)	5
Aufwand	150 hrs: Attendance 60 hrs, follow-up/exercises/assignments 60hrs, exam prep. 30hrs
Prüfungsleistungen	See Module
Endnotenbildung	See Module
Sprache	German
Lehrform	Seminar tuition / assignments
Medienform	PC, Beamer in combination with script
Literatur	Harvard Business School: <i>Decision Making – 5 Steps to Better Results</i> , Harvard Business School Press, Boston Peter Drucker, <i>Harvard Business Review on Decision Making</i> , Harvard Business School Publishing Corporation, Boston Peter Drucker, <i>The Effective Executive in Action</i> , Collins Michael Porter, <i>Competitive Advantage: Creating and Sustaining Superior Performance</i> , Free Press New York Michael Porter, <i>Competitive Strategy: Techniques for Analyzing Industries and Competitors</i> , Free Press, New York
Modulverantwortlicher	Dr. Jutta Hübscher
Vorkenntnisse	---
Inhalt	<ul style="list-style-type: none"> ○ Decision in situations of security, insecurity and risk ○ The options matrix ○ The decision tree process ○ The ABC-analysis ○ The generic strategy porters ○ The produc life-cycle ○ McKinsey's S-curves concept ○ The experience curve concept ○ The portfolio-analysis ○ The SWOT-analysis ○ The IE-matrix ○ The gap-analysis ○ The utility value analysis ○ The scenario technique ○ The project barometer

Lehrveranstaltung	W5104
Name	Personnel Management and Labour Law
Dozent	Prof. Peter Schmieder, Diplom Theol. Univ.
Zuordnung zum Modul	W-17 Management
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	5
Semesterwochenstunden	4
Creditpoints (ECTS)	5
Aufwand	150hrs; Attendance 60hrs, Private study/assignments 60hrs, Exam prep. 30hrs
Prüfungsleistungen	See Module
Endnotenbildung	See Module
Sprache	German
Lehrform	Seminar tuition and practice
Medienform	Presentations ,OHP slides, board, script
Literatur	Script
Modulverantwortlicher	Dr. Jutta Hübscher
Vorkenntnisse	---
Inhalt	<ul style="list-style-type: none"> ○ A manager's images of the self and the other . ○ Flow-diagrams as a basis of personnel management and development ○ Job profiles, personality profiles ○ Workplace and job descriptions (possibilities and limitations) ○ Systems for staff assessment ○ Target-setting conversations with staff ○ Communication and crisis management in personnel management ○ Staff development ○ Training and development matrix ○ Introduction to labour law ○ From application to recruitment ○ Reasons for alteration and ending of employment contract ○ Special forms of employment contract ○ Content of employment contract ○ Co-determination of works council ○ Basic features of tariff law

Modul	W-18
Modulname	Practice Module
Modulbausteine (LV)	W6101 Practice Seminar W6102 Project Management W6103 Presentation and Negotiation Techniques
Zuordnung zum Curriculum:	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Creditpoints (ECTS)	6
Bewertungsmodus	Details determined by study program
Modulverantwortlicher	Prof. Dr. Martin Aust
Zugangs- und empfohlene Voraussetzungen	The entrance to the practical study semester depends on the achievement of a minimum of 90 ECTS-credit points.
Lernziele	<p>Practice seminar:</p> <ul style="list-style-type: none"> ○ learning of content with direct relation to practical activity ○ didactic presentation style ○ communication skills ○ presentation to listeners <p>The students learn the methods of project management with the appropriate work techniques, presentation and negotiation techniques. Students will learn to draw up a structured presentation of results for the management level. Finally principles and methods of negotiation will be learnt.</p>

Lehrveranstaltung	W6101
Name	Practice Seminar
Dozent	Prof. Dr. Martin Aust
Zuordnung zum Modul	W-18 Practice Module
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	6
Semesterwochenstunden	2
Creditpoints (ECTS)	2
Aufwand	60 hrs; Attendance 30 hrs, Preparation: 30 hrs
Prüfungsleistungen	Details determined by study programn
Endnotenbildung	Successful participation represents pass level.
Sprache	German
Lehrform	Seminar tuition and practice
Medienform	Presentations, OHP slides, board, scriptum
Literatur	Diverse, and internet researches
Modulverantwortlicher	Prof. Dr. Martin Aust
Vorkenntnisse	---
Inhalt	<p>Writing of a presentation and a report on the activities and duties of the student within the framework of the internship.</p> <p>In this way all students receive information about new developments, processes and skills which are in effect in various companies.</p> <p>The students should share information about companies in the surrounding area and gain insights into various firms, their competences and specialisms, as well as information about the manufacture of products and provision of services by individual companies. .</p>

Lehrveranstaltung	W6102
Name	Project Management
Dozent	Prof. Dr.-Ing. Heinrich Bürstner
Zuordnung zum Modul	W-18 Practical Module
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	6
Semesterwochenstunden	2
Creditpoints (ECTS)	2
Aufwand	60 hrs: Attendance 30hrs, follow-up 15hrs, Exam prep. 15hrs
Prüfungsleistungen	Details decided by study program
Endnotenbildung	Details decided by study program
Sprache	German
Lehrform	Seminar tuition /assignments
Medienform	Beamer, writing on board in combination with script
Literatur	Harold Kerzner, <i>Projektmanagement - Ein systemorientierter Ansatz zur Planung und Steuerung</i> , mitp-Verlag, Landsberg Harold Kerzner, <i>Projektmanagement – Fallstudien</i> , mitp-Verlag, Landsberg Hans-Ulrich Küpper, <i>Projektmanagement als kundenorientierte Führungskonzeption</i> , Schäffer-Poeschel Verlag, Stuttgart Bernd Madauss, <i>Handbuch Projektmanagement</i> , Schäffer-Poeschel Verlag, Stuttgart Heinrich Kessler, Georg Winkelhofer, <i>Projektmanagement – Leitfaden zur Steuerung und Führung von Projekten</i> , Springer Verlag, Berlin – Heidelberg - New York
Modulverantwortlicher	Prof. Dr.-Ing. Heinrich Bürstner
Vorkenntnisse	---
Inhalt	<ul style="list-style-type: none"> ○ Students are able to structure a project independently and draw up a binding schedule with realistic milestones, as well as carry out a progress check. ○ Set out realistic project targets with use of resources and cost-benefit analysis. ○ Control of project development . ○ Monitoring of target achievement. ○ Fall-back solutions for emergencies .

Lehrveranstaltung	W6103
Name	Presentation and Negotiation Techniques
Dozent	Prof. Dr.-Ing. Heinrich Bürstner
Zuordnung zum Modul	W-18 Practice Module
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	6
Semesterwochenstunden	2
Creditpoints (ECTS)	2
Aufwand	60hrs: Attendance 30hrs, Follow-up/case studies 15hrs, Exam prep. 15hrs
Prüfungsleistungen	Further details determined by study program
Endnotenbildung	Case study work with presentation and discussion 100 %
Sprache	German
Lehrform	Seminar tuition / assignments / case studies
Medienform	Beamer, writing on board in combination with script
Literatur	Roger Fisher, William Ury, Bruce Patton, <i>Das Harvard-Konzept – Der Klassiker der Verhandlungstechnik</i> , Campus, Frankfurt – New York James M. Citrin, Richard A. Smith, Christine Stimpel, <i>Das Geheimnis außergewöhnlich erfolgreicher Karrieren</i> , Campus, Frankfurt – New York Louise Mauffette-Leenders, <i>Learning with Cases</i> , Ivey, London Ontario <i>ECCH Case Studies</i> , ecch UK, Cranfield UK
Modulverantwortlicher	Prof. Dr. Martin Aust
Vorkenntnisse	---
Inhalt	<ul style="list-style-type: none"> ○ What does a manager expect from a decision model presentation? ○ Basic structuring of a decision model presentation ○ Reporting style as opposed to anecdotal narrative ○ Basic principles of ○ Communication instruments suited to target groups ○ Participants and roles in negotiations ○ Dealing with people and problems separately ○ Concentrating on interests and not on positions ○ Options for developing mutual advantages ○ Application of neutral evaluation criteria ○ Tips and tricks ○ Discussion of case studies with previously defined roles, presentation of results, Q&A and negotiation discussions

Modul	W-19
Modulname	Industrial Internship
Modulbausteine (LV)	W6104 Internship
Zuordnung zum Curriculum:	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Creditpoints (ECTS)	24
Bewertungsmodus	Successful participation is assessed as pass. Successful participation is confirmed by a reference from the training company
Modulverantwortlicher	Prof. Dr. Martin Aust
Zugangs- und empfohlene Voraussetzungen	The entry to the practical study semester is dependent on the prior achievement of at least 90 ECTS-credit points
Lernziele	<p>The general objective is to give the student an early opportunity to apply in practice the knowledge he or she has gained and at the same time to become familiar with company procedure.</p> <p>Within the framework of the internship, the theoretical content covered in the course modules should be applied and reinforced in business practice. The future industrial engineer should thus be prepared for his future professional activity and gain the possibility of obtaining first insights into professional working life.</p> <p>Through the involvement in day-to-day business and the team/department of a commercial enterprise, the students should be offered the additional opportunity of actively practising their personal soft skills in the areas of co-operation and powers of communication, teamwork and presentation technique. Thus the students' entrance into professional life is rendered somewhat easier whilst at the same time they should be prepared for the qualification demands of potential employers</p> <p>The industrial internship in a company during the degree course and the resulting knowledge of business procedures therefore provide a significant competitive advantage to the graduates of our university.</p>

Lehrveranstaltung	W6104
Name	Internship
Dozent	Prof. Dr. Martin Aust
Zuordnung zum Modul	W-19 Industrial Internship
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	6
Semesterwochenstunden	Industrial internship lasting 18 weeks
Creditpoints (ECTS)	24
Aufwand	Industrial internship : 720hrs incl. documentation
Prüfungsleistungen	<p>Industrial internship:</p> <ul style="list-style-type: none"> ○ Report on activities during internship. (Written report 10 pages ODIN A4 in digital form) ○ Certification from company in the form of Form of a reference.
Endnotenbildung	Successful participation represents pass.
Sprache	German
Modulverantwortlicher	Prof. Dr. Martin Aust
Vorkenntnisse	---
Inhalt	<p>Practical activity in an industrial firm or equivalent suitable training establishment for a period of 18 weeks. The students will become involved in actual projects within the company.</p> <p>Individual topics can result from the following areas::</p> <ul style="list-style-type: none"> ○ Business field and product planning ○ Business Development ○ Projecting of installations, project management and project controlling ○ Innovation and technology management, ○ Technical planning and controlling, ○ Technical purchasing , organisation and logistics, ○ Marketing of industrial goods ○ Sales engineering ○ Controlling for specialised technical areas ○ Management assistance

Modul	W-20
Modulname	Corporate Planning
Modulbausteine (LV)	W7103 Business Information Systems W7104 Start-up Management and Business Plan
Zuordnung zum Curriculum:	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Creditpoints (ECTS)	8
Bewertungsmodus	The final grade of the module arises from the marks for the module components, weighted with the ECTS-Points .
Modulverantwortlicher	Dr. Jutta Hübscher
Zugangs- und empfohlene Voraussetzungen	Module W-17 Management Module W-14 Strategic Management
Lernziele	<p>The student should be sensitized to the importance of comprehensive and continuous business planning. Through the acquisition of knowledge in the areas of business process analysis, modelling and optimisation, the opportunity should be provided to evaluate the potential benefit of application systems in a company and maybe to become actively involved in their introduction. In the process, the example of production planning and control will clearly demonstrate the complexity of communication and data-processing in a company.</p> <p>The importance of a detailed corporate plan should also be clarified through the example of start-up management. This should also raise awareness and motivation of the students for the topic of starting a business. .</p> <p>The student should also be offered the opportunity of using acquired knowledge through the setting out of an individual business plan within the framework of a group project, and thus to grasp the procedures, possible problems and limitations of corporate planning as seen from examples in practice. The group project includes the complete planning of a business from the first idea, the gathering of information, through to the drawing up of a detailed corporate plan. The engagement of the participants and the group dynamics during the project contribute significantly to the learning experience.</p>

Lehrveranstaltung	W7103
Name	Business Information Systems
Dozent	Prof. Dr. Dieter Rummler
Zuordnung zum Modul	W-20 Corporate Planning
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	Genreal
Semester	7
Semesterwochenstunden	4
Creditpoints (ECTS)	5
Aufwand	150hrs; Attendance 60hrs (integrated computer practical) Private study/exercises 60hrs Exam prep. 30hrs
Prüfungsleistungen	Wr. 90 min. or oral 30 min.
Endnotenbildung	Examination 100 % or oral 100%
Sprache	German
Lehrform	Seminar tuition an practice
Medienform	Case studies
Literatur	Scrpts, case studies
Modulverantwortlicher	Dr. Jutta Hübscher
Vorkenntnisse	W-05 Basic Principles of Business Administration W-02 Information technology for Engineers
Inhalt	<ul style="list-style-type: none"> ○ Case study "overview of business processes in SAP ERP" ○ Case study "Production planning and control in SAP ERP" ○ Programming in ABAP ○ Development of business processes with Workflow

Lehrveranstaltung	W7104
Name	Start-up Management and Business Plan
Dozent	Dr. Jutta Hübscher
Zuordnung zum Modul	W-20 Corporate Planning
Zuordnung zum Curriculum	Industrial Engineering
Studienschwerpunkt	General
Semester	7
Semesterwochenstunden	2
Creditpoints (ECTS)	3
Aufwand	90hrs Attendance 30 hrs Own research, project work 60h
Prüfungsleistungen	Wr. 90 min. or oral 30 min.
Endnotenbildung	Examination 100 % or oral 100%
Sprache	German
Lehrform	Seminar tuition and practice
Medienform	Presentations, OHP slides, board, case studies, business plan
Literatur	Timmons, Jeffrey A., <i>New venture creation</i> , McGraw-Hill Verlag, Boston, 2004 Sahlman, William A., <i>The entrepreneurial venture</i> , Harvard Business School Press, Boston, 1999 Dowling, Michael J., <i>Gründungsmanagement</i> , Springer Verlag, Berlin, 2003
Modulverantwortlicher	Dr. Jutta Hübscher
Vorkenntnisse	---
Inhalt	<ul style="list-style-type: none"> ○ Competences relevant to business start-up ○ Finding ideas and evaluation of business ideas ○ Structure and content of business plans ○ Venture capital and enterprise finance ○ Finance planning, scenario building, and sensitivity analysis ○ Investment planning and analysis of equipment and tangible assets ○ Personnel planning ○ Public means of support ○ Possibilities of limited liability ○ Founder's liability ○ Practical application of acquired theoretical knowledge in the drawing up of a business plan as a group project

Modul	W-21
Modulname	Company Organisation and Logistics
Modulbausteine (LV)	W7105 Production Planning and Logistics W7106 Company Organisation, Purchasing and Sales
Zuordnung zum Curriculum:	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Creditpoints (ECTS)	8
Bewertungsmodus	The final grade of the module arises from the marks for the module components, weighted with the ECTS-Points.
Modulverantwortlicher	Prof. Dr.-Ing. Heinrich Bürstner
Zugangs- und empfohlene Voraussetzungen	---
Lernziele	Students learn about production support processes like logistics, purchasing, and sales. Tasks and content of production planning and logistics are understood. Students are able to apply the knowledge gained on process optimisation and the value chain.

Lehrveranstaltung	W7105
Name	Production Planning and Logistics
Dozent	Prof. Dr.-Ing. Heinrich Bürstner
Zuordnung zum Modul	W-21 Business Organisation and Logistics
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	7
Semesterwochenstunden	4
Creditpoints (ECTS)	4
Aufwand	120rsh: Attendance 60hrs, Practice exercises/private study 30hrs Exam prep. 30hrs
Prüfungsleistungen	Wr. 90 min. or oral 30 min.
Endnotenbildung	Exam 100 % or oral. 100%
Sprache	German
Lehrform	Seminar tuition, practice, assignments
Medienform	Board, beamer
Literatur	Walther Eversheim, <i>Organisation in der Produktionstechnik, Arbeitsvorbereitung</i> , VDI-Verlag, Düsseldorf Reinhard Koether, <i>Taschenbuch der Logistik</i> , Hanser Verlag, Leipzig Heinrich Martin, <i>Transport- und Lagerlogistik</i> , Vieweg Verlag Wiesbaden Ulrich Näher, <i>Handbuch Globale Produktion</i> , Hanser Verlag München Wien
Modulverantwortlicher	Prof. Dr.-Ing. Heinrich Bürstner
Vorkenntnisse	---
Inhalt	The internationalisation of business systems and the concentration on key competences demand a strongy network of collaboration between producers, distributors and the markets. The joining link in this network is the logistics chain (Supply Chain Management). Students gain an insight into the content, concepts, connections and development perspectives of logistics, with topic areas : work planning and production logistics, procurement logistics, distribution logistics, disposal logistics. In addition current methods of process optimisation in the logistics chain will be discussed.

Lehrveranstaltung	W7106
Name	Business Organisation, Purchasing and Salesf
Dozent	Prof. Dr.-Ing. Rolf Rascher
Zuordnung zum Modul	W-21 Business Organisation and Logistics
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	7
Semesterwochenstunden	4
Creditpoints (ECTS)	4
Aufwand	120hrs; Attendance 60hrs, Preparation and follow-up/work on case studies 30hrs, Exam prep.30hrs
Prüfungsleistungen	Wr.90 min. or oral 30 min.
Endnotenbildung	Examination 100 % or oral 100%
Sprache	German
Lehrform	Seminar tuition and practice
Medienform	Lectures with visuals
Literatur	Script
Modulverantwortlicher	Prof. Dr.-Ing. Heinrich Bürstner
Vorkenntnisse	W-05 Basic Principles of Business Administration W-17 Management
Inhalt	<p>The understanding of company organisation contributes a great deal to maintaining full control a company. Unternehmen gesamthaft steuern zu können. The organisational units or functions of purchasing and sales will be discussed, with their essential processes and the necessary tools and demands on the staff. The purchasing department is seen in this process as a negotiating partner of the sales team. Methods and situations are subjects of discussion and the making of offers and completing of orders are important elements of the course content.</p> <p>The essential functions in the areas of purchasing and sales with their special demands on the staff and the resulting developing tasks such as customer orientation, the implementation of the concept of service with a view to maintaining customer loyalty or a win/win situation in the supply chain management will be discussed.</p> <p>The incorporation of the purchasing and sales function into the organisation of the entire company, the information which thus becomes necessary, and the processing of it, will also be discussed. To conclude and reinforce the content of the course case studies will be worked on by the students.</p>

Modul	W-22
Modulname	Bachelor Module
Modulbausteine (LV)	W7102 Bachelor Thesis W7101 Bachelor Seminar
Zuordnung zum Curriculum:	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Creditpoints (ECTS)	14
Bewertungsmodus	Evaluation of final thesis by two assessors, decision made by examinations committee
Modulverantwortlicher	Supervising professor
Zugangs- und empfohlene Voraussetzungen	Official guidelines : The bachelor thesis cannot be started before the beginning of the first semester after the internship but not later than the beginning of the second semester afterwards. Content : The student should show all knowledge relevant for the comprehensive treatment of the topic stated and should apply these in a scientific work
Lernziele	The content learned during the course of study will be applied in the form of a scientific work. The topic is to be independently analysed, structured and worked through within a prescribed period of time. This trains the ability of the student to carry out independently a significant piece of coordinated work appropriate to the study of engineering, and to publish the results in scientific form. This further reinforces the ability to present clear documentation of results.

Lehrveranstaltung	W7102
Name	Bachelor Thesis
Dozent	---
Zuordnung zum Modul	W-22 Bachelor Module
Zuordnung zum Curriculum	Industrial Engineering (Bachelor)
Studienschwerpunkt	General
Semester	7
Semesterwochenstunden	---
Creditpoints (ECTS)	12
Aufwand	360 hours incl. documentation
Prüfungsleistungen	Final written work
Endnotenbildung	The grade for the the Bachelor thesis comprises two assessments of equal share based on the evaluations of two examiners.
Sprache	German
Lehrform	Instruction for independent work according to scientific methods
Medienform	---
Literatur	According to subject area
Modulverantwortlicher	Supervising professor
Vorkenntnisse	Official: The bachelor thesis can be produced no earlier than the beginning of the semester following the internship and no later than the beginning of the second. Content: knowledge and application of course content
Inhalt	Individual topics

Lehrveranstaltung	W7101
Name	Bachelor Seminar
Dozent	---
Zuordnung zum Modul	W-22 Bachelor Module
Zuordnung zum Curriculum	Industrial Engineer (Bachelor)
Studienschwerpunkt	General
Semester	7
Semesterwochenstunden	1
Creditpoints (ECTS)	2
Aufwand	30rs, attendance 15hrs Preparation of final presentation 15h
Prüfungsleistungen	Oral presentation 20min Wr. Poster
Endnotenbildung	Presentation of final thesis 0% Poster 50%
Sprache	German
Lehrform	Seminar
Medienform	Lectures, presentation with beamer
Literatur	Eco. U. (2007), <i>Wie man eine wissenschaftliche Abschlussarbeit schreibt</i> , 12. Auflage, UTB, Heidelberg Von Werder, L. (1995), <i>Grundkurs des wissenschaftlichen Schreibens</i> , Schibri-Verlag, Milow (Uckerland)
Modulverantwortlicher	Frau Dr. Jutta Hübscher
Vorkenntnisse	---
Inhalt	<ul style="list-style-type: none"> ○ Preparation for completion of written Bachelor ○ Structure and written format of a scientific work ○ Presentation, discussion and evaluation of progress ○ Final presentation and production of poster