

**Module descriptors for English-taught
modules and modules with English
support at
Brandenburg University of Applied
Sciences
Summer Semester (Mar-Jul)**

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Brandenburg University of Applied Sciences
Summer semester (March – July)**

Although we check all offers carefully and update them regularly changes might still occur due to short-term modifications. Version: 07.02.2024

Contents

Department of Business and Management: Bachelor modules	4
Human Resources and Organization.....	4
Basics of Process Modeling.....	6
Business Plan.....	8
STUDIUM GENERALE I: International Trade & Financial Markets	10
Innovation, market power and competition policy	11
System-analytic Competence.....	13
Department of Business and Management: Master modules	14
Global Economics	14
Strategic Management and Marketing	16
Advanced Econometrics	19
DT I. Understand and apply design thinking – Focus on processes and products	20
Enterprise Knowledge Engineering.....	22
Innovation Management	23
International B2C Marketing and Branding	25
Business Management (BWL) Project.....	26
Internet of Things (IoT) and Industry 4.0 for SMEs.....	27
Designing business process support with low-code apps.....	29
Digital Business Models.....	29
Department of Computer Science and Media: Bachelor modules	32
See also https://informatik.th-brandenburg.de/studium/plaene-und-termine/vorlesungsverzeichnis/ for up-to-date information!	32
Communicative Competence	32
Operating Systems / Web Computing.....	32
Mathematics II	34
Formal Languages / Automata Theory	35
Programming II	36
Computer Systems Organisation.....	37

Media design	38
Introduction to TypeScript	40
Introduction to Interactive Media.....	41
Mobile Applications and Systems	42
Basics of immersive Worlds.....	43
International Media Camp	44
Introduction to Knowledge Processing	44
Mobile Health	46
Department of Computer Science and Media: Master modules.....	47
See also https://informatik.th-brandenburg.de/studium/plaene-und-termine/vorlesungsverzeichnis/ for up-to-date information!	47
Media Security	47
Data Mining.....	48
Cloud Computing, advanced topics	48
Digital Business Models.....	48
Digital Film production.....	48
Interactive products and services	48
Media psychology.....	48
Department of Engineering: Bachelor modules	49
Energy and Process Engineering.....	49
Introduction into micro controllers	49
Realtime Systems.....	49
Simulation and steering systems.....	49
Numerical Methods for Engineers	49
Computational Methods with SMath Studio	50
Department of Engineering: Master modules.....	51
Energy Storage System	51
Mathematical Optimization.....	51
Development of Autonomous Mobile Systems.....	51
Laser Technology (LTE)	52
Biophotonics.....	52
Introduction to Laser Technology and Laser Material Processing	52
Additional Subjects.....	53

German as a Foreign Language	53
History of the city of Brandenburg	54

Department of Business and Management: Bachelor modules

Brief module label:	HR and Organization
Module description:	Human Resources and Organization
German Name:	Personal und Organisation
Duration of module:	One semester
Classification in the curriculum:	BWL B.Sc., 2nd semester, required module
Usability of the module:	The module can also be employed in other (Bachelor's) courses according to the regulations of studies and examinations applicable there.
Frequency of offering of modules:	Every academic year
Author:	Prof. Dr. Katharina Frosch
Private lecturer:	Prof. Dr. Katharina Frosch
Language of instruction:	German <u>and/or</u> English (<i>Course language will be announced before the course starts</i>)
Prerequisites:	none
ECTS-Credits:	5
Total workload and its composition:	approx. 150 hours = 60 contact hours + 90 hours of self-study
Form of teaching/semester hours per week:	4 semester hours per week
Study and examination achievements:	Written final examination (90 min.) <u>or</u> grading of seminar paper and presentation
Weighting of the grade in the overall grade:	According to the regulations of studies and examinations or $0.7 \cdot (1/30) = 2.33\%$

Learning outcomes:	<p>Students gain a broad understanding on individual behaviour in groups and organizations.</p> <p>They acquire practical competencies in practical issues of human resource management. In this context, they can critically discuss the interplay of "hard" and "soft" factors in human resource management.</p> <p>After the course, students are also able to systematically analyse organizational issues and to apply basic instruments for organizational design and development.</p>
Contents:	<p>Topics are for example</p> <ul style="list-style-type: none"> • Behaviour in groups and organizations (motivation, team work, leadership, learning) • Core functions of human resource management (e.g. recruitment and selection, personnel development, compensation & benefits, personnel layoffs) • Organizational theory, design and development (e.g. structural organization and internal cooperation, power and politics, organizational learning, organizational change) <p>Throughout the course, the lecturer facilitates students' own exploration. Main issues are discussed, summarized and recapitulated during the course. Based on this, students independently work on case studies, present their solutions and reflect them critically.</p>
Teaching and learning methods:	Seminar-style lecture with business examples, group work and independent work on case studies.
Literature:	<ul style="list-style-type: none"> • Berthel, J., Becker, F. (2013). Personalmanagement. 10. Auflage, Stuttgart: Schäffer-Poeschel. • Böhmer, N.; Schinnenburg, H.; Steinert, C.: Fallstudien im Personalmanagement. Entscheidungen treffen, Konzepte entwickeln, Strategien aufbauen. München: Pearson. • Bröckermann, R. (2012). Personalwirtschaft: Lehr- und Übungsbuch für Human Resource Management. Stuttgart: Schäffer-Poeschel. • Clegg, S. R., Kornberger, M., & Pitsis, T. (2011). Managing and organizations: An introduction to theory and practice. London: Sage. • Jones, G. R., & Bouncken, R. B. (2008). Organisation: Theorie, Design und Wandel. München: Pearson. • Jones, G. R. (2010). Organizational theory, design, and change. Upper Saddle River: Pearson.

	<ul style="list-style-type: none"> • Kauffeld, S. (2011, Hrsg.). Arbeits-, Organisations- und Personalpsychologie für Bachelor. Heidelberg u.a.: Springer. • Kluckow, N., & Becker, M. (2011). Fallstudien für Human Resources Management, Band I + II. München u.a.: Rainer Hampp Verlag. • Robbins, S. (2001). Organisation der Unternehmung (9. Auflage). München: Pearson Studium. • Robbins, S., Judge, T. A. (2013). Organizational Behaviour (15th ed.). Boston: Prentice Hall. • Rowold, J. (2013, Hrsg.). Human Resource Management: Lehrbuch für Bachelor und Master. Human Resource Management. Heidelberg u.a.: Springer.
Additional information:	Depending on the availability: involvement of guest speakers, excursions (e.g. labour court)

Module no./code:	WB120
Module description:	Basics of Process Modeling
German Name:	Grundlagen der Prozessmodellierung
Duration of module:	One semester
Classification in the curriculum:	WI B.Sc., 2nd semester, core module
Usability of the module:	Serves for the preparation of courses based on this, in particular about the operationalization of processes.
Frequency offered:	Every academic year, summer term
Module leader:	Prof. Levina
Lecturer:	Prof. Levina
Language of instruction:	German and English
Prerequisites:	Basic knowledge of system analysis
ECTS credits:	5
Total workload and composition of course:	150 hours, of which approx. - 30 hours attendance lectures - 15 hours attendance exercises - 15 hours of supervised project work - 45 hours of self-study and exam preparation - 45 hours of independent project work
Form of teaching/semester hours per week:	4 semester hours per week = 2 lecture + 2 exercises
Study and examination requirements:	Assessment during the semester, project and final test (60 minutes)
Weighting of the grade in the overall grade:	According to SER

Learning outcomes:	The students understand the requirements and problem areas in the management of business and cooperation processes. They have basic competences in the analysis and modeling of business and cooperation processes in the practical field. The students master the basics of the standard notation specified by the OMG for modeling business processes BPMN 2.0. They gain experience in planning and implementing projects for process modeling according to KSA and BPMN 2.0. They can use software tools for process management in practical questions or projects in a targeted and systematic way.
Contents:	<ul style="list-style-type: none"> • Introduction to process modeling: Views on processes, motivation for modeling, modeling objects, proprietary notations, standard notations, modeling tools • Introduction to BPMN 2.0: BPMN elements - flow objects, participants, data, connecting elements, artifacts; simple process models: linear processes, branched processes, standard flows and implicit gateways • BPMN Method and style according to Bruce Silver: multi-step method - define process framework, design Happy Path, add exception paths, expand subprocesses, add message flows to external participants, add data objects; style principles and basic application rules for BPMN 2.0 • Specification of BPMN flow objects: technical specification framework BPMN-XML, specification of triggers for catching events, specification of process states for throwing events, specification of tasks and activities regarding type and frequency of execution, special types of gateways - event-based XOR gateway, inclusive OR gateway, complex gateway • Exception handling in BPMN 2.0: Attached intermediate events, event subprocesses, categories of exceptions in business processes, throw-catch patterns for error events, escalation events, message and signal events, exception forwarding pattern • Advanced topics: Loops and multiple instantiation, transactions and compensations, types of BPMN process diagrams, comparison of descriptive and analytical modeling, outlook executable modeling • Survey, analysis and modeling of real business processes according to KSA and BPMN 2.0: Communication with stakeholders, elicitation of requirements, functional and technical analysis of processes, modeling of actual and target processes, implementation of process models in a platform, documentation of process information, presentation of results to stakeholders.
Teaching and learning methods:	<ul style="list-style-type: none"> • Seminar-like lectures • Practical exercises and consultations • Multiple choice self-tests • Tool tutorials and presentations • Project work in groups and small groups • Student presentations • Video lectures
Literature:	<ul style="list-style-type: none"> • Andreas Gadatsch: Grundkurs Geschäftsprozess-Management – Methoden und Werkzeuge für die IT-Praxis. 7th Ed., 2012.

	<ul style="list-style-type: none"> Object Management Group: BPMN 2.0 – Technical Specification, www.omg.org/spec/BPMN/2.0/PDF, 2011. Jakob Freund, Bernd Rücker: Praxishandbuch BPMN – Mit einer Einführung in CMMN und DMN. 5th Ed., 2017. Thomas Allweyer: BPMN 2.0 Business Process Model and Notation – Einführung in den Standard der Geschäftsprozessmodellierung. 3rd Ed., 2015. Bruce Silver: BPMN Method & Style – With BPMN Implementor's Guide. 2nd Edition, 2011.
Additional information:	Practical project in a university or corporate environment

Brief module label:	Business plan
Module description:	Business Plan
German Name:	Business Plan
Division in teaching sessions, if applicable:	Project paper/Lecture
Duration of module:	One semester
Classification in the curriculum:	BWL B.Sc., 4th semester, required module (can be presumably taken by master students as well with additional workload)
Usability of the module:	The module can also be employed in other (Bachelor's) courses according to the regulations of studies and examinations applicable there.
Frequency of offering of modules:	Every academic year
Responsible for the module	Prof. Wrobel
lecturer:	Prof. Wrobel
Language of instruction:	The BP lectures are held in German, although all material is provided 1:1 in English. Regular meetings are held with the international students throughout the semester, usually 3-4 times. The examination can also be taken in English.
Prerequisites:	None
ECTS-Credits:	5
Total workload and its composition:	150 hours of workload, comprising period of attendance: lecture and project paper
Form of teaching/semester hours per week:	4 semester hours per week Lecture/Project assistance
Study and examination achievements:	Preparation of Business Plan and presentation/oral examination
Weighting of the grade in the overall grade:	According to the regulations of studies and examinations or $0.7 \cdot (1/30) = 2.33\%$
Learning outcomes:	<p>The students</p> <ul style="list-style-type: none"> acquire knowledge about the soft factors needed for start-up business plans, and they can characterize these appropriately with hard facts, can recognize and evaluate the success factors and hurdles encountered in the start-up process,

	<ul style="list-style-type: none"> • can derive strategies of action for a start-up plan and the development of network structures, • possess summarily the technical and methodical competence for evolving an implementable business in team while taking into consideration all relevant areas of planning; they also master particularly the quantitative evaluation methods in order to become a competent negotiating partner in the acquisition of capital.
Contents:	<p>The team will prepare a start-up plan:</p> <ul style="list-style-type: none"> • Team formation, task sharing • Search for ideas, assessment, development of the product / the service • Market analysis: Market size and segments, customers, other competitors, partners • Development of marketing strategy and marketing mix • Selection of legal form, analysis taxation conditions • Planning of organization and individual steps of building up an enterprise • Capital requirement estimation and financing planning • Analysis of liquidity, result and profitability
Teaching and learning methods:	<p>The development of a Business Plan has 3-stages:</p> <ol style="list-style-type: none"> 1. Generation of ideas 2. Marketing concept 3. Organizational and financing concept <p>The above points are worked out mostly on the basis of cases with brief introduction to each section of the business plan. The groups consist of 3 – 5 participants. The method of primary and secondary researching points to a case. The plans are drafted in the lab, using a Business Plan software application. If possible, the plans are placed in a regional or nationwide competition.</p>
Literature:	<ul style="list-style-type: none"> • Aulet, B. Startup mit System: In 24 Schritten zum erfolgreichen Entrepreneur. O'Reilly, Heidelberg. • Blank S. & Dorf, B. Das Handbuch für Startups: Schritt für Schritt zum erfolgreichen Unternehmen. O'Reilly, Köln. • Faltn, G. Handbuch Entrepreneurship. Springer Gabler, Wiesbaden. • Freiling, J. & Kollmann, T. Entrepreneurial Marketing: Besonderheiten, Aufgaben und Lösungsansätze für Gründungsunternehmen. Springer Gabler, Wiesbaden. • Kollmann, T. E-Entrepreneurship, Grundlagen der Unternehmensgründung in der Net Economy. Springer Gabler, Wiesbaden. • Kubr, T. Ilar, D. & H. Marchesi Planen, gründen, wachsen: Mit dem professionellen Businessplan zum Erfolg. Redline, München. • Nagl, A. Der Businessplan: Geschäftspläne professionell erstellen Mit Checklisten und Fallbeispielen. Springer Gabler, Wiesbaden. • Osterwalder, A. & Pigneur, Y. Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers. John Wiley & Sons, New Jersey. • Pott, O. & Pott, A. Entrepreneurship: Unternehmensgründung, Businessplan und Finanzierung, Rechtsformen und gewerblicher Rechtsschutz. Springer Gabler, Wiesbaden.

Additional information:	Working with Business Plan software, e.g. UGS, interdisciplinary groups
Module description:	STUDIUM GENERALE I: International Trade & Financial Markets
German Name:	Studium Generale I
ECTS-Credits:	5 ECTS
Classification in the curriculum:	BWL B.Sc., 2 nd Semester, Studium Generale
Lecturer:	Prof. Dr. Daniel Guterding
Language of instruction:	English
Prerequisites:	None
Total workload and its composition:	150 hours of workload, 70 h in attendance
Form of teaching/semester hours per week:	Seminar, 4 h/week
Study and examination achievements:	Development and presentation of an in-depth topic in the group, short written reflection of the group work by students
Learning outcomes	Students understand the organisational structure of modern markets and the basic features of the monetary system. They are able to identify risks and develop strategies to minimise them with the help of financial instruments. They know the characteristics of different trading centres for financial instruments and can evaluate them according to their suitability for a financial transaction. Students will understand the main features of EU regulations relating to sustainable financial products and will be able to deduce the effects on various business models. Students will also be familiar with the basics and applications of blockchain technology, which will enable them to understand new developments in this area.
Content:	Markets, money, risk, financial instruments, derivatives, price information and liquidity, stock exchange, over-the-counter trading, transaction costs, trading strategies, sustainability, blockchain, tokenisation, cryptocurrencies, NFTs
Teaching and learning methods:	Seminar with exercises, practical presentations and group work
Literature:	<p>L. Harris: Trading and Exchanges: Market Microstructure for Practitioners. 1st ed., Oxford University Press, 2003.</p> <p>J. C. Hull: Options, Futures, and Other Derivatives. 11th ed., Pearson, 2021.</p> <p>Ch.-A. Lehalle & A. Raboun: Financial Markets in Practice. 1st ed., World Scientific, 2022.</p>

Module description:	Innovation, market power and competition policy
German name:	VWLS Grundlagen Innovationen, Marktmacht und Staatshandeln VWL4
Duration of module:	One semester
Classification in the curriculum:	BWL B.Sc., 4th semester, Elective Economics
Frequency of offering of modules:	Every academic year
Lecturer:	Prof. Burger-Menzel
Language of instruction:	English
ECTS-Credits:	5
Prerequisites:	Basic economic understanding
Total workload and its composition:	150 hours of workload = 50 hours attendance, 40 h individual work, 60 h preparation of exam
Form of teaching/semester hours per week:	Lecture 2 hours/week and project 2 hours/week
Study and examination achievements:	final test or assignment with presentation
Learning Outcomes	<p>After successfully completing this module, students will be able to understand and critically evaluate the relationship between innovative behaviour, competitive context factors and state intervention mechanisms.</p> <p>In detail:</p> <p>Students will be able to recognise the relationship between innovation, diffusion and economic growth and describe it as a frame of reference using a basic technological innovation (e.g. computer technology) as an example.</p> <p>They have a basic technical and methodological understanding of market and competition theory and are able to define relevant markets and reflect on their structural factors with regard to market behaviour and results in an application-oriented manner.</p> <p>They will be able to categorise the instruments of competition policy (merger and abuse control) in the context of a market economy and discuss them on a case-by-case basis.</p> <p>They will understand the motivation behind technology policy (national innovation systems), be able to categorise its various instruments as regulatory and discretionary policy and be sensitised to possible conflicts of objectives between competition and technology policy.</p> <p>They will be able to name possible challenges for the effectiveness of state action and critically discuss them as an area of tension between 'market versus state failure'.</p>
Content:	The module "Innovations, Market Power and State Action" teaches the basics of market and competition theory in order

	<p>to critically penetrate basic explanatory patterns of competitive processes, to understand the functioning of different markets and to grasp the thinking in competition policy practice against the background of an increasing knowledge society and an environment characterised by technical progress/technology fusion and globalisation. The course is organised as follows:</p> <ul style="list-style-type: none"> - Market and competition theory (20%) - Structures, behaviour and results in the relevant market (30%) - Competition policy interventions in the relevant market (50%)
Teaching and learning methods:	<p>The most important knowledge content is prepared by the students as far as possible and under the structured guidance of the lecturer in self-study, deepened in the teaching discussion and further developed and secured through overarching questions. Care should be taken to ensure that teaching is as interactive and seminar-based as possible. Against the background of the knowledge acquired or current events, working groups should develop individual topics and present them to the plenum.</p> <p>Literature recommendations or files and texts made available online can be used as working materials during the lessons and to supplement them; multimedia applications are expressly encouraged. The Moodle learning platform gives students the opportunity to obtain (updated) materials flexibly in terms of time and location and to work in working groups or together.</p>
Literature:	<p>Basic literature of Economics in most recent edition, i.e.: Antonelli, G.: Economics of structural and technological change: Industrial economic strategies for Europe, Routledge 1997 Case, J.: Competition, New York 2007 Freeman, C.; Soete, L.: The Economics of Industrial Innovation, Cornwall 2004 Götting, H.-P.: Gewerblicher Rechtsschutz und Urheberrecht, München 2005 Hotz-Hart, B., et al.: Innovationen: Wirtschaft und Politik im globalen Wettbewerb, Bern 2001 Kling, M.; Thomas, S.: Grundkurs Wettbewerbs- und Kartellrecht, München 2004 Knottenbauer, K.: Theorien des sektoralen Strukturwandels, Marburg 2000 Kurzlechner, W.: Fusionen, Kartelle, Skandale – Das Bundeskartellamt als Wettbewerbshüter und Verbraucheranwalt, München 2008 Lettl, T.: Das neue UWG, München 2004</p>

	<p>Maggioni, M. A.: Clustering Dynamics and the Location of High-tech Firms, Heidelberg 2002</p> <p>Meißner, W.; Fassing, W.: Wirtschaftsstruktur und Strukturpolitik, München 1989</p> <p>Morasch, K.: Industrie- und Wettbewerbspolitik, Munich 2003</p> <p>Motta, M.: Competition Policy – Theory and Practice, Cambridge University Press, New York 2004</p> <p>Olson, M.: The Logic of Collective Action, Cambridge, Massachusetts 1971</p> <p>Richter, R.; Furubotn, E.G.: Neue Institutionenökonomik, Tübingen 2003</p> <p>Rogers, E.M.: Diffusion of Innovations, London 2003</p> <p>Schmidt, I.: Wettbewerbspolitik und Kartellrecht, Stuttgart 2001</p> <p>Schmidt, I.; Schmidt, A.: Europäische Wettbewerbspolitik und Beihilfekontrolle, München 2006</p> <p>Schulz, N. (2003): Wettbewerbspolitik, Tübingen 2003</p> <p>Scotchmer, S.: Innovation and Incentives, Cambridge, Massachusetts 2004</p> <p>Williamson, O.E.: The Economic Institutions of Capitalism, London 1985</p>
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Module description:	System-analytic Competence
German Name:	Systemanalytische Kompetenzen
ECTS-Credits:	5 ECTS
Classification in the curriculum:	WI B.Sc., 2 nd Semester
Lecturer:	Prof. Levina
Language	1 exercise group in English

Department of Business and Management: Master modules

Module no./code:	BM320
Module description:	Global Economics
German name:	Global Economics
Duration of module:	One semester
Classification in the curriculum:	BWL M.Sc., 2nd semester, required module
Usability of the module:	//
Frequency offered:	Every academic year
Module leader:	Prof. Dr. Bettina Burger-Menzel
Lecturer:	Prof. Dr. Bettina Burger-Menzel
Language of instruction:	English
Prerequisites:	Basic economics
ECTS credits:	6
Total workload and composition of course:	180 hours = 60 hours of attendance and 120 hours of self-study
Form of teaching/semester hours per week:	4 semester hours per week
Study and examination requirements:	Written examination (90 min.)
Weighting of the grade in the overall grade:	According to the study and examination regulations
Learning outcomes:	<p>After the successful completion of the module, students will be able to understand the global networking of corporations, nation states and international organisations in their causal complexity, and to logically link and critically discuss recent developments in the field of economic, ecological and social sustainability.</p> <p>In detail:</p> <p>The students will be capable of categorising global economic networks.</p> <p>They will have the technical and methodical understanding to analyse and critically discuss the entrepreneurial strategy of global supply chains with its motives and consequences for globalisation activities for countries of origin and target countries.</p> <p>They will be able to describe state regionalisation strategies along with their motives and consequences, and to identify and understand potential problems for the capacity to act democratically.</p> <p>They will be able to recognise and classify the influence of international organisations, and the influence of agreements</p>

	<p>that are significant for the international cooperation of states and for the global activities of companies.</p> <p>They will be able to reflect on the importance of (inter)nationally recognised principles and guidelines for economic, ecological and social sustainability from the point of view of the various stakeholders and critically discuss their potential effectiveness.</p>
Contents:	<ul style="list-style-type: none"> • Introduction to the globalisation of production • Introduction to the globalisation of markets • Introduction to the globalisation of politics • Actors and types of general international frameworks • Companies as drivers of globalisation: The case of global value-added chains • Governments as drivers of globalisation: The EU as a case of regionalisation • International organisations as drivers of globalisation: The cases of intellectual property and global sustainability • Concluding general international frameworks: Risks and opportunities
Teaching and learning methods:	<p>Mix of lecture and group work; presentations by students; case studies; preparation based on reading list, problem-based learning</p>
Literature:	<p>Blinder, A. S. (2007). "How Many U.S. Jobs Might Be Offshorable?" CEPS Working Paper (142), pp. 1-12, 34-35</p> <p>Fortwengel, J. (2010), Upgrading through Integration? The Case of the Central Eastern European Automotive Industry, Transcience Journal 2 (1).</p> <p>Gereffi, G. (2006). "The new offshoring and global development of jobs." ILO Social Policy Lectures, pp. 1-16</p> <p>Godart, O., Görg, H. and Görlich, D. (2009). Back to Normal? The Future of Global Production Networks. The Crisis and Beyond. Klodt, H. and Lehment, H. Kiel, IfW Kiel: 119-126.</p> <p>Haar, K., C. Christine Pohl, et al. (2009). A captive commission - the role of the financial industry in shaping EU regulation, Alliance for Lobbying Transparency and Ethics Regulation (ALTER-EU)</p> <p>Head, J. W. (2005). The future of the global economic organizations: an evaluation of criticisms leveled at the IMF, the multilateral development banks, and the WTO. Ardsley, N.Y., pp. 16-30, 46-59</p> <p>Hirst, P. and G. Thompson (1996). Globalization in question: The international economy and the possibilities of governance. Cambridge, pp. 1-17</p> <p>Igan, D., P. Mishra, et al. (2009). "A Fistful of Dollars: Lobbying and the Financial Crisis." IMF Working Paper (287) , pp. 4-8, 26-27</p> <p>Jovanovic, M. (2011). Globalisation: an anatomy. International handbook on the economics of integration, Vol. I: General issues and regional groups. M. Jovanovic. Cheltenham, Northampton, Edward Elgar: 239-276.</p> <p>Levy, F. and K.-H. Yu (2007). "Offshoring Radiology Services to India." Industry Studies Association Working Papers(33)</p> <p>Lloyd, P. E. (2010). "Global economic integration." Pacific Economic Review 15(1): 71-86</p>

	<p>Nugent, N. (2010). The Government and Politics of the European Union. Basingstoke, pp. 419-430</p> <p>Pelkmans, J. (2006). European integration - Methods and economic analysis. Harlow et al., pp. 2-13, 53-62</p> <p>Pilbeam, K. (2010), Finance and Financial Markets. Houndsmill, Basingstoke, Chapter 18, pp. 459-465</p> <p>Ricketts, M. (2008). Economic regulation: principles, history and methods. International handbook on economic regulation. M. A. Crew and D. Parker. Cheltenham, pp. 34-62</p> <p>Ritzer, G. (2009), Globalization: A Basic Text, Chichester, Chap. 8</p> <p>Ritzer, G. (2011), Globalization: The Essentials, Chichester, Chap. 3</p> <p>Sturgeon, T. J., J. v. Biesebroeck, et al. (2008). "Value Chains, Networks, and Clusters: Reframing the Global Automotive Industry." ITEC Working Paper Series (08-02), pp. 7-27</p>
Additional information:	Student and learning centred approach

Brief module label:	Strategic Management and Marketing
Module description:	Strategic Management and Marketing
Division in teaching sessions, if applicable:	Lecture
Duration of module:	One semester
Classification in the curriculum:	BWL MA, 2nd semester, core module
Usability of the module:	
Frequency of offering of modules:	Every academic year
Author:	Prof Jürgen Schwill
Private lecturer:	Prof Jürgen Schwill
Language of instruction:	German, for exchange students projects available in English
Prerequisites:	
ECTS-Credits:	6
Total workload and its composition:	150 hours of workload: approx. 50 contact hours, approx. 40 hours of preparation and follow-up, 7.5 working days = 60 hours of preparation for examination
Form of teaching/semester hours per week:	4 semester hours per week/ lecture

Study and examination achievements:	<p>Students are able to recognise the characteristics of strategic decisions and the importance of entrepreneurial strategies and to distinguish these from operational management.</p> <p>They will be able to differentiate, use and evaluate different methods for analysing the strategic starting position.</p> <p>On the basis of the analysis results, students are able to critically evaluate strategic options, make strategic decisions and implement them in line with the market.</p> <p>They can assess the implemented strategies by using evaluation methods.</p> <p>They can also differentiate between strategic approaches in the management of stakeholder relations, management of change and prepare recommendations for corporate practice.</p>
Weighting of the grade in the overall grade:	
Learning outcomes:	
Contents:	<p>Fundamentals of strategic management and strategic marketing</p> <ul style="list-style-type: none"> • Strategic analysis • Strategy formulation • Strategy implementation • Strategic evaluation • Success factors of strategic management and marketing
Teaching and learning methods:	<p>- Lectures and exercises (case studies); active participation of students in discussions, working groups and presentations of their results</p>
Literature:	<ul style="list-style-type: none"> • Backhaus, K.; Schneider, H.: Strategisches Marketing, 3. Aufl., Stuttgart 2020 • Bea, F. X.; Haas, J.: Strategisches Management, 10. Aufl., Konstanz u. a. 2019 • Burr, W.; Stephan, M.; Werkmeister, C.: Unternehmensführung. Strategien der Gestaltung und des Wachstums von Unternehmen, 2. Aufl., München 2011 • Grunwald, G.; Schwill, J.: Nachhaltigkeitsmarketing. Grundlagen – Gestaltungsoptionen – Umsetzung, Stuttgart 2022 • Grunwald, G.; Schwill, J.: Beziehungsmarketing. Gestaltung nachhaltiger Geschäftsbeziehungen – Grundlagen und Praxis, Stuttgart 2017

	<ul style="list-style-type: none"> • Grunwald, G.; Schwill, J.: Der Brand Behavior Funnel. Analyse und Steuerung der mitarbeiterbezogenen Markenidentität. In: zfo – Zeitschrift Führung + Organisation, 87. Jg. (2018), H. 3, S. 191-195. • Grunwald, G.; Schwill, J.: Dienstleistungsprozesse mit Kun-den-Koproduktion. Qualitätsbeurteilung, Herausforderungen und Lösungsansätze. In: zfo – Zeitschrift Führung + Organisation, 86. Jg. (2017), H. 6, S. 360-365 • Grunwald, G.; Schwill, J.: Managing Latent Corporate • Sustainability Crises: The Effects of Crisis Content and CSR Specificity. In: Choi, J. (Ed.): Global Marketing Conference (GMC) at Tokyo Proceedings 26.-29. Juli 2018, S. 280-290 • Grunwald, G.; Schwill, J.: Participatory Impact Assessments from a Relationship Marketing Perspective: How to Balance Latent and Manifest Consulting Functions? In: Rossi, P.; Krey, N. (Eds.): Finding New Ways to Engage and Satisfy Global Customers. Proceedings of the 2018 Academy of Marketing Science (AMS) World Marketing Congress (WMC), Cham 2019, S. 195-207 • Grunwald, G.; Schwill, J.: Partizipative Folgenabschätzung. Ein beziehungsorientierter Ansatz der Stakeholder-Integration. In: zfo – Zeitschrift Führung + Organisation, 87. Jg. (2018), H. 3, S. 185-190 • Grunwald, G.; Schwill, J.: Toolbox Marketing. Praxiserprobte Werkzeuge für die gelungene Marketingarbeit, Stuttgart 2019 • Grunwald, G.; Schwill, J.; Sassenberg, A.-M.: Managing Value Co-creation in Partnerships for Sustainability: Toward a Process Model for Stakeholder Integration. In: Ratten, P.; Jones, P.; Braga, V.; Parra-López, E. (Eds.): Artisan Entrepreneurship, Bingley 2022, S. 99-126, 34 • Grunwald, G.; Schwill, J.; Sassenberg, A.-M.: Sustainability project partnerships in times of crisis: conceptual framework and implications für stakeholder integration. In: Journal of Entrepreneurship an Public Policy, Vol. 10 (2021), No. 3, S. 352-378 • Johnson, G.; Whittington, R.; Scholes, K.; Angwin, D.; Regnér, P.: Strategisches Management. Eine Einführung, 11. Aufl., Hallbergmoos 2018 • Lippold, D.: Marktorientierte Unternehmensführung und Digi- • talisierung. Management im digitalen Wandel, Berlin, Boston • 2017 • Müller, H.-E.; Wrobel, M.: Unternehmensführung. Strategie –
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	<ul style="list-style-type: none"> • Management – Praxis, 4. Aufl., Berlin, Boston 2021 • Müller-Stewens, G.; Lechner, C.: Strategisches Management. • Wie strategische Initiativen zum Wandel führen, 5. Aufl., Stuttgart 2016 • Paul, H.; Wollny, V.: Instrumente des strategischen Manage- • ments. Grundlagen und Anwendung, 3. Aufl., Berlin, Boston 2020 • Reisinger, S.; Gattringer, R.; Strehl, F.: Strategisches Management. Grundlagen für Studium und Praxis, 2. Aufl., Hall-bergmoos 2017 • Welge, M. K.; Al-Laham, A.; Eulerich, M.: Strategisches Management. Grundlagen – Prozess – Implementierung, 7. Aufl., Berlin 2017
Additional information:	

Brief module label:	Advanced Econometrics
Module description:	Advanced Econometrics
Division in teaching sessions, if applicable:	Lecture
Duration of module:	One semester
Classification in the curriculum:	BWL MA, 2nd semester, core module
Usability of the module:	
Frequency of offering of modules:	Every academic year
Author:	Prof Artur Tarassow
Private lecturer:	Prof Artur Tarassow
Language of instruction:	German, if there are enough interested participants, English
Prerequisites:	
ECTS-Credits:	6
Total workload and its composition:	150 hours of workload:
Form of teaching/semester hours per week:	

Study and examination achievements:	
Weighting of the grade in the overall grade:	
Learning outcomes:	
Contents:	
Teaching and learning methods:	-
Literature:	-
Additional information:	

Module no./code:	WM545
Module description:	DT I. Understand and apply design thinking – Focus on processes and products
German name:	Design Thinking kennen und anwenden –Schwerpunkt: Digitale Geschäftsmodelle
Division into teaching sessions, if applicable:	//
Duration of module:	One semester
Classification in the curriculum:	WI MA 2PndP semester, elective module
Usability of the module:	//
Frequency offered:	Every semester
Module leader:	Prof. Dr. Jochen Scheeg
Lecturer:	Prof. Dr. Jochen Scheeg
Language of instruction:	German / English
Prerequisites:	Knowledge from basic Bachelor's courses: <ul style="list-style-type: none"> • Introduction to business studies • Introduction to information management
ECTS credits:	6
Total workload and composition of course:	180 hrs. = 60 hrs. attendance and 120 hrs. self-study
Form of teaching/semester hours per week:	4 contact hours = lectures with workshops, presentations and project elements
Study and examination requirements:	Thesis review with oral examination. Credits acquired during the semester may be included in the grade.
Weighting of the grade in the overall grade:	According to SER

<p>Learning outcomes:</p>	<p>Upon successful completion of this module, the students will have acquired knowledge of developing and creating new design and technology ideas.</p> <p>The students will develop pronounced problem-solving and assessment competence. These core competences are taught, in particular, with emphasis on process flows and design thinking.</p> <p>The students will master the theoretical principles in order to implement them cognitively, intuitively and creatively in their work.</p> <p>Students are able to create prototypes. This includes the preparation of drafts, the execution of feasibility analyses and possibly budgeting.</p> <p>The students will have honed their team skills and self-management through the set tasks.</p> <p>The students will have a strong knowledge of processes and products. This will enable them to independently analyse and evaluate studies.</p> <p>They will master the theoretical foundations of process analysis and will be able to deal critically with existing structures and their processes. They will develop their own ideas with due consideration for the users, mostly through in-house analyses.</p> <p>The students will be able to carry out various analyses, in particular, regarding the behaviour and needs of the user. They will be able to develop solutions with particular consideration for user behaviour.</p> <p>They will generate ideas against the background of economic feasibility, carry out tests and implement the ideas of their prototypes.</p> <p>Students will be familiar with the basics of theory and practice of innovative processes. They will also have basic knowledge in the area of design thinking. Both support the students in finding solutions in the development process and in generating new ideas.</p> <p>They will be able to teach and represent selected methods and tools along the understanding / observing / point of view / brainstorming / prototyping / refinement chain.</p> <p>Students of different disciplines are trained in creative, networked and user-oriented thinking. The aim is to enable them to develop innovative and market-oriented products. Their ideas will be illustrated by prototypes and reviewed based on user and customer feedback.</p>
<p>Contents:</p>	<ul style="list-style-type: none"> • Special focus: Processes and products • Conducting ethnographic surveys, • Documentation and evaluation. • Focus on processes: Process analysis, questioning existing structures and processes, idea generation with due consideration for users (usually in-house analyses) • Focus on products: Analysis of user behaviour, analysis of needs, developing solutions with special consideration to user behaviour. • Idea generation within the framework of economic feasibility, testing and implementation in form of prototypes

Teaching and learning methods:	<ul style="list-style-type: none"> • Faculty lecture • Industry speakers • Blackboard, projector, flipchart, etc. • Group work • Workshops • Possible field trips
Literature:	<p>Brenner, Walter / Uebernicket, Falk – Design Thinking – Das Handbuch, 2015. Ambrose, Gavin / Harris, Paul - BASICS Design 08. DESIGN THINKING: the act or practice of using your mind to consider design.</p> <p>d.school @ Stanford (2010). Bootcamp bootleg. Version 2. http://dschool.stanford.edu/wp-content/uploads/2011/03/BootcampBootleg2010v2SLIM.pdf</p>
Additional information:	<p>Very interactive lecture format with a high degree of creative freedom for students. Interdisciplinarity.</p> <p>High level of self-motivation is required.</p>

Module no./code:	WM524
Module description:	Enterprise Knowledge Engineering
German name:	Enterprise Knowledge Engineering
Duration of module:	One semester
Classification in the curriculum:	WI M.Sc. 2 nd P semester, compulsory module
Usability of the module:	//
Frequency offered:	Every academic year
Module leader:	Prof. Dr. Vera G. Meister
Lecturer:	Prof. Dr. Vera G. Meister
Language of instruction:	German / for exchange students projects and materials in English
Prerequisites:	<p>Knowledge from bachelor studies:</p> <ul style="list-style-type: none"> - Databases Modelling and Structuring - Software Engineering
ECTS credits:	6
Total workload and composition of course:	180 hours = approx. 60 hours of attendance, approx. 108 hours of self-study
Form of teaching/semester hours per week:	4 semester hours per week lectures with exercises, presentations and project work
Study and examination requirements:	Assessment during the semester, miniprojects
Weighting of the grade in the overall grade:	According to SER
Learning outcomes:	<p>The students can map business knowledge in companies and organizations standard-based and semantically clear using modern, web-based tools.</p> <p>They are familiar with the process of collecting, structuring, formalizing and technically specifying business knowledge in a domain.</p>

	<p>They can select suitable classes, relations and attributes from standard specifications and vocabularies for use cases and combine or extend them as required.</p> <p>Depending on the specific use case, they can select, configure and competently use suitable tools for representing and querying technically specified business knowledge.</p>
Contents:	<ul style="list-style-type: none"> • RDF data model and other relevant W3C standards, particularly RDFS, OWL, XSD and TURTLE as machine-readable serialization for RDF • Standard vocabularies, especially DC, FOAF, PROV, DEO as well as schema.org as the authoritative basic vocabulary for search engines on the Web • Important web-based projects for collaborative and community-driven structuring and awarding of knowledge and facts, in particular DBpedia, WikiData, DOI, ORCID • Web-based markup formats, especially RDFa 1.1, HTML Microdata and JSON-LD 1.1 • SPARQL 1.1 as powerful RDF query language: keywords, construction of WHERE clauses to query graph patterns, logical patterns and functions, federated queries • Methods and tools for knowledge modeling in an organizational environment: specification of requirements in the form of competence questions, schema rough design with CMap tools, fine modeling with Protégé, schema serialization with TURTLE and rdfEditor, implementations based on OntoWiki, Jena Fuseki and/or OntoGraph
Teaching and learning methods:	<ul style="list-style-type: none"> • Impulse lectures • Inverted Classroom • Practical exercises • Learning by Teaching • Specialist lectures • Miniproject for application
Literature:	<p>Harald Sack: Linked Data Engineering, Online Course on OpenHPI, 13TUhttps://open.hpi.de/courses/semanticweb2016U13T</p> <p>Bob DuCharme: Learning SPARQL – Querying and Updating with SPARQL 1.1, 2nd Edition, 2013.</p> <p>D’Amato e. a. (Eds.): The Semantic Web – ISWC 2017. 16th International Semantic Web Conference, Proceedings.</p> <p>Matthew Horridge: A Practical Guide To Building OWL Ontologies Using Protégé 4 and CO-ODE Tools. Ed. 1.3, 2011.</p> <p>Various specifications and related web resources for vocabularies, standards and web projects (see content)</p>
Additional information:	//

Brief module label:	Innovation Management
Module description:	Innovation Management
German name:	Innovationsmanagement

Duration of module:	One semester
Classification in the curriculum:	TIME M.Sc., 1st semester, required module
Usability of the module:	The module can also be employed in other Master's courses according to the regulations of studies and examinations applicable there.
Frequency of offering of modules:	Every academic year
lecturer:	Prof. Kristal
Language of instruction:	English
Prerequisites:	none
ECTS-Credits:	6
Total workload and its composition:	180 hours of workload, approx. 50 hours of attendance; approx. 60 hours of preparation and follow-up, approx. 70 hours of preparation for examination
Form of teaching/semester hours per week:	Lecture/ 4 semester hours per week
Study and examination achievements:	Written examination or defence of thesis or discussion
Weighting of the grade in the overall grade:	According to the regulations of studies and examinations
Learning outcomes:	The students learn the methods of the Innovation Management in the very phases of the innovation process and acquire the ability to apply these methods in the operative environment.
Contents:	<ul style="list-style-type: none"> • Basics of the Innovation Management • Innovations process models • Management of ideas (Fuzzy Front End); Methods of generation of ideas and evaluation of ideas • Definition phase / Concept phase (preparation of requirement profiles; Business Case for Innovation Projects) • Development phase / Design phase (e.g. Rules of Construction and Design; Protection against piracy; Value analysis) • Preparation phase (Market preparation and Pre-Marketing; Planning of Production run) • Knowledge of research on success factors
Teaching and learning methods:	Lecture with case studies; exercises
Literature:	<ul style="list-style-type: none"> • Albers, Sönke/Gassmann, Oliver (Publ.): Handbuch Technologie- und Innovationsmanagement [Manual of Technology and Innovation Management], Wiesbaden 2005 or 2nd edition 2011 • Hauschildt, J./Salomo, S.: Innovationsmanagement [Innovation Management], 4th edition 2007 or current editions • Specht, Günter/Beckmann, Christoph/Amelingmeyer, Jenny: F&E-Management - Kompetenz im Innovationsmanagement [R&D Management – Competence in Innovation Management], 2nd ed., Stuttgart 2002

	<ul style="list-style-type: none"> • Vahs, Dietmar/Burmester, Rolf: Innovationsmanagement [Innovation Management], Stuttgart 1999 or current editions • Vahs, Dietmar/Brem, Alexander: Innovationsmanagement [Innovation Management], 4th ed. (published early 2013) • Tidd, Joe/Bessant, John: Managing Innovation, 4th ed., 2009
Additional information:	

Module description:	International B2C Marketing and Branding
German name:	International B2C Marketing and Branding
Duration of module:	One semester
Classification in the curriculum:	BWL M.Sc., 2nd semester, elective
Frequency of offering of modules:	Every academic year
Lecturer:	Prof. Dr. Samuel Kristal
Language of instruction:	English
ECTS-Credits:	6
Total workload and its composition:	150 h = 50 h attendance and 100 h self study
Form of teaching/semester hours per week:	Lecture / 4 hours/week
Study and examination achievements:	Project work (Brand Innovation Workshop), consisting of oral and written part
Learning outcomes:	<p>After completing the module, students will know the basics of (digital) marketing as well as the fundamentals of strategic and operational brand management.</p> <p>They will acquire the skills to systematically analyse markets, select relevant markets and develop brand positioning strategies for them - also with regard to increasing digitalisation and digital transformation.</p> <p>Students also learn how to build brands and develop and manage brand architectures.</p>
Contents:	<ul style="list-style-type: none"> -The basics of marketing and digital marketing -Analysis, planning and target planning systems -Digital marketing and transformation -Brand management in a strategic and operational sense -Brand development, in particular brand identity models -Brand co-creation -Brand positioning -Management of brand architectures -Methods for brand evaluation and brand controlling
Teaching and learning methods:	Lecture/exercise/seminar/ Coaching
Literature:	- Tomczak, T./ Reinecke, S./ Kuss, A. (2018).: Strategic Marketing. Market-Oriented Corporate and Business Unit Planning,

	Springer. - Beverland, M. (2021): Brand Management. Co-Creating Meaningful Brands, SAGE.
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Brief module label:	Business Management (BWL) Project for Erasmus and exchange students
Module description:	Business Management (BWL) Project
Division in teaching sessions, if applicable:	Project
Duration of module:	One semester
Classification in the curriculum:	All semesters, BWL MA and BA (ERASMUS and exchange students, only)
Usability of the module:	The module can also be employed in other (Master's) courses according to the regulations of studies and examinations applicable there.
Frequency of offering of modules:	Every academic year
Author:	Prof. Dr. Katharina Frosch
Private lecturer:	Any of the professors involved in this course may teach in this module.
Language of instruction:	English
Prerequisites:	//
ECTS-Credits:	10
Total workload and its composition:	300 hours of self-study, attendance components will be determined together with the tutor individually, however, not more than 100 hours.
Form of teaching/semester hours per week:	Self-study and accompanied project work
Study and examination achievements:	Project work and home writing assignment
Weighting of the grade in the overall grade:	
Learning outcomes:	<p>The students are able to independently analyse and evaluate the theoretical fundamentals of selected topics. The aim of the project is to apply the business management related instruments and to compile the findings into a paper and, if applicable, present the results (e.g. to German students in a regular study module). Minimum standards:</p> <ul style="list-style-type: none"> • written project results of 20-30 pages (including own tables and graphs); upper/lower/left/right page margins all set on 3 cm, body text in Arial 12 pt. • compliance with the general rules of good scientific practice (in particular: substantiating arguments with well-established evidence; using detailed citations to indicating all external sources; list of references) • at least one personal meeting with the tutor, not later than 8 weeks after the semester has started

Contents:	<p>Possible tasks and topics are derived, for example, from the selected areas of specialization relating to:</p> <ul style="list-style-type: none"> • Topics related to International Management and international Marketing as well as customer relationship management (Prof. Schwill) • Innovation research and technology studies as well as supply/value chain management (Prof. Mieke) • Logistics and process analysis (currently not available) • Market Research; Industrial Marketing; Innovation Management and Innovation Intelligence (Prof. Schwill or Prof. Kristal, Prof. Kristal not in 2024) • Studies, projects and analyses related to the management of small and medium-sized enterprises SME (Prof. Schnurrenberger) • Projects on strategic and practical aspects of accounting, controlling and business succession (currently not available) • Entrepreneurship and start-up marketing (Prof. Wrobel) • Projects and analyses on technology and competition policy with a strong focus on international aspects as well as social innovation (Prof. Burger-Menzel) • Reports and analyses linked to legal aspects of business and management (Prof. Blasek) • Projects and analysis in the field of Corporate Finance (currently not available) <p>Projects and analysis in the field of Corporate Governance and Sustainability (Prof. Kühne)</p> <ul style="list-style-type: none"> • Empirical projects on business-related or economics-related questions, as well as projects on economic theory. These projects aim to explore and analyze various aspects, such as market behavior, economic policies, and the impact of economic factors on decision-making (Prof. Tarassow) <p>Applications of Data Science and Machine Learning (Prof. Guterding)</p> <p>Projects can adopt a mainly application-oriented as well as a research-oriented perspective.</p>
Teaching and learning methods:	Project work, independent preparation of a writing assignment; presentation
Literature:	<p>Bailey, S. (2011): Academic writing, London, Routledge.</p> <p>Bryman, A., & Bell, E. (2015): Business research methods, Oxford, Oxford Univ. Press.</p> <p>Johnson, R., Wichern, D. (2007): Applied Multivariate Statistical Analysis, 6/E, Harlow, Pearson.</p> <p>Saunders, M., Lewis, P., Thornhill, A. (2015): Research Methods for Business Students, 7/E, Pearson.</p> <p>Additional reference works for the relevant assignment may be indicated by the respective tutor.</p> <p>Including reference works for processing the relevant assignment.</p>
Additional information:	<p>Only exchange students can chose this course. Please contact the international office (wolffh@th-brandenburg.de) to check in which fields there are places available (max. 2 students/semester per tutor). Determining the topic early (first two weeks of your exchange semester) and starting the work on the project immediately after the topic is set is explicitly recommended.</p>

Course:	Internet of Things (IoT) and Industry 4.0 for SMEs
German name	Internet of Things (IoT) and Industry 4.0 for SMEs
Study Semester:	WI M.Sc., 2 nd S.
Module Coordinator:	Prof. Nitze
Main Lecturer(s):	Prof. Nitze
Teaching Language:	English
Level within Curriculum	
Teaching Methods:	Lecture and accompanying exercises: 4 hours/week
Total workload and its composition:	180 hours = 60h attendance, 120h of self-study
Credit Points:	6
Recommended Prerequisites:	Basic knowledge in Programming
Teaching Methods	Exercises with IoT devices and sensors - Prototyping (paper, hardware, software) - Depending on availability: Student projects with companies
Learning Outcome / Skills:	<ul style="list-style-type: none"> - explain the terms and core concepts of the Internet of Things and of Industry 4.0 and distinguish it from other specialist areas - Name existing IoT infrastructures and ecosystems and differentiate them from one another - Select suitable technologies based on the requirements and framework conditions of a case study - Put exemplary IoT devices into operation and use them to collect data - Aggregate collected IoT data and make it available via standardised interfaces - Name and explain the phases of developing a digital product - Design technical solutions for sensor-based IoT applications from hardware, software and platforms - Explain the issues surrounding data protection and data security in the IoT context - Know typical problems with security, data protection and robustness of IoT technologies and identify them in specific implementations - evaluate and select suitable IoT platforms in the context of a case study and organisation and bring them into productive operation
Course Content:	<ul style="list-style-type: none"> Properties of IoT devices (sensors, actuators) - IoT infrastructures (gateways, networks, platforms) - IoT operating systems and protocols - IoT ecosystems (users, providers, operators, value-added services) - Life cycle of IoT solutions (cost-benefit analysis consideration, introduction, maintenance, replacement) - IoT use cases for SMEs, cities and municipalities (blockchain / IOTA, open data, smart city) - Human-computer interaction - Security and robustness of IoT infrastructures - Selection of IoT platforms (requirements, costs, market analysis)
Mode of Assessment:	Project
Teaching Media:	

Literature:	<p>H.-J. Bullinger, M. ten Hompel (Hrsg.): Internet der Dinge. Springer, Berlin 2007.</p> <ul style="list-style-type: none"> • Mattern, Friedemann; Floerkemeier, Christian (2010). "From the Internet of Computer to the Internet of Things" (https://www.vs.inf.ethz.ch/publ/papers/Internet-of-things.pdf). Informatik-Spektrum. 33 (2): 107–121. • Weiser, Mark (1991). "The Computer for the 21st Century", Scientific American. 265 (3): 94–104, (https://www.lri.fr/~mbl/Stanford/CS477/papers/Weiser-SciAm.pdf)
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Module Name:	Designing business process support with low-code apps
Course:	Designing business process support with low-code apps
German name	Designing business process support with low-code apps
Study Semester:	WI M.Sc., 2 nd S.
Module Coordinator:	Prof. Levina
Main Lecturer(s):	Prof. Levina
Teaching Language:	English
Level within Curriculum	
Teaching Methods:	
Workload:	
Credit Points:	6
Recommended Prerequisites:	
Learning Outcome / Skills:	
Course Content:	
Mode of Assessment:	
Teaching Media:	
Literature:	

Module Name:	Digital Business Models
Course:	Digital Business Models
German name	Digital Business Models
Study Semester:	WI M.Sc., 2 nd S., elective
Module Coordinator:	Prof. Dr. Jochen Scheeg
Main Lecturer(s):	Prof. Dr. Jochen Scheeg
Teaching Language:	German / English
Study and exam requirements	Assessment during the semester and / or seminar paper or exam.
Teaching Methods:	Lectures (50%) + Exercises (50%), Lectures in seminar style with integrated (group) exercises and presentations
Workload:	150 hrs = 60 hrs attendance and 120 hrs self-study
Credit Points:	6
Recommended Prerequisites:	Basic knowledge and competencies in the area of business administration / economics and information management are required.

Learning Outcome / Skills:	<p>Upon successful completion of this module, students will have gained knowledge and skills enabling them to define, describe, characterize, evaluate, optimize and develop digital business models. Through lectures and hands-on experience in practical exercises, participants will become familiar with modern concepts and perspectives of digital technology-driven business model creation and innovation.</p> <p>Students will be able to draw knowledge from a theoretical foundation on the overall purpose, setup and key elements of a business model. They will also know key influences and effects of business model design. Participants will be able to characterize the modern digitalization phenomenon. They will implicitly be able to understand and discuss the impact of digital transformation on traditional business, as well as the opportunities and risks of digital business model innovation for established organizations and startups alike.</p> <p>Students will know and recognize digital business model patterns. They will also be able to compare business models and discuss advantages or disadvantages of different designs. Participants will have gained special expertise in platform business and will be able to define, assess and design digital platform business models. The students will know how to take different stakeholder sides of a platform business into consideration and understand the concepts of matchmaking, transactions and platform content. They will also know methods to monetize digital business models.</p> <p>Consequently, students will be able to know and apply methods for the conceptualization of cross-dimensional business model innovation involving (new) digital technology. The students will also be able to generate new digital business model drafts on the basis of a given scenario.</p>
Course Content:	<p>Introduction to Business Models</p> <ul style="list-style-type: none"> o Purpose, concepts and dimensions o Key influences o Business model assessment o Business model transformation • Technological innovation and digital transformation <ul style="list-style-type: none"> o Scope of digital transformation today o Business model innovation opportunities driven by (new) technology • Digital business models <ul style="list-style-type: none"> o Types of digital business and digital business model patterns o Platform business: characteristics, implementation, monetization o Methods towards developing digital business models o Practical examples and analysis of real-world digital business model cases
Additional Information	<p>Very interactive lectures. High level of self-motivation is required. Input sessions with company representatives may be featured in extra lectures.</p>
Literature:	<p>Gassmann, O., Frankenberger, K., Csik, M. (2014). The Business Model Navigator: 55 Models That Will Revolutionise Your Business, Financial Times Prent.</p> <p>Parker, G. G., van Alstyne, M. W. & Choudary, S. P. (2017).</p>

	<p>Platform Revolution: How Networked Markets Are Transforming the Economy and How to Make Them Work for You. New York: WW Norton & Co.</p> <p>Robbins, S.P., DeCenzo, D.A., Coulter, M. (2015). Fundamentals of Management. Essential Concepts and Applications. 11th edition. Harlow: Pearson.</p> <p>Wirtz, B.W. (2019). Digital Business Models, Progress in IS, Cham: Springer Nature Switzerland</p> <p>36</p> <p>Weill, P., Woerner, S. (2018). What's Your Digital Business Model?: Six Questions to Help You Build the Next-Generation Enterprise. Harvard Business Review Press</p>
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Department of Computer Science and Media: Bachelor modules

See also <https://informatik.th-brandenburg.de/studium/plaene-und-termine/vorlesungsverzeichnis/> for up-to-date information!

Module Name:	General Studies III
Course:	Communicative Competence
German name	Communicative Competence
Study Semester:	4 th semester
Module Coordinator:	Dean of Studies at the Department of Computer Science and Media
Main Lecturer(s):	Dr. Annett Kitsche
Teaching Language:	English
Level within Curriculum	B.Sc. Applied Computer Science, B.Sc. Informatik, 4 th sem., General Studies
Teaching Methods:	Seminar: 2 hours weekly per semester
Workload:	75 hrs = 30 contact hrs + 45 hrs directed self-study
Credit Points:	2,5
Recommended Prerequisites:	Good English language skills
Learning Outcome / Skills:	Students are interculturally competent and can communicate interculturally. They master virtual teamwork and presentation techniques.
Course Content:	Theoretical basics of intercultural competence and intercultural communication Theory and practice of virtual teamwork. Advantages and Disadvantages
Mode of Assessment:	- Term paper and oral discussion Additional assessments during the semester may be included in the final grading.
Teaching Media:	Moodle, wikis, video conference
Literature:	Brake T: Where in the world is my team? Chichester, 2008 Byram M., Nichols A., Stephens D.: Developing Intercultural Competence in Practice. Stevenage, 2001 Comfort J., Franklin P. The Mindful International Manager. London, 2008 Hofstede G., Hofstede G.-J.: Cultures and Organizations. New York, 2010 Rowe B.: How Virtual Teams Work. Texas, 2009

Module Name:	Operating Systems / Web Computing
German name:	Betriebssysteme / Webcomputing
Study Semester:	2nd semester
Module Coordinator:	Prof. Dr. Thomas Preuß
Main Lecturer(s):	Prof. Dr. Thomas Preuß
Teaching Language:	Applied Computer Science: Lecture in German, Exercise in English, Material in English.
Level within Curriculum:	B.Sc. Applied Computer Science, 2nd sem., mandatory module
Teaching Methods:	Lecture: 2 hours weekly per semester Exercise: 2 hours weekly per semester
Workload:	150 hrs = 60 contact hrs and 90 hrs directed self-study
Credit Points:	5

Recommended Prerequisites:	fundamental programming skills, fundamental skills in HTML
Learning Outcome / Skills:	<p>The students know the fundamental concepts of distributed systems and the structure of Web applications, including the underlying architectures, protocols and technologies.</p> <p>They are familiar with the basic concepts and structures of operating systems. They also have an in-depth knowledge of multitasking/ multiprogramming, scheduling algorithms, classic and virtual main memory management and attendant algorithms, inter-process communication using signals, pipes, semaphores, and message passing.</p> <p>The students are able to use command-line interfaces in a UNIX system (UNIX commands), to develop and implement simple web applications, to create shell scripts and use them to automate UNIX system (servers) work processes.</p> <p>They know basics of Python programming and can use Python to develop dynamic Web applications.</p>
Course Content:	<ul style="list-style-type: none"> - Client/Server architectures (2-, 3-, multi-level) - P2P-fundamentals - Fundamentals of cloud computing - Overview of TCP/IP, Internet name administration, IP addresses - Connection-orientated and connectionless communication - HTTP, FTP, SMTP as examples of application protocols - Stateless protocols and session management - Development of dynamic Web-based applications with Python - XML and XPath - Operating system tasks and resources - Preemptive multitasking in multi-user operating systems - Processes and threads, including creation and inter-process communication - Basic problems of process synchronization, race-conditions, deadlocks, ... - Process synchronization with lock-variables, semaphores, monitors - Basics of main memory administration - Virtual main memory administration, page assigning algorithms and page replacement algorithms, for example FiFo, LRU, OPT, second chance, working sets, including performance considerations.
Mode of Assessment:	<p>Written exam</p> <p>Additional assessments during the semester may be included in the final grading.</p>
Teaching Media:	Lecture with mixed media (blackboard and mostly interactively filled slides), exercises in small groups, computer based exercises
Literature:	<p>Badach A., Hoffmann E.: Technik der IP-Netze: Internet-Kommunikation in Theorie und Einsatz, Carl Hanser Verlag, 3. Auflage, 2015.</p> <p>Bengel G.: Grundkurs Verteilte Systeme: Grundlagen und Praxis des Client-Server und Distributed Computing, 4. Auflage, 2014.</p> <p>Ernesti J., Kaiser P.: Python 3: Das umfassende Handbuch: Sprachgrundlagen, Objektorientierung, Modularisierung, Rheinwerk Computing, 4. Auflage, 2015.</p>

	Meinel C., Sack H.: Internetworking: Technische Grundlagen und Anwendungen, Springer, 2012. Tannenbaum A.S., Steen M. van: Verteilte Systeme: Prinzipien und Paradigmen, Pearson, 2. Auflage, 2007. Tannenbaum A.S.: Moderne Betriebssysteme, Pearson, 4. aktualisierte Auflage, 2016. Wolf J.: HTML5 und CSS3: Das umfassende Handbuch zum Lernen und Nachschlagen, Rheinwerk Computing, 2. Auflage, 2016.
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Module Name:	Mathematics II
German name:	Mathematik II
Study Semester:	2nd semester
Module Coordinator:	Prof. Dr. Duc Khiem Huynh
Main Lecturer(s):	Prof. Dr. Duc Khiem Huynh
Teaching Language:	English for Applied Computer Science
Level within Curriculum:	B.Sc. Informatik, B.Sc. Medizininformatik, B.Sc. Applied Computer Science 2nd semester, mandatory module
Teaching Methods:	Lecture: 2 hours weekly per semester Exercise: 2 hours weekly per semester
Workload:	150 hrs = 60 contact hrs and 90 hrs directed self-study
Credit Points:	5
Prerequisites according to Study and Exam Regulations:	Mathematics I
Recommended Prerequisites:	Mathematics I
Learning Outcome / Skills:	Students learn about the importance of linear algebra for computer science. They are able to apply mathematical tools in concrete computer science applications. They are familiar with mathematical thinking (abstraction, precision, logical reasoning). They are proficient in using the language of mathematical formulae. They are able to express concepts in different representations (graphical, formulae, ...) and to translate between different representations. They are familiar with abstract concepts such as vector spaces, linear independence, bases of vector spaces, and linear mappings. They are experienced in applying the Gauß-Algorithm for solving linear equational systems and for computing the inverse of a square matrix. They are able to solve the following problems: Transformation between different representations of lines and planes in space Determining intersections of lines and planes in space Checking sets of vectors on linear independence Determining the matrix of a linear mapping
Course Content:	matrices, vectors, matrix operations and simple applications Linear equational systems and the Gauß-Algorithm Error correcting Codes Analytic geometry in the plane and in the space: vectors, angles, lines and planes, linear and affine transformations Vector spaces, subspaces, bases, and dimension Linear mappings and matrices

Mode of Assessment:	Written exam Additional assessments during the semester may be included in the final grading.
Teaching Media:	Blackboard and chalk, online course
Literature:	Jänich K.: Lineare Algebra. 11. Aufl. Berlin: Springer Verlag 2008 Schubert M.: Mathematik für Informatiker. Wiesbaden: Vieweg und Teubner Verlag 2009 Socher R.: Mathematik für Informatiker. München: Hanser 2011 Teschl S. und Teschl G.: Mathematik für Informatiker, Band 1, Diskrete Mathematik und Lineare Algebra. 3. Aufl. Berlin, Heidelberg: Springer 2008

Module Name:	Formal Languages / Automata Theory
German name:	Formale Sprachen- und Automatentheorie
Study Semester:	2nd semester
Module Coordinator:	Prof. Dr. Matthias Homeister
Main Lecturer(s):	Prof. Dr. Rolf Socher Prof. Dr. Matthias Homeister
Teaching Language:	Applied Computer Science: Lecture in German, Exercise in English, Material in English.
Level within Curriculum:	B.Sc. Informatik, 2nd sem., mandatory module B.Sc. Applied Computer Science, 2nd sem., mandatory module
Teaching Methods:	Lecture: 2 hours weekly per semester Exercise class: 2 hours weekly per semester
Workload:	150 hrs = 60 contact hrs and 90 hrs directed self-study
Credit Points:	5
Recommended Prerequisites:	Mathematics I Programming I
Learning Outcome / Skills:	<p>The students are familiar with the main ideas and techniques of theoretical computer science (abstraction, rigour and logical reasoning).</p> <p>They are able to formulate issues in different representations (e.g. graph and table representations of automata) and transform them from one representation into the other.</p> <p>They are able to construct, analyse and apply deterministic and nondeterministic finite automata.</p> <p>They are able to construct, analyse and apply regular expressions</p> <p>They are able to apply transformations on and between automata (minimization, NFA into DFA, regular expression into NFA) and to prove whether a language is regular or not.</p> <p>They are able to construct, analyse and apply context-free grammars. They can convert CFGs into Chomsky normal form and understand the CYK-algorithm. They can determine whether a language is context-free or not.</p> <p>They understand the relationship between automata and grammars, they know context-sensitive grammars and are</p>

	able to classify formal languages with respect to the Chomsky hierarchy. They understand the role of formal languages, automata and grammars in the context of compiler construction.
Course Content:	Regular languages: deterministic and nondeterministic finite automata, transformations (minimal DFAs, NFA into DFA, regular expression into NFA), regular expressions, lexical analysis, pumping lemma. Context-free languages: Grammars, derivations, context-free grammars, Chomsky normal form, CYK-algorithm, derivation trees and ambiguity, syntactical analysis, pumping lemma. Chomsky hierarchy: context-sensitive grammars, Type-0 grammars, connections between the different classes of languages and the associated computing models.
Mode of Assessment:	- Written exam Additional assessments during the semester may be included in the final grading.
Teaching Media:	Lecture with mixed media, exercises
Literature:	Sipser: Introduction to the Theory of Computation, Cengage Learning, 3rd edition, 2013 Socher: Theoretische Grundlagen der Informatik. 3. Aufl. München: Hanser Verlag 2008 Wagenknecht, Hielscher: Formale Sprachen, abstrakte Automaten und Compiler. 2. Auflage, Wiesbaden, Springer-Vieweg, 2015 Vossen G., Witt K.-U.: Grundkurs theoretische Informatik. 6. Auflage, Wiesbaden, Springer-Vieweg, 2016. Böckenhauer, Hromkovic.: Formale Sprachen. Wiesbaden, Springer-Vieweg, 2012.

Programming II		Course	INF
Lecturers :	Prof. Dr. rer. nat. Gabriele Schmidt Prof. Dr. Sven Buchholz	Term	2
Course Classification :	Bachelor Applied Computer Science	CH	4
Language :	English	Type	VÜ
Type of examination :	PL	Credits	5
Method of evaluation :	written examination 120 min		
Requirements :			
Cross References :			

Previous knowledges :	Computer Programming I Algorithms and Data Structures
Aids and special features :	Mode of assessment Additional assessments during the semester may be included in the final grading.
Teaching aims :	Students know and understand the concepts of object orientation and object-oriented programming using the Java programming language as an example. Students understand the design guidelines in class diagrams and can read them and convert them into programs. Students are able to program in a good programming style. Through the practical exercises the students develop first application, analysis, problem-solving and method competences in object-oriented programming.
Contents :	Complete introduction to object orientation: classes, attributes, management methods and business methods, objects, inheritance, abstract classes and interfaces, polymorphism Good programming and design style: principle of structuring, encapsulation, secret principle, abstract data type Error Handling with Exception Handling Abstract concepts like generic data types, inner classes Use of classes of a library / programming interface using the Java API as an example
Literature :	Ullenboom C.: Java ist auch eine Insel, Galileo Computing, auch als E-Buch http://openbook.galileocomputing.de/javainsel/ Krüger G., Stark T.: Handbuch der Java-Programmierung, Addison-Wesley, http://www.javabuch.de Lorig D.: Java-Programmierung für Anfänger: Programmieren lernen ohne Vorkenntnisse, CreateSpace Independent Publishing Platform Sierra K., Bates B.: (Übersetzung L. Schulten, E. Buchholz), Java von Kopf bis Fuß, O Reilly Darwin I. F. (Übersetzung L. Schulten, G.W. Selke, D.Redder, W. Gabriel), Java Kochbuch, O Reilly

Computer Systems Organisation		Course	INF
Lecturers :	N. N.	Term	2
Course Classification :	Applied Computer Science	CH	4
Language :	Applied Computer Science: Lecture in German, Exercise in English, Material in English.	Type	VÜ
Type of examination :	PL	Credits	5
Method of evaluation :	written examination 120 min		

Requirements :	
Cross References :	
Previous knowledges :	
Aids and special features :	Mode of assessment Additional assessments during the semester may be included in the final grading.
Teaching aims :	Students will know the basics of the architecture and organization of computer systems. They will be familiar with the components of x86 processor programming models and be able to program short algorithm using simple processor machine commands. They will have an understanding of the elementary internal computer processes and recognize the connection between computer architecture and computer organization on the one hand and computing performance on the other. They will have grasped the notion of the computer as a functioning unit comprised of function blocks working sequentially and they will be able to demonstrate the fundamental functions of these blocks using simple machine.
Contents :	Components of a computer and their elementary realisation (processor, controller, register file and further memory elements), Von Neumann computing concept and Harvard architecture, dealing with machine commands, utilizing pipeline procedures Programming model of simple x86 processors: command set, register set, operands, addressing and segmenting memory, types of address, command notation, ? Programming examples in machine languages: Illustration of high language elements on the machine level, simple mathematics exercises, sub-routine technology, stacks and stack organization, stack utilization, interrupt technology, organization of input and distribution Structure and functions of finite state machines, the development of transmission functions of elementary logic and arithmetic, structure of a controller
Literature :	Müller, Th. u.a.: Technische Informatik I: Grundlagen der Informatik und Assemblerprogrammierung, vdf Verlag, Zürich, 2000 Beierstein, Th. und Hagenbruch, O.: Taschenbuch Mikroprozessortechnik, Fachbuchverlag Leipzig, 2001 Siemers, Ch.: Prozessorbau, Hanser Verlag München, 1999 Märting, Chr.: Rechnerarchitekturen, Fachbuchverlag Leipzig, 2001 Further in-course materials on inter alia assembler programming Further literature and course material from journals and the internet shall be recommended during the course.

Media design		Course	INF
Lecturers :	Prof. Carsten Giese Prof. Julia Schnitzer	Term	2

Course Classification :	Applied Computer Science	CH	4
Language :	Applied Computer Science: Lecture in German, Exercise in English, Material in English.	Type	VÜ
Type of examination :	PL	Credits	4
Method of evaluation :	term paper with oral examination		
Requirements :			
Cross References :			
Previous knowledges :			
Aids and special features :	Mode of assessment Additional assessments during the semester may be included in the final grading.		
Teaching aims :	The students know the basics of designing the visual media (typography / type design, color / light, composition / shape / layout, space / time and movement). Based on these competences, the students are able to use pictorial means for the design of print and screen media purposefully and aesthetically. To do this, students master the functions of relevant software solutions for creative image and graphics editing. The students know the basics of the theory of perception.		
Contents :	1. Typography and type design (history and theory) 2. Colour (physics of colours, colour psychology, colour theory) 3. Colour management (colour spaces, device profiles, colour correction) 4. Form, composition (art history, design theory) 5. Picture design (picture retouching, creative image manipulation) 6. Graphical user interfaces (GUI, interface design) 7. Analytical vision and visual features 8. Experiencing space and time 9. Fundamentals of Semiotics		
Literature :	Aicher, Otl: Richtlinien und Normen für die visuelle Gestaltung, München, 1969 Joachim Böhringer et al.: Kompendium der Mediengestaltung für Digital- und Printmedien, Berlin 2000 Gerhard Braun: Grundlagen der Visuellen Kommunikation, München 1993 Droste, Magdalena: Bauhaus, Köln, 2019 Götz V.: Typo digital, Reinbek bei Hamburg, 2004 Itten J.: Kunst der Farbe, Ravensburg, 1987		

	<p>Maeda, John: Simplicity – Die zehn Gesetze der Einfachheit, München, 2007</p> <p>Neutzling U.: Typo und Layout im Web, Reinbek bei Hamburg, 2002</p> <p>Skopec D.: Layout digital, Reinbek bei Hamburg, 2004</p> <p>Stankowski A., Duschek K.: Visuelle Kommunikation, Berlin, 1994</p> <p>Turtschi R.: Mediendesign, Sulgen, 1998</p>
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NFB data visualisation		Course	INF
Lecturers :	NN	Term	4
Course Classification :	ACS	CH	4
Language :	Teaching language German, material English, individual support in English	Type	VÜ
Type of examination :	PL	Credits	5
Method of evaluation :	term paper with oral examination		
Requirements :			
Cross References :			
Previous knowledges :			
Aids and special features :			
Teaching aims :			
Contents :			
Literature :			

Introduction to TypeScript		Course	INF
Lecturers :	Martin Weißbach	Term	4
Course Classification :	ACS	CH	4
Language :	Teaching language German, material English, individual support in English	Type	VÜ
Type of examination :	PL	Credits	5
Method of evaluation :	term paper with oral examination		
Requirements :			
Cross References :			
Previous knowledges :			
Aids and special features :			

Teaching aims :	
Contents :	
Literature :	

Introduction to Interactive Media		Course	INF
Lecturers :	Prof. Julia Schnitzer eMail Micha Kodalle eMail	Term	4
Course Classification :		CH	4
Language :	Englisch	Type	VÜ
Type of examination :	PL	Credits	5
Method of evaluation :	term paper with oral examination		
Requirements :			
Cross References :			
Previous knowledge:			
Aids and special features :	Mode of assessment Coursework with oral examination Graded: yes Continuous Evaluation for assignments.		
Teaching aims :	Students will know the basics of interactive media design. They will be able to structure workflows for conceptualising media and design them with dramatic effect. Students will know the special characteristics of synchronous and asynchronous programming and will be able to guide users as regards conceptual and aesthetic demands. Students will know the differences between online and offline applications and be able to prepare and integrate external media. They will be able to use relevant software programmes (for example, Adobe Photoshop, Adobe/Macromedia Director, Adobe/Macromedia Flash, Adobe/Macromedia Dreamweaver).		
Contents :	1. Screen design 2. Interface design 3. Introduction to usability and accessibility 4. Dramatic effect in interactive media 5. User guidance 6. Features of synchronous and asynchronous programming		

	7. Integrating external media Differences between online and offline applications and quality assurance
Literature :	<p>Joachim Böhringer et al.: Kompendium der Mediengestaltung für Digital- und Printmedien, Berlin 2000</p> <p>Steve Krug: Don't make me think!, Bonn 2002</p> <p>Jakob Nielsen: Erfolg des Einfachen, München 2000</p> <p>Brenda Laurel: Computers as Theatre, Reading 2000</p> <p>New Masters of Flash/Vol. 3 Friends of ED Birmingham 2004</p> <p>Sharp H., Rogers Y., Preece J.: Interaction Design: Beyond Human-Computer Interaction, New York 2002</p> <p>Moock C.: Essential ActionScript 3.0, Sebastopol 2007</p>

Module Name:	Mobile Applications and Systems
German name:	Mobile Anwendungen und Systeme
Study Semester:	4th semester
Module Coordinator:	Prof. Dr. Martin Schafföner
Main Lecturer(s):	Prof. Dr. Martin Schafföner
Teaching Language:	English
Level within Curriculum:	B.Sc. Informatik, 4th. sem., core elective module B.Sc. Applied Computer Science, 4th. sem., core elective module
Teaching Methods:	Lecture: 2 hours weekly per semester Exercise: 2 hours weekly per semester
Workload:	150 hrs = 60 contact hrs and 90 hrs directed self-study
Credit Points:	5
Prerequisites according to Study and Exam Regulations:	
Recommended Prerequisites:	Programming I Programming II Fundamentals of Cloud Computing
Learning Outcome / Skills:	<p>Students understand the architecture and the functionality of operating systems for mobile devices as well as the fundamental principles, challenges and technical solution patterns for mobile applications and systems.</p> <p>They are able to apply basic technologies for developing distributed applications and systems.</p> <p>They can design and prototypically implement mobile applications on selected platforms natively or with cross-platform frameworks. Functional requirements, correctness, usability and resource constraints are equally considered.</p> <p>Students know the security technologies of mobile devices and operating systems and are able to adequately select and apply them to concrete problems.</p>
Course Content:	<ul style="list-style-type: none"> Operating systems for mobile devices: Android, iOS Properties and specific features of mobile applications Frameworks for creating mobile GUIs Design and implementation of local persistence Connection of mobile applications with cloud-based systems Use of third party application data; sharing of data with third party applications

	<ul style="list-style-type: none"> • Use of environmental sensors, e.g. camera and position reckoning • Hybrid and cross-platform-development for mobile devices • Basics of threat and vulnerability analysis and evaluation of counter measures for mobile applications
Mode of Assessment:	- semester project with oral discussion Additional assessments during the semester may be included in the final grading.
Teaching Media:	Lecture with mixed media (mostly interactively filled slides), computer lab exercises
Literature:	Nutting J., Mark D., LaMarche J.: Beginning Iphone Development, Apress, 2011 Mednieks Z., Meike B., Dornin L.: Programming Android, O'Reilly, 2011 Fribert, P.: Web-Apps mit jQuery Mobile: Mobile Multiplattform-Entwicklung mit HTML5 und JavaScript, dpunkt.verlag, 2013 Nielsen, J., Raluca, B.: Mobile Usability: Für iPhone, iPad, Android, Kindle, mitp business, 2013

Module Name:	Basics of immersive Worlds
German name:	
Study Semester:	Applied Computer Science, 4th Semester
Module Coordinator:	Prof. Kim
Main Lecturer(s):	Prof. Kim
Teaching Language:	German lecture, material English, support might be offered in English for exchange students upon request.
Method of evaluation :	term paper with oral examination
Aids and special features :	Mode of assessment Coursework with oral examination Graded: yes Continuous Evaluation for assignments.
Teaching aims	Students understand the specific requirements of immersive media. They know the differences between VR, AR and MR as well as the respective application potentials in industry and art. The students are able to conceive, design and technically implement their own applications of immersive worlds.
Contents	<ul style="list-style-type: none"> - Definition of terms - Immersion, VR / AR / MR - Sensory modalities - History of immersive worlds - Application areas - Technical workflow for developing immersive media (Modeling, Shading, Rendering, Compiation) - Tracking methods - Hardware and APIs (Unity XR, OpenVR, AR Foundation, ARKit, ARCore, AR.js) - Interaction and scripting - Interactive Storytelling in immersive Worlds
Literature	Linowes, Jonathan: Unity Virtual Reality Projects, Packt Publishing, 2020 Glover, Jesse und Linowes, Jonathan: Complete Virtual Reality and Augmented Reality Development with Unity, Packt Publishing, 2019

	Hauser, Dominik: Build Location-Based Projects for iOS, Pragmatic Bookshelf, 2020 Lim, Greg: Beginning iOS 14 & Swift App Development, 2020
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Module Name:	International Media Camp
German name:	
Study Semester:	Applied Computer Science, 4th Semester
Module Coordinator:	Prof. Kim
Main Lecturer(s):	Prof. Kim
Teaching Language:	English. Please note. Costs might occur and there is a restriction in places
ECTS	5
Method of evaluation :	term paper with oral examination
Previous knowledge	English language skills, Portfolio with work from the field of digital media (number of participants may be limited)
Aids and special features :	Mode of assessment Coursework with oral examination Graded: yes Continuous Evaluation for assignments. (number of participants may be limited)
Teaching aim	Mode of assessment Coursework with oral examination Graded: yes Continuous Evaluation for assignments. (number of participants may be limited)
Content	<ul style="list-style-type: none"> • Brainstorming techniques • Conception of multimedia projects with a thematic focus on cultural characteristics of the participating partner countries • Selection of suitable media, Prototyping • Cross-media implementation technologies • Project management • Production of raw material - photo, video, audio, text, graphics in partner countries • Data organization for collective collection, distribution, editing and versioning on a network-based platform • Post-production, Compositing, Editing • Documentation and presentation of the final project results
Literature	Subject-related specialist literature and handouts from the teachers

Introduction to Knowledge Processing		Course	INF
Lecturers :	Prof. Dr.-Ing. Jochen Heinsohn eMail Dipl.-Inform. Ingo Boersch eMail	Term	4
Course Classification :	Bachelor Informatik, Profil-Katalog B-INF-Profil	CH	4

Language :	Lectures German, materials English, individual support in English	Type	VÜ
Type of examination :	PL	Credits	5
Method of evaluation :	written examination 120 min		
Requirements :			
Cross References :			
Previous knowledges :			
Aids and special features :	Mode of assessment Pass at course examination Graded: yes Continuous Evaluation for assignments. Overall grade is the course examination grade.		
Teaching aims :	Students will know the basics of information processing and artificial intelligence (AI) as well as their practical applications in computer science and media. They will learn how to apply, construct and implement relevant processes and algorithms, including estimating and judging their performance.		
Contents :	Introduction to AI, search procedures (esp. heuristic), rule-based knowledge representation (forward and backward chaining), derivative tree, conflicts, metarules), logic-based knowledge representation, expert systems and tools, introduction to soft computing, uncertainties and ambiguity, security factors, fuzzy logic, time-knowledge and temporal inference and machine learning.		
Literature :	Boersch I., Heinsohn J., Socher R.: Wissensverarbeitung - Eine Einführung in die KI, Spektrum, 2. Auflage, 2007 Spreckelsen, C., Spitzer, K.: Wissensbasen und Expertensysteme in der Medizin: KI-Ansätze zwischen klinischer Entscheidungsunterstützung und medizinischem Wissensmanagement, Vieweg+Teubner, 2008 Lämmel U., Cleve J.: Künstliche Intelligenz, 3. Auflage, Hanser Fachbuch, 2008 Russell S., Norvig P.: Artificial Intelligence: A Modern Approach, (3rd Edition), 2009		

Mobile Health		Course	INF
Lecturers :	Prof. Dr. Thomas Schrader eMail	Term	4
Course Classification :	Bachelor Medizininformatik, Katalog B-MED-INF Wahlpflicht	CH	4
Language :	Lecture German, materials English, individual support in English	Type	VÜ
Type of examination :	PL	Credits	5
Method of evaluation :	term paper with oral examination		
Requirements :			
Cross References :			
Previous knowledges :			
Aids and special features :	Mode of assessment Coursework with oral examination Graded: yes Continuous Evaluation for assignments.		
Teaching aims :			
Contents :			
Literature :	Schweizer W.: MATLAB kompakt, Oldenbourg 2013. Husar, P., Biosignalverarbeitung, Springer Verlag, Heidelberg, Dordrecht, London, New York, 2010 Bruce, E. N., Biomedical Signal Processing and Signal Modeling, John Wileys & Sons, 2001		

Department of Computer Science and Media: Master modules

See also <https://informatik.th-brandenburg.de/studium/plaene-und-termine/vorlesungsverzeichnis/> for up-to-date information!

Media Security		Course	INF
Lecturers :	Prof. Dr. Claus Vielhauer eMail Dipl.-Inform. Tobias Scheidat eMail	Term	2
Course Classification :	Informatik Master, Vertiefung Security and Forensics	CH	4
Language :	Lecture German, materials in English, individual participation in English possible (i.e. with additional English excercises, tutorials, summaries, educational materials and individual tasks)	Type	VÜS
Type of examination :	PL	Credits	6
Method of evaluation :	term paper with oral examination		
Requirements :	Please let us know your course choice early to inform the lecturer of your participation.		
Cross References :			
Previous knowledge :			
Contents :			
Literature :	Dittmann J.: Digitale Wasserzeichen – Grundlagen, Verfahren, Anwendungsgebiete, Springer Verlag, ISBN 3-540-66661-3, 2000 Kunkelmann T.: Sicherheit für Videodaten, Vieweg Verlag, ISBN 3-528-05680-0, 1998. Steinmetz R.: Multimediaetechnology, Springer, 2. Auflage, ISBN 3-540-62060, 1999 Cox I. J., et al.: Digital Watermarking and Steganography, Morgan Kaufmann, ISBN-13: 978-0123725851, 2007 Johnson N. F., Duric Z., Jajodia S.: Information Hiding: Steganography and Watermarking - Attacks and Countermeasures, Springer, ISBN-10: 9780792372042, 2000 Katzenbeisser S., et al.: Information Hiding – techniques for steganography and digital watermarking, Artech, ISBN-10: 9781580530354, 2000		

NFMW P: GameLab		Course	INF
Lecturers :	Prof. Stefan Kim eMail	Term	1
Course Classification :	Master Informatik (Winter-Immatrikulation), Projekte Informatik	CH	3

Language :	Lecture German, materials in English, individual support in English	Type	L
Type of examination :	PL	Credits	0
Method of evaluation :	term paper with oral examination		
Literature	Lintrami, Tommaso: Unity 2017 Game Development Essentials, Packt Publishing 2018 Linowes, Jonathan: Unity Virtual Reality Projects, Packt Publishing 2015 Seifert, Carsten: Spiele entwickeln mit Unity 5: 2D- und 3D-Games mit Unity und C# für Desktop, Web & Mobile, Carl Hanser Verlag, Auflage: 3 (2017) Zucconi, Alan/Lammers, Kenneth: Unity 5.x Shaders and Effects Cookbook, Packt Publishing 2016 Andrew Finch: The Unreal Game Engine: A Comprehensive Guide to Creating Playable Levels, 3DTotal Publishing 2014 Pluralsight – Online Learning Platform		

Data Mining

Cloud Computing, advanced topics

Digital Business Models

Digital Film production

Interactive products and services

Media psychology

All with German lecture, but English material and English support available.

Department of Engineering: Bachelor modules

English name:	Energy and Process Engineering
German name:	Labor und Seminar Energie- und Verfahrenstechnik
Semester:	Summer Semester
Curriculum	MEVT, 6. Semester, Pflichtfach
ECTS:	5
Lecturer	Prof. Dr.-Ing. Robert J. Flassig
Language	German or English

Brief module label:	Introduction into micro controllers
Module description:	
semester:	Summer Semester
Level:	Bachelor
curriculum	Elective of the bachelor programme in Mechanical Engineering
ECTS:	5
Lecturer	Prof. Kramann
Language	German, for exchange students English. Content available upon request

Brief module label:	Realtime Systems
Module description:	
semester:	Summer Semester
Level:	Bachelor
curriculum	Elective of the bachelor programme in Mechanical Engineering
ECTS:	5
Lecturer	Prof. Kramann
Language	German, for exchange students English. Content available upon request

Brief module label:	Simulation and steering systems
Module description:	
Semester	Summer Semester
Level:	Bachelor
curriculum	Elective of the Bachelor's programme in Mechanical Engineering
ECTS:	5
Lecturer	Prof. Kramann
Language	German, for exchange students English. Content available upon request

Brief module label:	Numerical Methods for Engineers
Module description:	M-7b Elective, „M7B“
semester:	Summer Semester

Level:	Bachelor
curriculum	Elective of the Bachelor's programme in Mechanical Engineering
ECTS:	
Lecturer	Profes. M. Kraska, R. Flassig, P. Flassig
Language	German, for exchange students English. Content available upon request
	Blocked Seminar

Program:	Mechanical Engineering (B.Eng.)
Module name:	Computational Methods with SMath Studio
German title	Numerische Methoden mit SMath Studio
ID	CMSS
Optional subtitle:	
Optional course:	
Study semester:	5th, 6 th (only in summer 2024, later in winter semester)
Regular cycle:	Annually in winter term (as an exception also in summer term 2024)
Module coordinator:	Prof. Dr.-Ing. Martin Kraska
Lecturer:	Prof. Dr.-Ing. Martin Kraska
Teaching language:	English
Assignment to the curriculum	Elective module in Mechanical Engineering (B.Eng.)
Teaching methods:	2 h per week lecture, 2 h per week guided lab work
Workload:	150 h, thereof 60 h in presence and 90 h self-study
Credit points:	5 CP
Formal prerequisites	none
Recommended prerequisites:	Informatics, Mathematics

Learing outcome:	<p>The students understand the concept of SMath Studio as a tool for performing and documenting engineering calculations.</p> <p>They understand the power and the limitations of numerical procedures and can implement and use them in SMath Studio documents.</p> <p>They can run performance tests and use the debug tools of SMath Studio.</p> <p>They understand the impact of symbolic and numeric evaluation.</p> <p>They understand how to efficiently make use of scientific units in SMath documents.</p> <p>The students know advanced options for data analysis and high quality plots.</p>
Content of the course	<ul style="list-style-type: none"> • SMath Studio and it's ecosystem • Handling of scientific units • Handling of matrices, linear algebra • Linear systems and eigenvalue problems

Department of Engineering: Master modules

English name:	Energy Storage System
German name:	Energiespeicher
Semester:	Summer Semester
Curriculum	Energieeffizienz Technischer Systeme (M.Eng.), Wahlpflichtmodul, 1./2. Semester
ECTS:	6
Lecturer	Prof. Dr.-Ing. Robert J. Flassig
Language	German or English

English name:	Mathematical Optimization
German name:	Mathematische Optimierung
Semester:	Summer Semester
Curriculum	Energieeffizienz technischer Systeme (M.Eng.), Pflichtmodul, 1./2. Semester Maschinenbau (M.Eng.) Pflichtmodul 4, 1./2. Semester
ECTS:	6
Lecturer	Prof. Dr.-Ing. Robert J. Flassig
Language	German or English

Brief module label:	Development of Autonomous Mobile Systems
Module description:	
semester:	Summer Semester
Level:	Master
curriculum	Elective of the Master's programme in Mechanical Engineering
ECTS:	6

Lecturer	Prof. Kramann
Language	German, for exchange students English. Content available upon request

Brief module label:	Laser Technology (LTE)
German Name:	
Programme:	Photonics, M. Eng.
Lecturer:	Prof. Justus Eichstädt
Semester:	2
Total workload and its composition:	Lecture 3 hours/week Seminar 1 hour/week
ECTS	4
Language	English, German
Prerequisites:	Bachelor and basic knowledge of Physics/Optics
Literature:	Joachim Eichler, H. & Eichler, J. (2015). Laser: Bauformen, Strahlführung, Anwendungen. Springer Vieweg. Menzel, R. (2007). Photonics : Linear and Nonlinear Interactions of Laser Light and Matter. Springer-Verlag Berlin and Heidelberg GmbH & Co. KG. Kneubühl, F. K., Sigrist, M. W. (2008) Laser, Springer Vieweg

Brief module label:	Biophotonics
Programme:	Photonics, M. Eng.
Lecturer:	Prof. Justus Eichstädt
Semester:	2
Total workload and its composition:	Lecture 2 hours/week
ECTS:	2
Language	English, German
Prerequisites:	Bachelor and basic knowledge of Physics, Chemistry, Material sciences, Measurements

Brief module label:	Introduction to Laser Technology and Laser Material Processing
Study programme	Mechanical Engineering (M.Eng.)
Semester:	1. Semester
Semester:	Summer semester
lecturer	Prof. Justus Eichstädt
Language	For exchange students English
Total workload and its composition:	Lecture 2 hours/week, lab 2 hours/week
Workload:	180 h, 60 h contact hours, 120 h self study
ECTS	6 ECTS

Additional Subjects

Brief module label:	DaF
Module description	German as a Foreign Language
Type of module :	Seminar
Duration of module:	one semester
Classification in the curriculum:	Extra offer
Usability of the module	The exact level of the course will be determined based on the participants' German language proficiency.
Frequency:	each semester
Author:	Jutta Kunze, M.A.
Lecturer:	Ms Martinčević
Language of instruction:	English and German
Prerequisites:	None
ECTS-Credits:	3
Total workload and its composition:	75 h: 60 h contact hours, 15 h self-study
Form of teaching /semester hours per week	4 semester hours per week
Study and examination achievements	Tests or presentations
Weighting of the grade in the overall grade:	-
Learning outcomes:	<ul style="list-style-type: none"> - Development of general language vocabulary (informal and formal level) - Development of communication skills for successful participation in discussions in everyday communication and study situations - Development of competences in reading, writing and listening with different types of texts - Intercultural findings from the comparison of culturally selected priorities (Germany - home country) - Improving grammatical skills (depending on the initial level)
Contents:	<ul style="list-style-type: none"> - Different forms of vocabulary work - Oral and written communication tasks - Adapted and/or original, partly current reading and listening texts (depending on proficiency level) on various topics (for example, work/profession, sports, doping, media ...)
Teaching and learning methods	Teacher input, pair work, group work, learners lecture, exercises in teams, work with audio and video files.
Literature:	Different books for German as a foreign language Journals, newspapers and websites

Brief module label:	Brandenburg
Module description	History of the city of Brandenburg
Type of module :	Seminar
Duration of module:	one semester
Classification in the curriculum:	Extra offer
Usability of the module	The module can be used regularly for exchange students.
Frequency:	each semester
Author:	Dr. Hans-Georg Kohnke
Lecturer:	Dr. Hans-Georg Kohnke
Language of instruction:	German and English
Prerequisites:	None
ECTS-Credits:	2 – winter semester, 3 – summer semester
Total workload and its composition:	50 h: 50 h contact hours – winter semester 75 h: 75 h contact hours – summer semester
Form of teaching /semester hours per week	5 blocked sessions winter semester, 6-7 blocked sessions summer semester
Study and examination achievements	Oral exam
Weighting of the grade in the overall grade:	-
Learning outcomes:	The students gain knowledge about over a thousand years history of the Brandenburg city and Germany in general by visiting several museums and cultural sites
Contents:	<ul style="list-style-type: none"> - Over thousand years of German history in the Town Museum and city walk - Brandenburg Cathedral and Cathedral Museum - Industrial Museum in the old Steelworks - Brandenburg Archaeological State Museum - Berlin: Parliament – Reichstag, Brandenburg gate and German Historic Museum - Only summer semester: Canoeing tour around Brandenburg with Olympic game winner - Only summer semester: additional museum
Teaching and learning methods	Guided tours and discussions, presentations