

Module Handbook for the Degree Programme Logistics (B.Eng.)

Version applies to all students who begin their studies on 1 October 2022 or later

Basis: Study and examination regulations in the version dated 22 June 2022

Valid for winter term 2022/23

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Preliminary Remarks

This module handbook contains descriptions of all modules and their courses that have to be completed by students of the Bachelor's programme Logistics (IBL) at the Technical University of Applied Sciences Würzburg-Schweinfurt (former University of Applied Sciences Würzburg-Schweinfurt).

Details on the first part of studies (semester 1-3) and second part of studies (semester 4-7) contain the description of all those modules laid down in to the Appendix of the Study and Examination Regulations (SPO). In the second part of studies students have to complete three Core Elective Modules (ELMA, ELMB, ELMC) from a variety of modules. Possible modules are listed in [Appendix 1](#). From a variety of courses for the module Core Competences 2 (COC2) students have to complete one. Possible courses are listed in [Appendix 2](#).

In general, module descriptions are written in the respective language of instruction/examination according to the Study and Examination Regulations.

Due to changing conditions (e.g. newly appointed professors), actual teaching staff and times/dates may vary from the details given in this module handbook. Only the study plan published for the respective semester is binding; it is decided upon every semester and published in the e-Learning course "[Studien- und Prüfungsangelegenheiten/study and examination matters](#)".

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First Part of Studies, Programme Semester 1 to 3

1.1 OPME - Operations Management

Module profile			
Module ID	OPME		
Module name	Operations Management		
Exam number	3930110		
Duration	1 semester		
Frequency	Winter semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	SU (=seminar-like lecture) (2 SWS); Ü (= exercise course) (2 SWS)		
Language of instruction	English		

Organisation	
Responsible	Prof. Dr. Machholz
Lecturer(s)	Prof. Dr. Beer; Prof. Dr. Machholz
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 1 st semester Core module -
Particular conditions for the participation in the module according to the SPO	-
Recommended prerequisites for the participation in the module	-

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO
Examination - length/format	90-120 minutes The concrete length of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course " Studien- und Prüfungsangelegenheiten/study and examination matters ".
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

Learning outcomes, content and literature

Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Identify, explain and compile the basic principles of planning, manufacturing and distribution of goods or services. • Understand the role and application of operations management principles, techniques, and tools especially in the context of logistics. • Apply fundamental terminology and principles of material- and information flow in manufacturing and logistics applications. • Formulate operational challenges in manufacturing, logistics, and services as optimization problems.
Content	<ul style="list-style-type: none"> • Introduction to operations, basic process understanding (input/operations/output) for delivering products and services • Types of production strategies and systems: small batch vs. mass vs. continuous; push vs. pull (de-coupling points) • Process view and functional view of organizations • Basic terminology of MRP (materials requirements planning) and Lean • Design parameters and performance measurement in production and services: (e.g. cycle time waiting time, throughput, inventory, yield/scrap, customer satisfaction, deliveries on time, tardiness, cost, productivity, capacity, flexibility; Little's Law) • Inventory Management: (e.g. types of inventory, inventory on hand, inventory turns, inventory holding cost, delivery modes, selection of delivery mode, inventory as a buffer, Inventory- lean perspective vs. resiliency) • The impact of variability and dependence on material flow • Introduction to bottleneck management • Introduction to scheduling and queueing: e.g. optimization objectives, utilization/costs vs. queueing time, applications in production and logistics • Layouts and layout planning: e.g. types of layouts and their application, objectives of layout planning, optimization problems in layout planning • Aggregate planning: e.g. applications, optimization problems, formulating and solving simple optimization problems (IT-supported) • Capacity management and expansion • Break-even analysis • Location strategies: methods and applications <p>How Operations Management is linked to other subjects of the IBL curriculum (e.g. the lectures are reflected in a model plant (SimLog Industry) where students can experience Operations Management in a realistic SAP working environment. At Sim-Log students see operations in a nutshell).</p>

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Literature	<ul style="list-style-type: none"> • Cachon, G. and Terwiesch, C. (2019): <i>Matching supply with demand: An introduction to operations management</i>, 4th ed., International Student Ed., New York: McGraw-Hill. • Goldratt, E. M. and Cox, J. (2004): <i>The Goal. A Process of Ongoing Improvement</i>, 3rd ed., Great Barrington, MA: North River Press. • Heizer, J. and Render, B. (2017): <i>Operations Management</i>, 12th ed., Essex: Pearson Education. • Slack, N.; Chambers, S.; Johnston, R. and Betts, A. (2009): <i>Operations and Process Management</i>, 2nd ed., Harlow: Financial Times Prentice Hall. • Waller, D. (2003): <i>Operations Management - A Supply Chain Approach</i>, 2nd ed., London: Thomson Learning.
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1.2 TAFO - Transportation Management and Forwarding

Module profile			
Module ID	TAFO		
Module name	Transportation Management and Forwarding		
Exam number	3930120		
Duration	1 semester		
Frequency	Winter semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	SU (= seminar-like lecture); S (= seminar)		
Language of instruction	English		

Organisation	
Responsible	Prof. Dr. Schmidt
Lecturer(s)	Prof. Dr. Schmidt
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 1 st semester Core module -
Particular conditions for the participation in the module according to the SPO	-
Recommended prerequisites for the participation in the module	-

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO
Examination - length/format	90-120 minutes The concrete length of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters” .
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Know important trends, meanings, objectives and general conditions of the design of logistics and transport systems in road freight transport. • Explain temporal, geographic and object alternatives in the design of freight forwarding logistics service systems. • Apply network-based models of logistics to be able to identify important managerial-technical improvements in logistics- and transportation systems. • Compare modes of surface transportation and select the right mode according to the specific requirements of different types of goods, infrastructural conditions and customer segments. • Explain the different roles, business models, technical infrastructures, as well as management challenges of market participants in selected value chains of road freight transport. • Identify the specifics of controlling and sales/marketing of transport services and to derive general rules for transportation network design within a supply chain.
Content	<ul style="list-style-type: none"> • Terminologies and characterization of demand in forwarding logistics services • Components, objectives and framework for the design of a transportation system in freight transport • Temporal-geographical integration of transportation networks and factors for the choice of the right transport mode • Design options in the object dimension - integration of goods, loading units and transport vehicles • Design of selected value chains of forwarding services in road freight transportation. • Transport management, marketing and sales of logistics services in the Supply Chain
Literature	<ul style="list-style-type: none"> • Bowersox, D.; Closs, D. and Cooper, B. et.al (2013): <i>Supply Chain Logistics Management</i>, 4th ed., New York: McGraw-Hill (Chapters: Transport Infrastructure, Transportation Management, Warehouse Management, Packaging). • Gubbins, E. (2009): <i>Managing Transport Operations</i>, 3rd ed., The Chartered Institute of Logistics and Transport (UK), London: Kogan Page. • Simchi-Levi, D., Kaminsky, P. and Simchi-Levi, E. (2003): <i>Designing & Managing the Supply Chain. Concepts, Strategies & Case Studies</i>, 2nd ed. Boston: McGraw-Hill.

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1.3 ECOM - Communication Skills for Logistics

Module profile			
Module ID	ECOM		
Module name	Communication Skills for Logistics		
Exam number	3930130		
Duration	1 semester		
Frequency	Winter semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Wunderlich	
Lecturer(s)	Mr. Rogers; Prof. Dr. Wunderlich	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 1 st semester Core module -	BLO 1 st semester Core module -
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	Recommended entry level: B2	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	Präsentation m. E. (= successfully passed presentation (ungraded))
Examination - type	sP (= written examination)
Examination - length/format	90-120 minutes
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Understand with ease most types of written and particularly spoken linguistic interaction (e-mail writing, discussions, and, particularly, oral presentations using PowerPoint). • Use a differentiated academic and subject-specific vocabulary. • Apply their knowledge in correct grammatical and stylistic structures.
Content	<ul style="list-style-type: none"> • language learning skills • presenting in English: language and strategies • speaking on logistics-related topics such as transport, planning, containers, supply-chain-management, outsourcing to China, ethical sourcing, operations management, and production • discussing and reading densely-woven texts on logistics-related topics • writing logistics-related texts and e-mails • politeness strategies and developing intercultural competence
Literature	<ul style="list-style-type: none"> • Emmerson, P. (2007): <i>Business English Handbook Advanced</i>, London: Macmillan Education. • Grant, D.B. et al. (2006): <i>Fundamentals of Logistics Management, European Ed.</i>, London: Pearson Education. • Grussendorf, M. (2010): <i>English for Logistics</i>, Berlin: Cornelsen. • Pilbeam, A. and O'Driscoll, N. (2010): <i>Market Leader Logistics Management</i>, London: Pearson Education. • Powell, M. (2010): <i>Dynamic Presentations</i>, Cambridge: Cambridge University Press. • Wallwork, A. (2014): <i>E-mail and Commercial Correspondence. A Guide to Professional English</i>, Berlin: Springer Science + Business Media. • Further literature and materials, such as topical journal or newspaper articles related to the field, will be presented by the instructor in the course and on e-learning as need arises.

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1.4 COSC - Introduction to Computer Sciences

Module profile			
Module ID	COSC		
Module name	Introduction to Computer Sciences		
Exam number	3930340		
Duration	1 semester		
Frequency	Winter semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	SU (=seminar-like lecture) (2 SWS), Ü (= tutorial) (2 SWS)		
Language of instruction	English		

Organisation	
Responsible	Prof. Dr. Diethelm
Lecturer(s)	Dr. Bauchspieß; Prof. Dr. Diethelm; Prof. Dr. Knobloch; Prof. Dr. Motzek; Prof. Dr. Zirkelbach
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 1 st semester Core module -
Particular conditions for the participation in the module according to the SPO	-
Recommended prerequisites for the participation in the module	-

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO
Examination - length/format	90 minutes
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Know the fundamentals of programming and apply selected programming techniques. • Implement simple algorithms in a high level programming language using basic data types and simple data structures. • Analyse simple programming problems and formulate algorithms for their solution. • Identify and define network devices and protocols. • Explain communication between network devices. • Differentiate various types of databases. • Develop and apply database structures. • Describe the foundations of hardware and software technology.
Content	<ul style="list-style-type: none"> • Data types and variables • Expressions and operators • Instruction sets • Control structures • Functions, procedures and modularization • Software development process, supply and licensing models • Introduction to networks • Database design and use on the basis of SQL • Software architectures
Literature	<ul style="list-style-type: none"> • Brookshear, J. G. (2012): <i>Computer Science: An Overview</i>, 11th ed., Boston: Addison Wesley. • Coronel, C. and Morris, S. (2016): <i>Database Systems: Design, Implementation, and Management</i>, 12th ed., Boston: Cengage Learning. • Downey, A. B. (2015): <i>Think Python</i>, 2nd ed., Needham: Green Tea Press; https://greenteapress.com/wp/think-python-2e/ • Kurose, J. F. and Ross, K. W. (2017): <i>Computer Networking: A Top-Down Approach</i>, 7th ed. Boston: Pearson. • Langtangen, H. P. (2016): <i>A Primer on Scientific Programming with Python</i>, 5th ed. Berlin: Springer. • Mir, N. F. (2015): <i>Computer and Communication Networks</i>, 2nd ed., Upper Saddle River: Pearson Education. • Further suggestions can be found at https://www.python.org under "Documentation/Python Books".

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1.5 INTL - International Trade Law

Module profile			
Module ID	INTL		
Module name	International Trade Law		
Exam number	3930150		
Duration	1 semester		
Frequency	Winter and summer semester (WS in IBL; SS in IBE)		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	SU (=seminar-like lecture)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Ehret	
Lecturer(s)	Prof. Dr. Ehret; Prof. Dr. Meyer	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 1 st semester Core module -	IBE 2 nd semester Core module -
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	-	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO
Examination - length/format	90-120 minutes The concrete length of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters” .
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature

Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Classify facts with reference to private business law correctly and to judge them in a correct legal way. • Explain the basic institutions of private business law. • Make operational decisions also taking into account legal norms. • Explain the conclusion of contracts and the creation of statutory obligations. • Interpret contracts. • Explain questions of ownership and possession. • Recognize the influence of commercial law on civil law.
Content	<p>Fundamentals of international trade law, i.e. WTO and GATT, CISG, and in particular:</p> <ul style="list-style-type: none"> • Conclusion and implementation of contracts and pre-contractual obligations, including the right to disrupt performance • Principles of statutory obligations • Important players in international trade • Customs and taxes • Introduction to international mergers & acquisitions. • Mechanism of dispute resolution: state courts and arbitration panels
Literature	<ul style="list-style-type: none"> • August, R.A; Mayer, D. and Bixby, M.B (2012): <i>International Business Law: International Ed.: Text, Cases, and Readings</i>, 6th ed., London: Pearson Education Limited. • Herdegen, M. (2016): <i>Principles of International Economic Law</i>, 2nd ed., Oxford: Oxford University Press. • Kratz, A.W. (2006): <i>Remedies for breach of contract under the CISG. International review of law and economics</i>, pages 378-396, volume 25, Issue 3, Amsterdam: Elsevier B.V. • Schweizer, I.; Fountoulakis, C. and Dimsey, M. (2019): <i>International Sales Law, a guide to the CISG</i>, 3rd ed., Oxford: Hart Publishing.

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1.6 MATB - Mathematics - Basics

Module profile			
Module ID	MATB		
Module name	Mathematics - Basics		
Exam number	3930160		
Duration	1 semester		
Frequency	Winter semester		
Credit hours (SWS)	6		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	90	60
Teaching format	SU (=seminar-like lecture) (4 SWS), Ü (=exercise course) (2 SWS)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Fabeck	
Lecturer(s)	Dr. Bauchspieß; Prof. Dr. Bier; Prof. Dr. Bletz-Siebert; Prof. Dr. Diethelm; Prof. Dr. Fabeck; Dr. Latour; Prof. Dr. H.-J. Meier; Prof. Dr. H. Walter; Prof. Dr. Wimmer; Prof. Dr. Zirkelbach	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 1 st semester Core module -	IBE 1 st semester Core module -
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	Mathematical knowledge on advanced school level: elementary logic, sets, functions (in particular, real-valued functions of a real variable).	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO
Examination - length/format	90-120 minutes The concrete length of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course " Studien- und Prüfungsangelegenheiten/study and examination matters ".
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature

Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Understand and use fundamental mathematical concepts and methods that are necessary for technically oriented modules in higher semesters. • Solve mathematical routine tasks in differential and integral calculus of one real variable. • Use methods from differential and integral calculus to solve practical problems. • Select appropriate models and methods for solving simple problems from the fields of industry and economy.
Content	<ul style="list-style-type: none"> • Sets and numbers • Complex numbers • Functions of real variables • Limits and continuity • Differential calculus of a single real variable • Integral calculus of a single real variable • Vectors
Literature	<ul style="list-style-type: none"> • Ayres, F. and Mendelson, E. (2013): <i>Schaum's Outline of Calculus</i>. New York: McGraw-Hill. • Stewart, J. (2015): <i>Calculus: Early Transcendentals - International Metric Ed.</i>, 8th ed., Andover: Cengage Learning EMEA. • Strang, G. (2017): <i>Calculus</i>, 3rd ed. Wellesley: Wellesley-Cambridge Press.

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2.1 ISCS - Introduction to Storage and Conveyor Systems

Module profile			
Module ID	ISCS		
Module name	Introduction to Storage and Conveyor Systems		
Exam number	3930210		
Duration	1 semester		
Frequency	Summer semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	SU (=seminar-like lecture), S (=seminar)		
Language of instruction	English		

Organisation	
Responsible	Prof. Dr. Beer
Lecturer(s)	Prof. Dr. Beer
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 2 nd semester Core module -
Particular conditions for the participation in the module according to the SPO	-
Recommended prerequisites for the participation in the module	Successful passing of OPMG.

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO
Examination - length/format	90-120 minutes The concrete length of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course "Studien- und Prüfungsangelegenheiten/study and examination matters" .
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature	
Learning outcomes	<p>Upon successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Explain the purpose, functioning of relevant technologies for storage, retrieval, transportation, picking and object manipulation in intralogistics systems. • Participate in planning projects of logistics systems in a systematic and structured manner. • Select appropriate technologies for a task at hand. • Explain their reasoning behind technology decisions in logistics automation projects. • Engage with customers, consultants, sales managers, planning engineers, management, and other stakeholders on a technically advanced level.
Content	<p>The module aims to cover the most important aspects of technologies related to storage/retrieval, transportation, picking, and object manipulation in intralogistics systems. Topics covered include:</p> <ul style="list-style-type: none"> • Overview of relevant intralogistics technologies and concepts • Storage concepts: block storage, rack/shelf storage, automated storage and retrieval systems for pallets-based load and small parts • Decision parameters and relevant KPIs for storage systems • Transportation and sortation systems for pallet-based loads and small parts: chain conveyors, roller conveyors, belt conveyors, monorails, AGVs/AMRs, shoe sorters, tilt-tray sorters, pouch sorters, cross belt sorters, switch/wheel sorters, AMR-based sorters • Decision parameters and relevant KPIs for transportation systems • Types of robots and their applications in intralogistics systems: depalletizing, palletizing, consolidation, sortation, picking, kitting • Sensors, actuators, PLC control systems
Literature	<ul style="list-style-type: none"> • Gudehus, T. and Kotzab, H. (2009): <i>Comprehensive Logistics</i>, Berlin/Heidelberg: Springer. • Pfohl, H.-C. (2022): <i>Logistics Systems</i>, Berlin/Heidelberg: Springer. • Rushton, A.; Croucher, P. and Baker, P. (2014): <i>The Handbook of Logistics and Distribution Management: Understanding the Supply Chain</i>, 5th ed., London: Kogan Page.

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2.2 PMSW - Project Management and Scientific Working

Module profile			
Module ID	PMSW		
Module name	Project Management and Scientific Working		
Exam number	3930220		
Duration	1 semester		
Frequency	Winter and summer semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Schmidt	
Lecturer(s)	Prof. Dr. Beer; Prof. Dr. Gampl; Prof. Dr. Scheller; Prof. Dr. Schmidt; Prof. Dr. Stadelmann	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 2 nd semester Core module -	IBE 3 rd semester Core module -
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	-	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO or soP (= other examined assignment) according to §§ 26, 27 APO
Examination - length/format	<ul style="list-style-type: none"> • If sP: 90 minutes • If soP: documentation report <p>The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters”.</p>
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Describe procedures, methods and tools of conventional and agile project management. • Plan and document a project with regard to content and time framework conditions and to control it with the help of IT tools. • Identify project management problems and design solution strategies. • Design or derive a logical and coherent structure as well as research questions for seminar papers and bachelor theses. • Use the rules of correct scientific citation in a scientific work. • Identify scientific sources and methods relevant to the research question. • Develop a coherent argumentation in the work and to present the research results.
Content	<ul style="list-style-type: none"> • Function, types, contents and processes of conventional project management • Content and use of basic project documents such as project proposal, project order, work-breakdown-structure and Gantt-chart • Process and resource planning in projects • Use of an IT-tool with exercises for project planning and control • Communication, teamwork, self-reflection and versatility in projects • Introduction and practice of agile project management methods • Scientific citation and citation methods • Research questions and writing an introduction • Structuring of a scientific work • Scientific methods and empirical tools • Organization and planning of the bachelor thesis • Literature research in electronic databases and selection of suitable sources • Use of writing and citation programs • Presentation of methodological and content-related results
Literature	<ul style="list-style-type: none"> • Aken van, J.; Berends, H. and Bij van der, H. (2012): <i>Problem solving in organizations. A methodological handbook for business and management students</i>, Cambridge: Cambridge University Press. • Campell, C. (2007): <i>The One-Page-Project Manager, Communicate and manage any project with a single sheet of paper</i>. Hoboken: Wiley. • Easterby-Smith, M.; Thorpe, R./ and Jackson, P.R. (2015): <i>Management & Business Research</i>, 5th ed., Los Angeles: SAGE. • Hermarij, J. (2016): <i>The Better Practices of Project Management. Based on the IPMA Competences</i>, 4th ed., Amersfoort: Van Haren Publishing. • Minto, B. (2009): <i>The Pyramid Principle, Logic in Writing and Thinking</i>, Harlow: Prentice Hall Education. • Müller, S. and Roth A. (2015): <i>Academic Writing. Guidelines for a Term Paper, Bachelor and Master Thesis</i>, Nürnberg: self-publishing.

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2.3 ACCO - Accounting

Module profile			
Module ID	ACCO		
Module name	Accounting		
Exam number	3930230		
Duration	1 semester		
Frequency	Winter and summer semester (SS in IBL; WS in IBE)		
Credit hours (SWS)	6		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	90	60
Teaching format	SU (= seminar-like lecture)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Ankenbrand	
Lecturer(s)	Prof. Dr. Ankenbrand; Prof. Dr. Kraus; Prof. Dr. M. Walter	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 2 nd semester Core module -	IBE 3 rd semester Core module -
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	Successful passing of the module ECSB.	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO
Examination - length/format	90-120 minutes The concrete length of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course "Studien- und Prüfungsangelegenheiten/study and examination matters" .
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Explain the differences between financial and managerial accounting. • Identify the basic principles of annual financial statements. • Solve simple questions of approach and assessment. • Classify cost accounting terms. • Interpret cost trends and apply overhead costs. • Apply activity based costing. • Explain the concept of the time value of money. • Apply methods of investment calculation adequate to the target.
Content	<p>Financial Accounting</p> <ul style="list-style-type: none"> • Reasons for Accounting Differences and Need for Globally Converged Accounting Standards • The International Accounting Standards Board • Role and Structure of the IFRS • Major Accounting Issues under IFRS <p>Management Accounting</p> <ul style="list-style-type: none"> • Basics of cost- and activity accounting • Cost type calculations • Cost center calculations • Overhead and cost unit calculations • Basics of controlling <p>Basic Corporate Finance</p> <ul style="list-style-type: none"> • Time Value and Investment Decisions • Financial Planning • Risk and Return Relationship • Risk and uncertainty in investment decisions • Long and short term finance • Cash and Inventory management
Literature	<ul style="list-style-type: none"> • Berk, J. and DeMarzo, P. (2013): <i>Corporate Finance</i>, 3rd ed., Boston: Pearson Education. • Brealey, R.; Myers, S. and Allen, F. (2010): <i>Principles of Corporate Finance - Concise Ed.</i>, 2nd ed., New York: McGraw-Hill Education. • Britton, A.; Hoogendoorn, M.; Jorissen, A.; van Mourik, C. and Alexander, D. (2014): <i>International Financial Reporting and Analysis</i>, Boston: Cengage Learning. • Rich, J.; Jones, J.; Heitger, D.; Mowen, M. and Hansen, D. (2012): <i>Financial and Managerial Accounting. The Cornerstone of Business Decisions</i>, 2nd ed., Boston: Cengage Learning. • Stolowly, H.; Lebas, M. and Ding, Y. (2017): <i>Financial Accounting and Reporting A Global Perspective</i>, 5th ed., Boston: Cengage Learning. • Weber, J.; and Schäfer, U. (2008): <i>Introduction to Controlling</i> 1st ed., Stuttgart: Schäffer-Poeschel.

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2.4 PHYC - Physics

Module profile			
Module ID	PHYC		
Module name	Physics		
Exam number	3930240		
Duration	1 semester		
Frequency	Winter and summer semester (SS in IBL; WS in IBE)		
Credit hours (SWS)	6		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	90	60
Teaching format	SU (=seminar-like lecture) (4 SWS); Ü (= exercise course) (2 SWS)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Seufert	
Lecturer(s)	Dr. Davidson; Prof. Dr. Fabeck; Prof. Dr. Mark; Prof. Dr. Motzek; Prof. Dr. Seufert; Prof. Dr. H. Walter	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 2 nd semester Core module -	IBE 1 st semester Core module -
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	-	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO
Examination - length/format	90-120 minutes The concrete length of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters” .
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Understand the importance of physics for the engineering sciences. • Describe the fundamental principles of physics and recognize the physical laws behind technological applications. • Evaluate and calculate simple mechanical and fluid-mechanical systems.
Content	<ol style="list-style-type: none"> 1. Mechanics <ul style="list-style-type: none"> • Basics of kinematics • Introduction to dynamics • Momentum and collisions • Rotational motion 2. Fluid mechanics <ul style="list-style-type: none"> • Basics of fluid statics and fluid dynamics • The Bernoulli equation and its applications • Laminar flow • Turbulent flow • The Bernoulli equation with friction 3. Oscillations <ul style="list-style-type: none"> • Simple harmonic motion • Undamped and damped harmonic oscillations
Literature	<ul style="list-style-type: none"> • Halliday, D.; Resnick, R. and Walker, J. (2014): <i>Principles of Physics</i>, 10th ed., New York: John Wiley & Sons. • Mosca, G. and Tipler, P.A. (2007): <i>Physics for Scientists and Engineers</i>, 6th ed., Basingstoke: Palgrave Macmillan.

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2.5 STAC - Statistics

Module profile			
Module ID	STAC		
Module name	Statistics		
Exam number	3930250		
Duration	1 semester		
Frequency	Winter and summer semester (SS in IBL; WS in IBE)		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	SU (= seminar-like lecture)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Kobmann	
Lecturer(s)	Dr. Davidson; Prof. Dr. Fabeck; Prof. Dr. Mark; Prof. Dr. Zirkelbach	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 2 nd semester Core module -	IBE 1 st semester Core module -
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	-	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO
Examination - length/format	90-120 minutes The concrete length of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course "Studien- und Prüfungsangelegenheiten/study and examination matters" .
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Use basic terminology of statistics. • Define the role and interaction of descriptive statistics, probability calculus and inferential statistics. • Recognize and classify the implementation of these different parts of statistics into concrete statistical procedures. • Understand and classify the analysis of statistical data, the application of probability calculus to the analysis of random events, and the methodical collection of samples and their evaluation.
Content	<p>1. Descriptive statistics</p> <ul style="list-style-type: none"> • Fundamentals: Fundamental notions, sampling and processing data, process of a statistical study • Analysis of univariate data: frequency distributions, measures of central tendency and of dispersion, measures of concentration • Analysis of bivariate data: dependency of variables, contingency tables, analysis of correlation, regression analysis • Selected further topics (e.g. time SPOies analysis, smoothing, index numbers, analysis of inventory) <p>2. Probability calculation</p> <ul style="list-style-type: none"> • Fundamental concepts and important rules of probability calculation: events, probability space, axioms, combinatorics, theorem of Bayes • Random variables: probability functions and densities, expected value, variance, important calculation rules, important discrete and continuous distributions and their applications, e.g. in quality control, reliability and data transfer, Law of Large Numbers, central limit theorem <p>3. Inductive statistics</p> <ul style="list-style-type: none"> • Estimation theory, especially estimation of mean values of normally distributed variables • Hypotheses testing, especially about mean values of normally distributed variables
Literature	<ul style="list-style-type: none"> • Diez, D. M.; Barr, C. D. and Çetinkaya-Rundel, M. (2015): <i>Open-Intro Statistics</i>, 3rd ed., Scotts Valley: CreateSpace Independent Publishing Platform • Schiller, J.J.; Srinivasan, R. A. and Spiegel, M. R. (2013): <i>Schaum's outline of Probability and Statistics</i>, 4th ed., New York: McGraw-Hill. • Sullivan, M. (2017): <i>Statistics: Informed Decisions Using Data</i>, 5th ed., London: Pearson.

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2.6 ECSB - Economic Sciences - Basics

Module profile			
Module ID	ECSB		
Module name	Economic Sciences - Basics		
Exam number	3930260		
Duration	1 semester		
Frequency	Winter and summer semester (SS in IBL; WS in IBE)		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	SU (=seminar-like lecture)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Huttelmaier	
Lecturer(s)	Prof. Dr. Farmanara; Prof. Dr. Huttelmaier; Prof. Dr. T. Schmitt	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 2 nd semester Core module -	IBE 1 st semester Core module -
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	-	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO
Examination - length/format	90-120 minutes The concrete length of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course "Studien- und Prüfungsangelegenheiten/study and examination matters" .
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

Learning outcomes, content and literature

Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Understand and use basic terminology of the core business functions R&D, purchasing and materials management, logistics, production, and sales. • State the central goals and most important elements of these business functions. • Recognize and classify realizations of these business function elements. • Understand and assign fundamental concepts, frameworks, and models for these business functions.
Content	<p>1. Elements of general business administration:</p> <ul style="list-style-type: none"> • Constitutive corporate decisions: Location, legal form, cooperations • Structure and meaning of a balance sheet as well as a profit and loss statement <p>2. Business functions and value creation processes:</p> <ul style="list-style-type: none"> • Introduction into research and development/innovation management • Introduction into purchasing and materials management • Introduction into production • Introduction into sales • Secondary/supportive functions
Literature	<ul style="list-style-type: none"> • Bovee, C.L. and Thill, J.V. (2016): <i>Business in Action</i>, 8th ed., London: Pearson. • Ebert, R.J. and Griffin, R.W. (2019): <i>Business Essentials</i>, 12th ed., London: Pearson. • Nickels, W.; McHugh, J. and McHugh, S. (2013): <i>Business: Connecting Principles to Practice</i>, 2nd ed., New York: McGraw-Hill Education.

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3.1 ILOP - Intracompany Logistics Processes

Module profile			
Module ID	ILOP		
Module name	Intracompany Logistics Processes		
Exam number	3930310		
Duration	1 semester		
Frequency	Winter semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	SU (=seminar-like lecture), S (= seminar)		
Language of instruction	English		

Organisation	
Responsible	Prof. Dr.-Ing. Bremer
Lecturer(s)	Prof. Dr.-Ing. Bremer; Prof. Dr. Dobhan
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 3 rd semester Core module -
Particular conditions for the participation in the module according to the SPO	-
Recommended prerequisites for the participation in the module	Basic understanding of Operations Management.

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO or soP (= other examindes assignment) according to §§ 26, 27 APO
Examination - length/format	<ul style="list-style-type: none"> If sP: 90-120 minutes If soP: portfolio assignment <p>The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the eLearning course "Studien- und Prüfungsangelegenheiten/study and examination matters".</p>
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Describe and design operational planning processes in production and trading companies as well as logistics service providers. • Understand and design logistics execution processes. • Implement digital alternatives for operational planning and execution processes.
Content	<p>The course is organized according to the operational subtasks of logistical planning and execution of an integrated order fulfillment process. This results in the following contents:</p> <ul style="list-style-type: none"> • Business processes: IT-supported business process management, modeling and analysis • Demand planning/Customer receipts: Qualitative and quantitative forecasting methods, forecasting errors, customer documents (such as sales order and invoice to the customer) • Production planning/production receipts: production order, overview of production planning methods • Material planning/Vendor receipts: MRP, lot-sizing, vendor receipts (such as purchase order and invoice). • Inbound / goods receipt: Advance Shipping Notice, Yard Management, unloading dock, Standard goods receipt process vs. Ship-to-Stock / Ship-to-line • Put-away / storage: storage unit types, storage bin types, put-away, storage of hazardous goods • Picking: Picker-to-parts / parts-to-picker, support tools (Pick-by-x) • Shop-floor supply / material staging: Synchronizing material supply with demand: Just-in-Time, Just-in-Sequence, intracompany material transfer, Line-back planning principle • Packing: logistics and legal requirements, packaging material / packaging auxiliaries, labelling • Outbound / shipping: Transfer to forwarders / freight carriers, loading dock, hazardous goods
Literature	<ul style="list-style-type: none"> • Chopra, S. (2019): <i>Supply Chain Management</i>, 7th ed. (Global), Harlow: Pearson Education. • Dumas, M.; La Rosa, M.; Mendling, J. and Reijers, H. A. (2019): <i>Fundamentals of Business Process Management</i>, 2nd ed., Heidelberg: Springer. • Gudehus, T. and Kotzab, H. (2012): <i>Comprehensive Logistics</i>, 2nd ed., Berlin/Heidelberg: Springer. • Kurbel, K. (2021): <i>Enterprise Resource Planning and Supply Chain Management</i>, Berlin/Heidelberg: Springer. • Richards, G. (2021): <i>Warehouse Management. The Definitive Guide to Improving Efficiency and Minimizing Costs in the Modern Warehouse</i>, 4th ed., London: Kogan Page. • ten Hompel, M. and Schmidt, T. (2007): <i>Warehouse Management. Automation and Organisation of Warehouse and Order Picking Systems</i>, Berlin/Heidelberg: Springer.

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3.2 ERLA - ERP Logistics Applications

Module profile			
Module ID	ERLA		
Module name	ERP Logistics Applications		
Exam number	3930320		
Duration	1 semester		
Frequency	Winter semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	SU (= tuition in seminars) (2 SWS); Ü (= tutorial) (2 SWS)		
Language of instruction	English		

Organisation	
Responsible	Prof. Dr. Hennermann
Lecturer(s)	Prof. Dr. Hennermann
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 3 rd semester Core module -
Particular conditions for the participation in the module according to the SPO	-
Recommended prerequisites for the participation in the module	-

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO
Examination - length/format	90 minutes The concrete length of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course "Studien- und Prüfungsangelegenheiten/study and examination matters" .
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Know the fields of application and market players of ERP-systems in a national and international context. • Illustrate the functional range of ERP-systems and can differentiate them from E-business systems and industry solutions. • Name core business processes in logistics divisions and understand the performing of these business processes in ERP-systems. • Know different possibilities of analysis. The students will broaden their practical knowledge by practicing with an ERP-system.
Content	<ol style="list-style-type: none"> 1. Procurement (MM-PUR) <ul style="list-style-type: none"> • Master Data Supplier and Material • Purchasing stock material • Consignment order • Return delivery and returns order 2. Inventory management (MM-INV) <ul style="list-style-type: none"> • Goods issue, withdrawal • Re-storage, rebooking • Stock transport order • Inventory 3. Production planning and scheduling (PP) <ul style="list-style-type: none"> • Master data (bill of materials, work center, routing) • Sales and operations planning • Demand planning • Production order processing • Order network • Subcontracting 4. Sales and distribution (SD) <ul style="list-style-type: none"> • Master data: customers and Conditions • Sale from warehouse • Sale with make to order • Returns and credit processing • Consignment fill-up 5. Quality management (QM) <ul style="list-style-type: none"> • QM in purchasing • QM in production • QM in sales and services
Literature	<p>Bhattacharjee D.; Desai, C. and Narasimhamurti, V. (2019): <i>Logistics with SAP S/4HANA</i>, Bonn: Rheinwerk.</p>

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3.3 ECS2 - Economic Sciences 2

Module profile			
Module ID	ECS2		
Module name	Economic Sciences 2		
Exam number	3930330		
Duration	1 semester		
Frequency	Winter and summer semester (WS in IBL; SS in IBE)		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	SU (=seminar-like lecture)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Schulz	
Lecturer(s)	Prof. Dr. Farmanara; Prof. Dr. Schulz	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 3 rd semester Core module -	IBE 2 nd semester Core module -
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	Successful passing of the module ECSB.	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO
Examination - length/format	90-120 minutes The concrete length of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course "Studien- und Prüfungsangelegenheiten/study and examination matters" .
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

Learning outcomes, content and literature

Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <p>Part: Customer oriented management/marketing</p> <ul style="list-style-type: none"> Identify basic marketing terms and relevant methods of marketing and know their historical origins (beginnings of marketing until modern) and explain the differences between existing, dominant marketing paradigms. Differentiate basic terms, relationships and instruments to identify and develop dynamics with relevance to markets (e.g. segmentation). Define the basics of strategic marketing and to evaluate the strategic prerequisites of a company in relation to its success. Differentiate and apply methods of market research. <p>Part: Organization, strategy, and company</p> <ul style="list-style-type: none"> Know the most important instruments of strategic analysis and can apply them to straightforward business situations. Explain the most important organizational structures, their related characteristics, and how they affect organizational behavior. Identify and understand specifics of corporate cultures. Recognize and classify leader behavior, leadership styles, as well as underlying attitudes, values, and behavioral patterns.
Content	<p>Part: Customer oriented management/marketing</p> <ul style="list-style-type: none"> The role of marketing in customer-oriented corporate leadership Normative marketing (e.g. vision, mission, goals) Strategic marketing (e.g. SWOT-analysis, positioning, strategies) Operative marketing (e.g. marketing instruments, customer orientation, organisation) Marketing in flux (e.g. importance of paradigms) <p>Part: Organization, strategy, and company</p> <ul style="list-style-type: none"> Instruments of strategic analysis (industry analysis, external environment, competence analysis and development, business models) and business strategies (differentiation, cost leadership, niches) Organizational structure (forms, contingencies) Organizational design and organizational culture Roles, and traits of managers/leaders Norms, motives, attitudes, and values as determinants of (leader) behavior Leadership: styles, contingency theories, leader-member exchange theory, power

Literature	<ul style="list-style-type: none"> • Grant, R.M. (2013): <i>Contemporary Strategy Analysis</i>, 8th ed., Hoboken, NJ: Wiley. • Johns, G. and Saks, A. (2011): <i>Organizational Behavior. Understanding and Managing Life at Work</i>, 8th ed., London: Pearson. • Jones, G.R. (2013): <i>Organizational Theory, Design and Change</i>, 7th ed., London: Pearson. • Kotler, P.; Armstrong, G.; Harris, L.C. and Piercy, N. (2013): <i>Principles of Marketing</i>, 6th ed., Harlow: Pearson Education Limited. • Kotler, P. and Keller, K.L. (2012): <i>Marketing Management</i>, 14th ed., Pearson Education Limited. • Kotler, P.; Keller, K.L. and Opresnik (2015): <i>Marketing Management 14 - Konzepte, Instrumente, Unternehmensfallstudien</i>, Harlow: Pearson Education Limited. • Malhotra, N.K.; Birks, D.F. and Wills, P. (2012): <i>Marketing Research - An Applied Approach</i>, 6th ed., Harlow: Pearson Education Limited. • Robbins, S.P. and Coulter, M. (2016): <i>Management</i>, 13th ed., London: Pearson.
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3.4 TEME - Technical Mechanics

Module profile			
Module ID	TEME		
Module name	Technical Mechanics		
Exam number	3930340		
Duration	1 semester		
Frequency	Winter and summer semester (WS in IBL; SS in IBE)		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	SU (= seminar-like lecture)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Schreiber	
Lecturer(s)	Prof. Dr. Kharitonov; Prof. Dr. Lenz; Prof. Dr. Schreiber	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 3 rd semester Core module -	IBE 2 nd semester Core module -
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	Successful completion of the modules MATB and PHYC.	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO
Examination - length/format	90-120 minutes The concrete length of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course "Studien- und Prüfungsangelegenheiten/study and examination matters" .
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

Learning outcomes, content and literature

Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Describe the basic concepts in engineering mechanics to compose and decompose forces and moments acting on a rigid body. • Name the method of sections. • Derive and solve the governing equations in order to compute external and internal reaction forces and moments as well as stress resultants in a straight beam. • Solve basic problems in the field of static and kinetic friction. • Scrutinize their results and to judge the influence of changed parameters on their findings.
Content	<ul style="list-style-type: none"> • Composition of forces and equilibrium conditions in concurrent and general systems of forces. • Characteristic properties of joints and supports • Center of Gravity, center of mass, centroids • Method of sections, Newton's Laws • Determination of support reactions and stress resultants • Planar systems of forces and rigid bodies (e. g. trusses) • Static and kinetic friction, belt friction
Literature	Gross, D.; Hauger, W.; Schröder, J.; Wall, W. and Rajapakse, N. (2012): <i>Engineering Mechanics 1</i> , 2 nd ed., Berlin: Springer.

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3.5 ELEN - Fundamentals of Electrical Engineering

Module profile			
Module ID	ELEN		
Module name	Fundamentals of Electrical Engineering		
Exam number	3930350		
Duration	1 semester		
Frequency	Winter and summer semester (WS in IBL; SS in IBE)		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	SU (=seminar-like lecture)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. N.N.	
Lecturer(s)	Prof. Dr. Brandenstein-Köth; Kothari, P.; Prof. Dr. Willert	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 3 rd semester Core module -	IBE 2 nd semester Core module -
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	-	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO
Examination - length/format	90-120 minutes The concrete length of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters” .
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Understand the basic electrical terms with physical background. • Understand the laws and connections of electrical engineering. • Understand simple electrical networks (with real and complex resistances). • Apply the laws to simple electrical networks. • Calculate simple electrical networks. • Analyze simple electronic circuits.
Content	<p>The following topics will be covered and deepened with examples and exercises:</p> <p>Part A: Basic electrical quantities and terms</p> <ul style="list-style-type: none"> • Charge, charge carrier, current flow, current density, specific resistance, temperature dependence of the resistance, electrical power and energy • Electrostatic field: field strength, field lines, electrical voltage and potential, Coulomb's law • Structure of important components: Resistance, capacitor and capacitance, coil and inductance <p>Part B: Analysis of DC networks</p> <ul style="list-style-type: none"> • Kirchhoff's laws • Ohm's law • Structure and calculation of networks of resistors, capacitors and inductors • Calculation methods for electrical networks voltage/current dividers, wye-delta conversion, Norton and Thévenin sources <p>Part C: Alternating current technology</p> <ul style="list-style-type: none"> • Introduction to the characteristics of alternating current • Phasor diagrams and complex quantities • Basic two poles: effective resistance, inductance and capacitance • Analysis of linear circuits by complex calculation
Literature	<ul style="list-style-type: none"> • Hagmann, G. (2013): <i>Grundlagen der Elektrotechnik</i>, 16. Auflage, Aula-Verlag. • Hüning, F. (2014): <i>The fundamentals of electrical engineering</i>, De Gruyter Oldenbourg. • Prasad, R. (2014): <i>Fundamentals of electrical engineering</i>, PHI learning.

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3.6 OPRE - Operations Research

Module profile			
Module ID	OPRE		
Module name	Operations Research		
Exam number	393,0360		
Duration	1 semester		
Frequency	Winter semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	SU (=seminar-like lecture) (2 SWS), Ü (= exercise course) (2 SWS)		
Language of instruction	English		

Organisation	
Responsible	Prof. Dr. Bier
Lecturer(s)	Prof. Dr. Bier; Prof. Dr. Zirkelbach
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 3 rd semester Core module -
Particular conditions for the participation in the module according to the SPO	-
Recommended prerequisites for the participation in the module	Successful participation in the modules MATB and STAC.

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO
Examination - length/format	90-120 minutes The concrete length of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters” .
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Identify tasks related to Operations Research in business environments. • Transfer actual optimisation problems into formal models. • Analyse the structure and the complexity of optimisation problems. • Solve optimisation problems using an algorithmic approach. • Judge the quality of solution methods.
Content	<ul style="list-style-type: none"> • Rating of algorithms and solutions • Classification and representations of graphs • Structural properties of graphs • Operations and algorithms on graphs (shortest paths, minimal spanning trees, cycle detection, transitive hulls, irreducible kernels) • Maximisation of flows in networks • Relation of flows and cuts • Initialisation of networks • Solution of allocation problems • Linear Programming • Network Simplex algorithm • Specific applications of optimisation algorithms in logistics
Literature	<ul style="list-style-type: none"> • Bronson, R. and Govindasami, N. (1997): <i>Operations Research</i>, 2nd ed. New York: McGraw-Hill. • Hillier, F. S. and Lieberman, G. J. (2015): <i>Introduction to Operations Research</i>, New York: McGraw-Hill. • Poler, R.; Mula Bru, J. and Díaz-Madroñero, M. (2014): <i>Operations Research Problems</i>, London: Springer.

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Second Part of Studies, Programme Semester 4 to 7

4.1 ILNE - Identification, Localization and Navigation of Logistics Entities

Module profile			
Module ID	ILNE		
Module name	Identification, Localization, and Navigation of Logistics Entities		
Exam number	3930410		
Duration	1 semester		
Frequency	Summer semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	SU (= seminar-like lecture), S (= seminar)		
Language of instruction	English		

Organisation	
Responsible	Prof. Dr.-Ing. Bremer
Lecturer(s)	Prof. Dr.-Ing. Bremer
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 4 th semester Core module -
Particular conditions for the participation in the module according to the SPO	-
Recommended prerequisites for the participation in the module	Sound understanding of logistics business processes.

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO or soP (= other examination assignment) according to §§ 26, 27 APO
Examination - length/format	<ul style="list-style-type: none"> If sP: 90-120 minutes If soP: portfolio assignment <p>The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the eLearning course "Studien- und Prüfungsangelegenheiten/study and examination matters".</p>
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Use GS1 logistics identifiers to provide data-driven services for the supply chain. • Represent logistics identifiers in machine-readable formats. • Describe the functionality of and select suitable technical systems for automatic identification. • Describe technical principles of indoor localization and characterize localization technologies with respect to performance and precision. • Describe navigation principles for autonomous equipment in logistics processes.
Content	<ul style="list-style-type: none"> • GS1 identifiers in logistics (GLN, GTIN, SSCC, GRAI, GSIN, GINC), BIC identification codes for maritime containers • Inhouse logistics identifiers • Machine-readable formats of logistics identifiers: barcode symbologies of 1D and 2D barcodes; Electronic Product Code; Optical Character Recognition • Barcode printing: Thermo-direct and Thermal-transfer systems; Direct Part Marking; Quality characteristics of barcodes • Barcode reading: Hand-held (linear imagers, laser scanner, area imagers) and fixed-mount reading devices; Handling “no read” and “wrong read” events, especially in automated intralogistics systems • Radio-Frequency Identification (RFID): Technology basics of RFID, energy supply and data transfer, frequency bands, challenges in logistics RFID applications, especially in bulk reading • Indoor Localization/Positioning: WiFi-, Bluetooth-, Ultra-wideband-based solutions; Performance and precision • Navigation: Dead reckoning and bearing • Navigating autonomous equipment: Guide wire, guide tape, transponder paths and grid, laser, natural features, SLAM, GPS
Literature	<ul style="list-style-type: none"> • Finkenzeller, K. (2010): <i>RFID Handbook. Fundamentals and Applications in Contactless Smart Cards, Radio Frequency Identification and Near-Field Communication</i>, 3rd ed., Chichester: Wiley. • Samama, N. (2019): <i>Indoor Positioning. Technologies and Performance</i>, Hoboken: Wiley. • ten Hompel, M. and Schmidt, T. (2007): <i>Warehouse Management. Automation and Organisation of Warehouse and Order Picking Systems</i>, Berlin: Springer. • Ullrich, G. (2015): <i>Autonomous Guided Vehicle Systems. A Primer with Practical Applications</i>, 2nd ed., Berlin/Heidelberg: Springer.

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4.2 SCME - Supply Chain Management

Module profile			
Module ID	SCME		
Module name	Supply Chain Management		
Exam number	3930420		
Duration	1 semester		
Frequency	Summer semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	SU (= seminar-like lecture), S (= seminar)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Gampl	
Lecturer(s)	Prof. Dr. Gampl	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 4 th / semester Core module -	IBE 4 th /5 th semester Core elective module Applicable for Purchasing
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	Successful passing of the modules OPME, TAFO, ILOP.	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO
Examination - length/format	90-120 minutes The concrete length of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course "Studien- und Prüfungsangelegenheiten/study and examination matters" .
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Explain which activities are summarised by the term Supply Chain Management (SCM) and how SCM has developed over the last decades. • Illustrate and analyse product flows in existing international supply chains graphically. • Supply Chain Collaboration: Describe main challenges in international supply chains and undermine the arguments by applying game theory approaches (i.e. prisoner's dilemma). • State what cooperation models between supply chain partners can exist and explain respective advantages and disadvantages. • Explain different SCM strategies depending on product, industry and environment and apply these strategies to new cases. • Explain what E-Commerce is and describe important E-Commerce developments in the last years and respective challenges for different supply chain actors. • Explain why reaching high supply chain visibility is so difficult, what can be done to reach higher visibility and list features of helpful SCM software. • Explain measures to increase Supply Chain Security and give reasons why Risk Management for the whole Supply Chain is difficult to reach. • Name potentially affected actors in supply chain management projects and explain how change management theory can be applied to finish such supply chain projects successfully.
Content	<ul style="list-style-type: none"> • Definitions of SCM and development of SCM over time • Supply Chain Mapping • Main challenges in SCM • Concepts for collaboration within the supply chain linking together suppliers, manufacturers, logistic service providers, and customers • Supply Chain strategies according to product, industry and environment (e.g. postponement, responsiveness, resilience, Triple A) • E-Commerce • Supply Chain Visibility • Supply Chain Security and Risk Management • Change Management
Literature	<ul style="list-style-type: none"> • Chopra, S. and Meindl, P. (2019): <i>Supply Chain Management</i>, 7th ed. (Global), Harlow: Pearson Education. • Hugos M. (2018): <i>Essentials of Supply Chain Management</i>, 4th ed., New Jersey: Wiley. • Simichi Levi, D.; Kaminsky, P. and Simichi Levi, E. (2009): <i>Designing and Managing the Supply Chain: Concepts, Strategies and Case Studies</i>, 3rd ed., Boston: Irwin/McGraw-Hill. • Stadtler, H.; Kilger, C. and Meyr, H. (2015): <i>Supply Chain Management and Advanced Planning</i>, 5th ed., Berlin: Springer Verlag.

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4.3 ARIS - Automation and Robotics in Intralogistics Systems

Module profile			
Module ID	ARIS		
Module name	Automation and Robotics in Intralogistics Systems		
Exam number	3930430		
Duration	1 semester		
Frequency	Summer semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	SU (=seminar-like lecture), Ü (= exercise course)		
Language of instruction	English		

Organisation	
Responsible	Prof. Dr. Beer
Lecturer(s)	Prof. Dr. Beer
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 4 th semester Core module -
Particular conditions for the participation in the module according to the SPO	-
Recommended prerequisites for the participation in the module	Successful passing of the module ISCS.

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO or soP (= other examined assignment) according to §§ 26, 27 APO
Examination - length/format	<ul style="list-style-type: none"> If sP: 90-120 minutes If soP: portfolio assignment <p>The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the eLearning course "Studien- und Prüfungsangelegenheiten/study and examination matters".</p>
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the student should be able to:</p> <ul style="list-style-type: none"> • Explain the role of warehouses in supply and demand networks. • Engage in planning projects of logistics systems in a systematic and structured manner. • Select and dimension storage systems, picking concepts and technologies, and other system elements based upon defined planning parameters. • Explain their reasoning behind design decisions in logistics automation projects. • Engage with customers, consultants, sales managers, planning engineers, management, and other stakeholders on a technically advanced level. • Evaluate both, Requests for Quotation (RFQs) of potential customers and offer documents of logistics automation providers. • Evaluate system design choices with respect to technological, logistical, and economic viability.
Content	<p>The module aims to cover the most important aspects of planning of intralogistics systems with focus on automation and robotics technology. Topics covered include:</p> <ul style="list-style-type: none"> • Logistics automation as a profession and its ethical aspects • The role of the warehouse in supply and demand networks • Reconciling Lean and warehouse automation • In-depth assessment of storage, picking, and replenishment processes in the warehouse, incl. storage strategies, picking concepts, picking technologies, and parameters affecting productivity • Qualitative and quantitative factors for warehouse design • Discussion of application of relevant technologies to support or automate intralogistics processes. • Overview of data analysis for planning of intralogistics systems • Deriving system design decisions from data analysis results • Planning of automated systems with automated guided vehicles (AGVs) and autonomous mobile robots (AMRs): use case, business case, and planning guidelines • Robots in warehouse automation: applications and limitations • Principles and guidelines for planning of intralogistics systems • Case studies of logistics projects
Literature	<ul style="list-style-type: none"> • Goldratt, E. M. and Cox, J. (2012): <i>The Goal: A Process of Ongoing Improvement</i>, 30th ed., Great Barrington, MA: North River Press. • Hopp, W. J. and Spearman, M. L. (2008): <i>Factory Physics</i>, 3rd ed., New York: McGraw-Hill. • Pfohl, H.-C. (2022): <i>Logistics Systems</i>, Berlin/Heidelberg: Springer. • Rushton, A.; Croucher, P. and Baker, P. (2014): <i>The Handbook of Logistics and Distribution Management: Understanding the Supply Chain</i>, 5th ed., London: Kogan Page.

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4.4 IFTA - International Freight Transport

Module profile			
Module ID	IFTA		
Module name	International Freight Transport		
Exam number	3930440		
Duration	1 semester		
Frequency	Summer semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	SU (= seminar-like lecture), S (= seminar)		
Language of instruction	English		

Organisation	
Responsible	Prof. Dr. Schmidt
Lecturer(s)	Prof. Dr. Schmidt
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 4 th semester Core module -
Particular conditions for the participation in the module according to the SPO	-
Recommended prerequisites for the participation in the module	Successful passing of the module TAFO.

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO
Examination - length/format	90-120 minutes The concrete length of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course "Studien- und Prüfungsangelegenheiten/study and examination matters" .
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Explain the main drivers of globalization and their impact on transport and logistics activities. • Identify possible business areas and tasks for international logistics service providers in different countries and transport contexts. • Know and explain the basics of foreign trade management. • Explain the business challenges and solution examples in international land transport or the operation of intermodal Supply Chains between rail, road and sea. • Know the market and order handling processes in maritime and container shipping. • Explain which economic and technical factors influence the economic and technical operation of maritime transports. • Know and explain the international air freight chain with its players, trends, organizations, business models, organizational handling and competition. • Know trends and markets in international freight transport and explain current market developments.
Content	<ul style="list-style-type: none"> • Globalization and the worldwide trade as drivers of international freight transport • Basics of foreign trade and customs law for the export business in freight traffic • Continental road and rail freight transport, intermodal transport • International sea freight and container shipping • International air cargo traffic • International logistics markets and trends
Literature	<ul style="list-style-type: none"> • Beresford, A. and Pettit, S. (2017): <i>International Freight Transport: Cases, structures and prospects</i>, London: Kogan Page. • Branch, A. (2007): <i>Elements of Shipping</i>, 8th ed., Oxon: Routledge. • Coyle J.; Novack, R. and Gibson, B. (2015): <i>Transportation. A Global Supply Chain Perspective</i>, 8th ed., Boston: Cengage Learning. • Hill, C. W. L. (2013): <i>International Business - Competing in the Global Marketplace</i>, 9th ed., New York: McGraw-Hill. (p.518f: Coca Cola case study). • Manners-Bell, J. (2017): <i>Introduction to Global Logistics. Delivering the Goods</i>, 2nd ed., London: Kogan Page. • Rodrigue, J.P.; Comtois, C. and Slack, B. (2006): <i>The Geography of Transport Systems</i>, 2nd ed., Oxon: Routledge. • Wensveen, J. G. (2011): <i>Air Transportation. A Management Perspective</i>, 7th ed., Farnham: Ashgate.

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4.5 SAPC - SCM- and APS-Systems, Customizing

Module profile			
Module ID	SAPC		
Module name	SCM- and APS-Systems, Customizing		
Exam number	3930450		
Duration	1 semester		
Frequency	Winter semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	SU (= seminar-like lecture), S (= seminar)		
Language of instruction	English		

Organisation	
Responsible	Prof. Dr. Hennermann
Lecturer(s)	Prof. Dr. Hennermann
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 5 th semester Core module -
Particular conditions for the participation in the module according to the SPO	-
Recommended prerequisites for the participation in the module	Successful passing of the module ERLA.

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO
Examination - duration	90 minutes The concrete length of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course " Studien- und Prüfungsangelegenheiten/study and examination matters ".
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Know the possibilities for process handling in a typical SCM Solution. • Customize and adapt the system to the company-specific organizational structures, master data and business processes. <p>Exercises will broaden the students' practical knowledge.</p>
Content	<ul style="list-style-type: none"> • SCM-/APS-Systems: <ol style="list-style-type: none"> a) Supply Chain Cockpit b) Capable To Promise c) Integrated PPDS Planning d) SNP Planning e) Bottom-Up Heuristic in the Planning Board • Customizing: <ol style="list-style-type: none"> a) Customizing-projects b) Production order <ul style="list-style-type: none"> • Order type • Number range • Termination • Availability check • Printing • Feedback • Status management • Purchasing: Automatic account locating c) Quality management <ul style="list-style-type: none"> • Nature of message • Partner determination • Surface design d) Sales: Automatic account locating
Literature	<ul style="list-style-type: none"> • Balla, J. and Layer, F. (2010): <i>Production Planning with SAP APO, Learn how to implement, customize, and use SAP APO-PP/DS</i>, 2nd ed. Bonn: Rheinwerk Verlag. • Pradhan, S. (2012): <i>Demand and Supply Planning with SAP APO</i>, Bonn: Rheinwerk Verlag.

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4.6 CPRA - Consulting Project A

Module profile			
Module ID	CPRA		
Module name	Consulting Project A		
Exam number	3930460		
Duration	1 semester		
Frequency	Summer semester		
Credit hours (SWS)	2		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	30	120
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation	
Responsible	Prof. Dr. Schmidt
Lecturer(s)	Prof. Dr. Bremer; Prof. Dr. Gampl; Prof. Dr. Machholz; Prof. Dr. Schmidt; Prof. Dr. Schwindl-Braun
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 4 th semester Core module -
Particular conditions for the participation in the module according to the SPO	-
Recommended prerequisites for the participation in the module	Successful passing of the modules OPME, TAFO, ISCS, ILOP and PMSW.

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	soP (= other examined assignment) according to §§ 26, 27 APO
Examination - length/format	One of the following formats: <ul style="list-style-type: none"> seminar paper/research project portfolio assignment The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters” .
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Design a project proposal and derive a project order in the context of practical logistics problems. • Develop - based on a practical logistics case - supported by the project coach, a framework for the problem identification, the project analysis and the solution path. • Apply therefore concepts, methods and tools of project management in a project team with other students. • Present and communicate all findings and results in a professional manner to the client.
Content	<p>The project groups meet each other 1-3 times a week and discuss in a systematic way project specific issues related to the project goals, team building/management and customer relations.</p> <p>Obligatory deliverables of the project groups are:</p> <ul style="list-style-type: none"> • the project order (signed by the customer), • the structural project plan and project schedule, • an intermediate and a final presentation in front of the industrial client, • a final project report describing the project results in brief words, • a short final (poster-) presentation in front of all other student groups which can be used from the university for marketing purposes.
Literature	<ul style="list-style-type: none"> • Aken van, J.; Berends, H. and Bij van der, H. (2012): <i>Problem solving in organizations. A methodological handbook for business and management students</i>. Cambridge: Cambridge University Press. • Campell, C. (2007): <i>The One-Page- Project Manager, Communicate and manage any project with a single sheet of paper</i>. Hoboken: Wiley. • Easterby-Smith, M.; Thorpe, R. and Jackson, P.R. (2015): <i>Management & Business Research</i>, 5th ed., Los Angeles: SAGE. • Hermarij, J. (2016): <i>The Better Practices of Project Management. Based on the IPMA Competences</i>, 4th ed., Amersfoort: Van Haren Publishing. • Minto, B. (2009): <i>The Pyramid Principle, Logic in Writing and Thinking</i>, Harlow: Prentice Hall Education.

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5.1 MFPS - Material Flow Analysis and Production Systems

Module profile			
Module ID	MFPS		
Module name	Material Flow Analysis and Production Systems		
Exam number	3930510		
Duration	1 semester		
Frequency	Winter semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	SU (= seminar-like lecture), Ü (= exercise course)		
Language of instruction	English		

Organisation	
Responsible	Prof. Dr. Schwindl
Lecturer(s)	Prof. Dr. Deutschle; Prof. Dr. Schwindl; Mrs. Ullerich
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 5 th semester Core module -
Particular conditions for the participation in the module according to the SPO	-
Recommended prerequisites for the participation in the module	-

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO
Examination - length/format	90-120 minutes The concrete length of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course "Studien- und Prüfungsangelegenheiten/study and examination matters" .
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Understand and apply basic methods and procedures of planning and simulation of material flow systems. • Design, implement and optimize basic material flow system models using appropriate simulation software tools. • Understand and apply the fundamentals of queuing systems in the internal process environment of warehousing and production systems. • To develop a basic understanding of concepts from the Toyota production system and process optimization procedures with the help of the value stream mapping method. • All topics have a special focus on problems and case studies from the field of warehouse- and distribution logistics.
Content	<ul style="list-style-type: none"> • Utilisation and marginal performance of workstations • Queues and queuing laws (waiting systems, Little's Law) • Case-study based simulation with PlantSimulation® • Machine reliability, - availability, - capability analysis • Basics of scheduling; order management based on priority rules • Push and Pull, CONWIP (Constant Work in Process), DBR (Drum-Buffer-Rope), LOOR (Load-Oriented Order Release) • MRP II (Manufacturing Resources Planning) and MES (Manufacturing Execution System) with special focus on warehouse and logistic processes • Toyota Production System (TPS) • Basics of quality assurance in industrial processes • Acceptance sampling / AQL (Acceptable Quality Level) / Quality processes • Process monitoring / Statistical Process Control (SPC) • Basics of Predictive Maintenance • Value Stream Mapping (VSM) • Learning curve effects (mass production, flow production) • Ergonomic aspects in production and logistics • Basics of REFA (Time Management)
Literature	<ul style="list-style-type: none"> • Askin, R. and Goldberg, R. (2002): <i>Design and analysis of lean production systems</i>, New York: Wiley. • Baudin, M. (2005): <i>Lean Logistics The Nuts and Bolts of Delivering Materials and Goods</i>, CRC Press. • Gwynne, R. (2022): <i>Warehouse Management: The Definitive Guide to Improving Efficiency and Minimizing Costs in the Modern Warehouse</i>, 4th ed., London: Kogan Page.

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5.2 SSLO - Sustainability and Sustainable Logistics

Module profile			
Module ID	SSLO		
Module name	Sustainability and Sustainable Logistics		
Exam number	3930520		
Duration	1 semester		
Frequency	Winter semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	SU (= seminar-like lecture), S (= seminar)		
Language of instruction	English		

Organisation	
Responsible	Prof. Dr. Beer
Lecturer(s)	Prof. Dr. Beer; Prof. Dr. Gampl
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 5 th semester Core module -
Particular conditions for the participation in the module according to the SPO	-
Recommended prerequisites for the participation in the module	-

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO
Examination - length/format	90-120 minutes The concrete length of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course " Studien- und Prüfungsangelegenheiten/study and examination matters ".
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature

Learning outcomes	<p>Upon successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Define sustainability, shortly wrap-up the development of the meaning of sustainability over time, and explain what the triple bottom approach means. • Explain basic economic principles that constrain sustainable action of single actors (e.g. public goods game, tragedy of the commons) and discuss if and how regulation can help make business more sustainable. • Identify relevant stakeholders (e.g. consumers, employees, environment, government, etc.) for a given decision and to explain why it is so difficult to make good decisions when we face complex systems and wicked problems. • Understand and apply general methods of performance measurement and in particular those methods that take into considerations sustainability-related metrics. • Analyse existing cases and company publications to differentiate between organizational actions that impact on triple-bottom line assessment and those that merely create the appearance of it. • Explain and evaluate different sustainability approaches like Circular Economy, Green Logistics, measuring the Ecological Footprint, or Life Cycle Analysis. • Design business and governance models that align incentives with relevant stakeholders. • Take a balanced stance when partaking in business decisions and discussions related to sustainability and logistics.
Content	<ul style="list-style-type: none"> • Introduction to Sustainability (development over time, three elements of sustainability, climate change, tragedy of the commons and negative externalities) • Wicked problems and complex systems • Stakeholder management, business and governance models and role of innovation • Sustainability performance management, accounting, and the role of incentives • Industry guidelines, policies and sustainability reporting • Different approaches, e.g. Design for Sustainability, Reverse Logistics, Life Cycle Analysis, Green Logistics, Circular Economy • The role of regulation • Case studies • Sustainability vs. green washing

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Literature	<ul style="list-style-type: none"> • Aras, G. and Crowther, D. (2008): <i>Governance and sustainability: An investigation into the relationship between corporate governance and corporate sustainability</i>. Management Decision, 46(3), 433–448. • Brundtland, G. H. (1987): <i>Our Common Future: Report of the World Commission on Environment and Development</i>. • Esty, D. C. and Porter, M. E. (1998). <i>Industrial Ecology and Competitiveness: Strategic Implications for the Firm</i>. Journal of Industrial Ecology, 2(1), 35–43. • Hardin, G.J. (1968): <i>The Tragedy of the Commons</i>. Science, 162 (3859), 1243–1248. • Kaplan, R. S. and Norton, D. P. (2004): <i>Strategy Maps: Converting Intangible Assets into Tangible Outcomes</i>, Boston: Mass: Harvard Business School Press. • Meekings, A.; Briault, S. and Neely, A. (2011): <i>How to Avoid the Problems of Target-Setting</i>. Measuring Business Excellence, 15(3), 86–98. • Mitchell, R. K.; Agle, B. R. and Wood, D. J. (1997): <i>Toward a Theory of Stakeholder Identification and Salience: Defining the Principle of Who and What Really Counts</i>. Academy of Management Review, 22(4), 853–886. • Rittel, H.W.J. and Webber, M.M. (1973): <i>Dilemmas in a General Theory of Planning</i>. Policy Sciences, 4(2), 155–169. • Current corporate reports
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5.3 STPU - Strategic Purchasing

Module profile			
Module ID	STPU		
Module name	Strategic Purchasing		
Exam number	3930530		
Duration	1 semester		
Frequency	Winter semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	SU (= seminar-like lecture), S (= seminar)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Machholz	
Lecturer(s)	Prof. Dr. Machholz	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 5 th semester Core module -	IBE 4 th /5 th semester Core elective module Compulsory for Purchasing
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	IBL: Successful passing of the modules OPME, ILOP.	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO
Examination - length/format	90-120 minutes The concrete length of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters” .
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature

Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Describe, interpret and determine the value-driving role of today's procurement. • Understand the traditional roles, processes and organizational forms of procurement. • Put into a position to analyse, design and improve current purchasing portfolios, processes and organizations. • Apply state-of-the-art know-how and technologies (e.g. AI, RPA, bots,...). • Increase purchasing's business, social and environmental impact.
Content	<ul style="list-style-type: none"> • Introduction & overview, business impact & recent development of the purchasing function within the last decades • Kraljic's procurement matrix and tools vs. Purchasing Chessboard, comparison of similarities & differences of these 2 portfolio approaches • Procurement processes and organization models, SCOR Model • Performance Measurements & relevant KPIs for purchasing • Contracts (specifics, critical factors), negotiations and communication models (von Thun, transaction analysis, DISG, NLP, Harvard concept) • Global sourcing, risks & benefits, cultural differences, ethical & environmental aspects • Supplier selection, assessment, and strategic development incl. many different industry examples • Category management • Non traditional categories • Risk management • Green sourcing, sustainability, consumption of resources
Literature	<ul style="list-style-type: none"> • Arnold, U. (1997): <i>Beschaffungsmanagement</i>, Stuttgart: Schäffer-Poeschel. • Hug, W. and Weber, J. (2011): <i>Wertetreiber Einkauf</i>, Weinheim: Wiley. • Levi, D.; Kaminsky, P. and Levi, E. (2008): <i>Designing & Managing the Supply Chain</i>, 3rd ed., New York : McGraw Hill. • Kerkhoff, G. (2010): <i>Einkaufsagenda 2020</i>; Weinheim: Wiley VCH. • Mentzer, J. T. (2009): <i>Supply Chain Management</i>, New Delhi : Response Books.

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5.4 CPRB - Consulting Project B

Module profile			
Module ID	CPRB		
Module name	Consulting Project B		
Exam number	3930540		
Duration	1 semester		
Frequency	Summer semester		
Credit hours (SWS)	2		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	30	120
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation	
Responsible	Prof. Dr. Schmidt
Lecturer(s)	Prof. Dr. Bremer; Prof. Dr. Gampl; Prof. Dr. Machholz; Prof. Dr. Schmidt; Prof. Dr. Schwindl-Braun
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 5 th semester Core module -
Particular conditions for the participation in the module according to the SPO	-
Recommended prerequisites for the participation in the module	Successful passing of the modules OPME, TAFO, ISCS, ILOP and PMSW.

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	soP (= other examined assignment) according to §§ 26, 27 APO
Examination - length/format	One of the following formats: <ul style="list-style-type: none"> seminar paper/research project portfolio assignment The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters” .
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Design a project proposal and derive a project order in the context of practical logistics problems. • Develop - based on a practical logistics case - supported by the project coach, a framework for the problem identification, the project analysis and the solution path. • Apply therefore concepts, methods and tools of project management in a project team with other students. • Present and communicate all findings and results in a professional manner to the client.
Content	<p>The project groups meet each other 1-3 times a week and discuss in a systematic way project specific issues related to the project goals, team building/management and customer relations.</p> <p>Obligatory deliverables of the project groups are:</p> <ul style="list-style-type: none"> • the project order (signed by the customer), • the structural project plan and project schedule, • an intermediate and a final presentation in front of the industrial client, • a final project report describing the project results in brief words, • a short final (poster-) presentation in front of all other student groups which can be used from the university for marketing purposes.
Literature	<ul style="list-style-type: none"> • Aken van, J.; Berends, H. and Bij van der, H. (2012): <i>Problem solving in organizations. A methodological handbook for business and management students</i>. Cambridge: Cambridge University Press. • Campell, C. (2007): <i>The One-Page- Project Manager, Communicate and manage any project with a single sheet of paper</i>. Hoboken: Wiley. • Easterby-Smith, M.; Thorpe, R. and Jackson, P.R. (2015): <i>Management & Business Research</i>, 5th ed., Los Angeles: SAGE. • Hermarij, J. (2016): <i>The Better Practices of Project Management. Based on the IPMA Competences</i>, 4th ed., Amersfoort: Van Haren Publishing. • Minto, B. (2009): <i>The Pyramid Principle, Logic in Writing and Thinking</i>, Harlow: Prentice Hall Education.

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5.5 LSEE - Logistics Seminar

Module profile			
Module ID	LSEE		
Module name	Logistics Seminar		
Exam number	3930550		
Duration	1 semester		
Frequency	Winter semester		
Credit hours (SWS)	2		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	30	120
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation	
Responsible	Prof. Dr. Schmidt
Lecturer(s)	Prof. Dr. Bremer; Prof. Dr. Gampl; Prof. Dr. Machholz; Prof. Dr. Schmidt; Prof. Dr. Schwindl; u.a.
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 5 th semester Core module -
Particular conditions for the participation in the module according to the SPO	-
Recommended prerequisites for the participation in the module	Successful passing of the modules OPME, TAFO, ISCS, ILOP and PMSW.

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	soP (= other examined assignment) according to §§ 26, 27 APO
Examination - length/format	Seminar paper/research project
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature

Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Write a methodology based scientific report about a logistics related topic. • Distinguish between scientific and non-scientific sources. • List databases that can be used for searching for scientific resources, research on their own and evaluate the quality and suitability of the literature found. • Cite correctly according to a given standard. • Describe the requirements for a well-structured table of contents and set up a table of contents for their topic. • Write texts in an appropriate, scientific style. • Present their results.
Content	<ul style="list-style-type: none"> • Finding an appropriate research question • Literature Research; gathering and analysing empirical data • Scientific citing • Design and continuous adapting of the Table of contents • Writing and reflecting a scientific report
Literature	<ul style="list-style-type: none"> • Easterby-Smith, M.; Thorpe, R. and Jackson, P. R. (2012): <i>Management Research</i>, 4th ed., London: SAGE Publications. • Minto, B. (2009): <i>The Pyramid Principle. Logic in Writing and Thinking</i>, 4th ed., Harlow: Prentice Hall. • Müller, S. and Roth, A. (2015): <i>Academic Writing: Guidelines for a Term Paper, Bachelor and Master Thesis</i>, Nürnberg: self-publishing. • Balzert, H.; Schäfer, C.; Schröder, M. and Kern, U. (2010): <i>Wissenschaftliches Arbeiten</i>, Herdecke: W3I. • Prexl, L. (2015): <i>Mit digitalen Quellen arbeiten. Richtig zitieren aus Datenbanken, E-Books, YouTube und Co.</i>, UTB-Band-Nr. 4420, Paderborn: Ferdinand Schöningh.

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5.6/7.1/7.2 ELMA/B/C - Core Elective Module A/B/C

Module profile			
Module ID	ELMA/B/C		
Module name	Core Elective Module A/B/C		
Exam number according to degree programme	Depends on the chosen modules.		
Duration	1 semester each		
Frequency	Winter and summer semester Some courses are only offered once a year. Please find further information in the respective ELMA/B/C course description (see appendix).		
Credit hours (SWS)	4 each		
ECTS-Credits (CP)	5 each		
Workload	Total workload for each module	Amount of Attendance time for each module	Amount of Self-study time for each module
Respective hours	150	60	90
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation	
Responsible	Programme Director
Lecturer(s)	Depends on the chosen course. Please find further information in the respective course description (see appendix).
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 5 th /7 th semester Core elective module -
Particular conditions for the participation in the module according to the SPO	-
Recommended prerequisites for the participation in the module	-

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	Depends on the chosen ELMA/B/C. Please find further information in the respective course description (see appendix).
Examination - length/format	Depends on the chosen ELMA/B/C. Please find further information in the respective course description (see appendix).
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Explain specific subjects out of the field of Logistics. • Know about the specific course the basic terms, relevant market players and their technical and managerial problems. • Apply that knowledge on logistics problems from practice.
Content	<p>The Core Electives ELMA/B/C offer courses in specific subjects of the field of Logistics.</p> <p>The available ELMA/B/C courses change regularly. Therefore, the actually offered courses will be announced each semester.</p>
Literature	<p>Depends on the chosen ELMA/B/C. Please find further information in the respective course description (see appendix).</p>

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6 INTM - Internship Module

The Internship Module consists of

- a continuous, supervised **internship** lasting 20, but no more than 26 weeks and is
- accompanied by the seminar "**Preparation and Reflection of Internship**". (see § 6 SPO B IBL - engl.)

The internship Module is deemed to be successfully completed if

- evidence of the activities during the internship and its duration in relation to a full-time activity is provided through the employer and
- a report on the activities during the internship, signed by the employer, is available and has been approved by the supervisor of the faculty. (see § 11 (7) APO)

PRIN - Preparation and Reflection of Internship

Module profile			
Module ID	PRIN		
Module name	Preparation and Reflection of Internship		
Exam number	3930610		
Duration	1 semester		
Frequency	Winter- and summer semester		
Teaching units per week (SWS)	2		
ECTS-Credits (CP)	2		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	60	30	30
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Farmanara (IBE); Prof. Dr. Gampl (IBL)	
Lecturer(s)	Prof. Dr. Farmanara; Prof. Dr. Gampl	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 6 th semester Core module -	IBE 6 th semester Core module -
Particular conditions for the participation in the module according to the SPO	<ul style="list-style-type: none"> Acquisition of all 90 CPs of the first three regular semesters (§ 6 (2) SPO IBL and § 6 (2) SPO IBE). INTS, i.e. the internship must already have been conducted (at least completed to a large degree). Submission of the internship report. 	
Recommended prerequisites for the participation in the module	-	

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Examination	
Particular conditions for the participation in the examination according to the SPO appendix	Acquisition of all 90 CPs of the first three regular semesters (§ 6 (2) SPO IBL and § 6 (2) SPO IBE).
Examination - type	soP m. E./o. E. (= other examined assignment passed successfully/failed) according to § 27 APO
Examination - length/format	Multimedia Presentation resp. documentation according to § 6 (3) S. 3 SPO IBL bzw. § 6 (3) S.3 SPO IBE
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Reflect on patterns of personal behaviour and success criteria in the organizational environment. • Assess critically and constructively goals, structures, processes, and culture of organizations. • Evaluate critically and constructively their own professional behavior as well as that of colleagues and supervisors.
Content	<ul style="list-style-type: none"> • Interactive presentation of contents and experiences during the internship as well as elaborations on employers, industries, and functional areas • Discussions of experiences made during the internships • Comparison of experiences with personal expectations • Overview of a variety of job-relevant information
Literature	Minto, B. (2010): <i>The Pyramid Principle</i> , 3 rd ed., Upper Saddle River, NJ: Prentice Hall.

INTS - Internship

Module profile			
Module ID	INTS		
Module name	Internship		
Exam number	3930620		
Duration	1 semester		
Frequency	Winter and summer semester		
Teaching units per week (SWS)	0		
ECTS-Credits (CP)	28		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	840	0	840
Teaching format	Pr (= practical)		
Language of instruction	English		

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Organisation		
Responsible	Prof. Dr. Farmanara (IBE); Prof. Dr. Gampl (IBL)	
Lecturer(s)	Prof. Dr. Farmanara; Prof. Dr. Gampl	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 6 th semester Core module -	IBE 6 th semester Core module -
Particular conditions for the participation in the module according to the SPO	<ul style="list-style-type: none"> Acquisition of all 90 CPs of the first three regular semesters (§ 6 (2) SPO IBE and § 6 (2) SPO IBL). INTS, i.e. the internship must already have been conducted (at least completed to a large degree). Submission of the internship report. 	
Recommended prerequisites for the participation in the module	-	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	Acquisition of all 90 CPs of the first three regular semesters (§ 6 (2) SPO IBE and § 6 (2) SPO IBL).
Examination - type	-
Examination - length/format	-
Language of examination	English
Condition for the award of credit points	Submission of certificate of employment (issued by employer at which the internship has been conducted).

Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> Analyse, understand, and interpret real business processes and structures hands-on, in particular related constraints and opportunities. Deploy the soft skills needed in real business environments (e.g. abilities to communicate, to convince others, to manage conflicts, and to work within a team) confidently, appropriately, professionally, and in a goal-oriented manner. Develop systematically solutions for business challenges. Be fully employable on the graduate job market.
Content	<ul style="list-style-type: none"> Immersion in business practice Practical application and consolidation of knowledge, skills, and methods acquired in the degree course Autonomous execution of planning, organization, and control tasks in organisations Generation of business solutions in a specialisation area of the degree course
Literature	<ul style="list-style-type: none"> Will be provided by company (internal documentation). Standard textbooks of the relevant functional areas.

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7.3 GENE - General Elective

Module profile			
Module ID	GENE		
Module name	General Elective		
Exam number	Depends on the chosen courses.		
Duration	1 semester		
Frequency	Winter and summer semester		
Credit hours (SWS)	4 Either two general electives (<i>Allgemeinwissenschaftliche Wahlpflichtfächer</i> , AWPf) (2 x 2 teaching units/week) or one AWPf (1 x 4 teaching units/week) from the AWPf-catalogue of the Faculty of Applied Natural Sciences and Humanities (FANG).		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	SU (= seminar-like lecture); S (= seminar); Ü (= tutorial)		
Language of instruction	The respective language(s) will be laid down and published by the Faculty of Applied Natural Sciences and Humanities.		

Organisation		
Responsible	Dean of the Faculty of Applied Natural Sciences and Humanities	
Lecturer(s)	Lecturers of the Faculty of Applied Natural Sciences and Humanities and/or lecturers instructed by the Faculty.	
Applicability;	The module serves to develop interdisciplinary competences (" <i>studium generale</i> "); it is not closely related to any other module of the degree programme. It can be applied to all bachelor's programmes without blocking note. At the Faculty of Business and Engineering the module has to be taken in the following programmes:	
Semester according to SPO; Type of module; If applicable specialisation	IBL 7 th semester General elective module -	IBE 7 th semester General elective module -
Particular conditions for the participation in the module according to the SPO	Usually none; exceptions are defined and published by the Faculty of Applied Natural Sciences and Humanities.	
Recommended prerequisites for the participation in the module	Usually none; exceptions are defined and published by the Faculty of Applied Natural Sciences and Humanities.	

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Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	Every AWPf is completed by an examination; it's type will be laid down and published by the Faculty of Applied Natural Sciences and Humanities.
Examination - length/format	The duration of the examination(s) will be laid down and published by the Faculty of Applied Natural Sciences and Humanities in case of a written examination.
Language of examination	The language of the examination depends on the chosen AWPf. It will be laid down and published by the Faculty of Applied Natural Sciences and Humanities.
Condition for the award of credit points	Successful passing of the examination.

Learning outcomes, content and literature	
Learning outcomes	<p>Subject-specific learning outcomes depend in each case on the chosen AWPf. Students</p> <ul style="list-style-type: none"> • Will additionally acquire knowledge and skills outside their discipline that, however, may be important for their intended careers. as for example specialist knowledge of foreign languages, or knowledge in the fields of natural sciences and social sciences. • Will analyse a variety of problems. • Connect their subject-specific knowledge to that of other disciplines and thus get an interdisciplinary perspective. • transfer acquired knowledge to current training situation • Will have broadened their key competences and, if applicable, foreign language skills which both contribute to their character formation also in terms of interculturality. • Are aware of their personal, social, and ethical responsibility.
Content	<p>FANG offers AWPfs from the areas of</p> <ul style="list-style-type: none"> • Languages • Cultural Sciences • Natural Sciences and Technology • Politics, Law, Economics • Pedagogy, Psychology, Social Sciences • Soft Skills • Creativity and Art <p>Contents that are already included or closely related to other module contents of the degree programme are excluded from the FANG catalogue. In the FANG catalogue, the respective classes are marked by a blocking note.</p> <p>The content of each AWPf is published on FANG's website.</p>
Literature	Depends in each case on the chosen AWPfs.

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7.4 BCTH - Bachelorthesis

Module profile			
Modul-ID	BCTH		
Module name	Bachelorthesis		
Exam number	3930740		
Duration	1 semester		
Frequency	Winter and summer semester		
Credit hours (SWS)	0		
ECTS-Credits (CP)	10		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	300	0	300
Teaching format	-		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Schmidt	
Lecturer(s)	Depends on the chosen topic.	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 7 th semester Core module -	IBE 7 th semester Core module -
Particular conditions for the participation in the module according to the SPO	According to § 11 SPO IBL: a) Successful completion of the supervised internship and the preparation and reflection of the internship b) At least 150 CPs	
Recommended prerequisites for the participation in the module	Successful passing of the module PMSW.	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	Bachelor's Thesis
Examination - length/format	-
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature

Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Independently work on a topic agreed between the supervisor and the candidate within the given timeframe according to scientific criteria. • Work on a topic agreed between the supervisor and the candidate within the given timeframe according to scientific criteria. • Understand the topic and derive the research question from it. • Select suitable scientific methods and procedures and use them to find suitable solutions. • Are able to interpret, evaluate and prepare the results in a suitable way and to communicate them according to the needs.
Content	<p>Aims and contents of the bachelor thesis are either chosen by the student or proposed by the lecturer. These can be concrete practical topics or scientific topics in correlation with practical application.</p> <p>The topic must relate to "Business and Engineering" or "Logistics" and/or must relate to general or specific present questions and topics.</p>
Literature	<ul style="list-style-type: none"> • Easterby-Smith M.; Thorpe R.; Jackson P. and Jaspersen L. (2018): <i>Management and Business Research</i>, 6th Ed., Sage Publishing, Los Angeles. • Minto, B. (2009): <i>The Pyramid Principle, Logic in Writing and Thinking</i>, 3rd ed., Prentice Hall, Upper Saddle. • Balzert, H.; Schröder, M. and Schäfer, Chr. (2011): <i>Wissenschaftliches Arbeiten - Ethik, Inhalt & Form wiss. Arbeiten, Handwerkszeug, Quellen, Projektmanagement, Präsentationen</i>, 2. Aufl., Herdecke, W3L Verlag.

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7.5 COC1 - Core Competences 1

Module profile			
Module ID	COC1		
Module name	Core Competences 1		
Exam number	3930750		
Duration	1 semester		
Frequency	Winter and summer semester		
Credit hours (SWS)	2		
ECTS-Credits (CP)	3		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	90	30	60
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Stadelmann	
Lecturer(s)	Prof. Dr. Stadelmann; N.N.	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 7 th semester Core module -	IBE 7 th semester Core module -
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	Successful passing of the module PMSW.	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	Compulsory attendance of the class.
Examination - type	soP (= other examined assignment) according to §§ 26, 27 APO
Examination - length/format	<p>One of the following formats:</p> <ul style="list-style-type: none"> • seminar paper/research project • multimedia presentation • written assignment <p>The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters”.</p>
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Exhibit an accurate sense of self, make use of feedback and know personal beliefs and values. • Consider the perspective of others. • Create and apply effective communication strategies and lead effective conversations. • Comprehend roles, interactions and processes in a team and strive for common solutions.
Content	<ul style="list-style-type: none"> • Elements of self-management, including individual thinking style analysis according to the Herrmann Brain Dominance Instrument (HBDI) • Basic characteristics of communication • Communication models and techniques (comprehensibility, active listening, question technique) • Giving and receiving feedback • Preparing and conducting conversations • Success factors for teamwork
Literature	<ul style="list-style-type: none"> • Cashman, K. (2008): <i>Leadership from the inside out. Becoming a leader for life</i>, 2nd ed., San Francisco: Berrett-Koehler. • De Janasz, S. C.; Dowd, K. O. and Schneider, B. Z. (2012): <i>Interpersonal skills in organizations</i>, 4th ed., Boston: McGraw-Hill. • Herrmann, N. and Hermann,-Nehdi, A. (2015): <i>The Whole Brain Business Book</i>, 2nd ed., New York: McGraw Hill Book. • Solomon, D. H. and Theiss, J. (2013): <i>Interpersonal Communication. Putting theory into practice</i>, New York: Routledge.

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7.6 COC2 - Core Competences 2

Module profile			
Module ID	COC2		
Module name	Core Competences 2		
Exam number	3930760		
Duration	1 semester		
Frequency	Winter and summer semester		
Credit hours (SWS)	2		
ECTS-Credits (CP)	2		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	60	30	30
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation		
Responsible	N.N.	
Lecturer(s)	Ms. Körner; Ms. Shendrick; Prof. Dr. Stadelmann; Mr. Stüwe	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 7 th semester Elective module -	IBE 7 th semester Elective module -
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	Successful passing of the module COC1.	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	Compulsory attendance of the class.
Examination - type	soP (= other examined assignment) according to §§ 26, 27 APO
Examination - length/format	<p>One of the following formats:</p> <ul style="list-style-type: none"> • seminar paper/research project • multimedia presentation • written assignment <p>The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters”.</p>
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature	
Learning outcomes	<p>After having attended the module COC1 (Core Competences 1) students have the possibility to choose a course in order to specialise in a certain field of personal core competences.</p> <p>After successful completion of a module COC2 (Core Competences 2), the student should be able to</p> <ul style="list-style-type: none"> • Reproduce content from the respective field • Derive appropriate options for his/her own behaviour • Make a reflected decision for a specific behaviour and implement this in practical situations.
Content	Depends on the chosen course. Please find further information in the respective COC2 module description (see appendix).
Literature	Depends on the chosen course. Please find further information in the respective COC2 module description (see appendix).

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Appendix 1: Catalogue of Core Elective Modules ELMA/B/C

By completing the Core Elective Modules the students enlarge their know-how and skills by specific subjects out of the field of Logistics and / or Business Engineering. Overall three of the following courses must be completed. As the courses on offer are changing regularly, the actually available courses will be published every semester.

Module ID	Module name	Language of instruction
ADPU	Advanced Purchasing	English
COIN	Connected Industry	English
DILS	Design of Intralogistics Systems	English
DIFA	Digital Factory	English
ENEC	Energy Economics	English
FPER	Factory Planning and Ergonomics	English
INEN	Industrial Engineering	English
LEPR	Lean Production and CIP	English
MAFS	Material Flow Simulation	English
MALA	Machine Learning	English
MMAN	Materials Management	English
PCLS	Planning of Complex Logistics Systems	English
SEWC	SAP Extended Warehouse Management (Customizing)	English
SEWM	SAP Extended Warehouse Management (Processes)	English
SIXS	Process Optimization with Six Sigma	English

Additionally, the following courses from the German Bachelor's programme Logistik (BLO) can be taken:

Module ID	Module name	Language of instruction
DFAB	Digitale Fabrik	German
FAPL	Fabrikplanung & Ergonomie	German
IENG	Industrial Engineering	German
LOTR	Logistik- und Transportrecht	German
MASI	Materialflusssimulation	German
MWIR	Materialwirtschaft	German
POPT	Produktionsoptimierung & KVP	German
VNPR	Vernetzte Produktion	German

For more information about these courses, please refer to the Module Handbook for the B.Eng. Programme Logistik (BLO).

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ADPU - Advanced Purchasing

Module profile			
Module ID	ADPU		
Module name	Advanced Purchasing		
Exam number	3817228		
Duration	1 semester		
Frequency	Winter and/or summer semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Machholz	
Lecturer(s)	Prof. Dr. Machholz	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 5 th /7 th semester Core elective module -	IBE 4 th /5 th semester Core elective module Compulsory for Purchasing
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	Successful passing of the module STPU.	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO or soP (= other examined assignment) according to §§ 26, 27 APO

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Examination - length/format	<ul style="list-style-type: none"> • If sP: 90 minutes • If soP one of the following formats: <ul style="list-style-type: none"> ○ seminar paper/research project ○ presentation ○ multimedia presentation ○ documentation report ○ colloquium ○ written assignment ○ portfolio assignment ○ practical or artistic assignment <p>The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters”.</p>
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

Learning outcomes, content and literature

Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Describe, analyse and use modern tools for global purchasing. • Gain profound understanding about state-of-the art e-procurement tools, processes and systems. • Learn to analyse portfolios, processes and organizational forms of procurement departments. • Be enabled to identify weaknesses and threats. • Propose optimized solutions for global companies/blue chips, as well as for small and medium enterprises (SMEs). • Gain specific insights regarding new tools (AI, game theory, social buying) and smart contracts (obsolescence mgmt.). • Be qualified for a new, technology driven business and process environment (IoT, Industry 4.0). • Learn about future job opportunities in procurement and their required skills sets.
Content	<ul style="list-style-type: none"> • Kraljic Matrix – product portfolios/views • Purchasing chessboard: What happens at level 2 and 3?, detailed tools & many more examples for these (level 1) topics, Seek joint advantage with suppliers, Change nature of demand, Increase competition among suppliers, Manage spend • E-Procurement (B2B, B2C, Catalogue systems/Amazon-like buying) • P- 2-P (procure to pay) Processes • Game theory in procurement- what is this and where is it used? • Organizational forms of procurement: lead buyer organization vs. category management vs. shared services vs. 3rd party service providers • Procurement 4.0: Processes, Automation + Systems (e.g. Pool4Tool, Risk Methods, Orpheus spend cube), Artificial Intelligence/Cognitive Systems (e.g. IBM Watson), Future roles of CPOs/strategic and operational purchasing, Young Professionals /required skills & development opportunities in procurement, 3D printing and its pot. impacts on manufacturing in low costs countries

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Literature	<ul style="list-style-type: none"> • Spiller, P.; Reinecke, N.; Ungerman, D. and Teixeira, H. (2014): Procurement 20/20- Supply Entrepreneurship in a changing world, Hoboken /NJ: Wiley. • Kraljic, P.: Purchasing Must Become Supply Management - Harvard Business Review 61 (5) p. 109-117, 1983, Boston: HBR. • Schuh, C.; Kromoser, R.; Strohmer, M. and Perez, A. (2017): Triplat – The purchasing chessboard, 3rd ed., Berlin, Heidelberg: Springer Verlag (3rd ed. 2017). • Kaufmann, L.; Ehrgott, M. and Reimann, F. (2013): Selected cases in Supply Management, Berlin : EMP Science ed., 1st ed.. • Machek, F.; Möhrstädt, D.G. and Schmielek, J. (2012): Social buying: Revolution im Einkauf, Köln:Rainer Machek Verlag. • Building a workforce for the future, Harvard Business Review Oct. 2016, p. 49-63, Boston:HBR. • Brynjolfsson, E. (<i>MIT</i>) and McAfee, A. (<i>MIT</i>) (2014): The 2nd machine Age, New York, London : W.W Norton & Company Inc.
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COIN - Connected Industry

Module profile			
Module ID	COIN		
Module name	Connected Industry		
Exam number according to degree programme	3817238		
Duration	1 semester		
Frequency	Winter and/or summer semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Engelmann	
Lecturer(s)	Prof. Dr. Engelmann; Prof. Dr. J. Schmitt	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 5 th /7 th semester Core elective module -	IBE 4 th /5 th semester Core elective module Applicable for Production
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	-	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO or soP (= other examined assignment) according to §§ 26, 27 APO

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Examination - length/format	<ul style="list-style-type: none"> • If sP: 90 minutes • If soP one of the following formats: <ul style="list-style-type: none"> ○ seminar paper/research project ○ presentation ○ multimedia presentation ○ documentation report ○ colloquium ○ written assignment ○ portfolio assignment ○ practical or artistic assignment <p>The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters”.</p>
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Identify the most important network devices and understand how they work. • Establish communication between networked technical devices. • Recognize unique features and characteristics of smart sensors. • Transfer data storage tasks into database concepts and to design databases. • Distinguish and evaluate Internet communication concepts. • Integrate Internet services in their own projects. • Abstract and implement processes and simple visualizations of practical tasks.
Content	<ul style="list-style-type: none"> • Terms and concepts of industry 4.0 at a glance • Introduction to network technology • Introduction to machine-machine communication • Characteristics and selection of smart sensors • Database design • Internet technologies and services • Graphical programming with Node-RED
Literature	<ul style="list-style-type: none"> • Alasdair G. (2016): <i>Industry 4.0 - The Industrial Internet of Things</i>, Apress. • Meier, A. and Kaufmann, M. (2016): <i>SQL- & NoSQL-Databases</i>, Springer. • Rayes, A. and Salam, S. (2016): <i>Internet of Things: From Hype to Reality: The Road to Digitization</i>, Springer. • Robertazzi, T.: <i>Introduction to Computer Networking</i>, Springer International Publishing.

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DILS - Design of Intralogistics Systems

Module profile			
Module ID	DILS		
Module name	Design of Intralogistics Systems		
Exam number	3917105		
Duration	1 semester		
Frequency	Winter and/or summer semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	S (=seminar)		
Language of instruction	English		

Organisation	
Responsible	Prof. Dr.-Ing. Bremer
Lecturer(s)	Prof. Dr. Beer; Prof. Dr.-Ing. Bremer
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 5 th /7 th semester Core elective module -
Particular conditions for the participation in the module according to the SPO	-
Recommended prerequisites for the participation in the module	An introductory, logistics-related course and basic knowledge of storage and materials handling technology.

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	soP (= other examined assignment) according to §§ 26, 27 APO
Examination - length/format	Portfolio The concrete length of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course " Studien- und Prüfungsangelegenheiten/study and examination matters ".
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> Analyse master and transaction data from operative intralogistics systems. Analyse existing storage and materials handling solutions with respect to improvement potential. Identify potential storage and materials handling solutions to improve the intralogistics system. Technically design and size storage and materials handling solutions. Select appropriate logistics equipment. Visualise intralogistics systems in a 3D simulation system.
Content	<p>In a case-study approach with cases modelled on actual industry projects, we will work on providing improved technical solutions for intralogistics systems.</p> <ul style="list-style-type: none"> Establishing a database for the intralogistics system. Analyzing the data using spreadsheet programs and database queries. Presenting performance characteristics of the as-is intralogistics system. Outlining the solution space for storage and material handling technology for an improved intralogistics system. Technically designing the intralogistics system. Selecting and sizing of storage and material handling equipment. Establishing a 3D model of the logistics system in a simulation program. Presenting performance characteristics of the to-be intralogistics system.
Literature	<ul style="list-style-type: none"> Gudehus, T. and Kotzab, H. (2009): <i>Comprehensive Logistics</i>, Berlin/Heidelberg: Springer-Verlag. Segerlund, S. and Halbeisen, D. (2016): <i>Intralogistics: A Guide to Warehouse Planning</i>, Lund: Studentlitteratur AB. ten Hompel, M. and Schmidt, T. (2006): <i>Warehouse management: automation and organisation of warehouse and order picking systems</i>, Berlin/Heidelberg: Springer Science + Business Media.

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DIFA - Digital Factory

Module profile			
Module ID	DIFA		
Module name	Digital Factory		
Exam number	tbd		
Duration	1 semester		
Frequency	Winter and/or summer semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Deutschle	
Lecturer(s)	Prof. Dr. Deutschle	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 5 th /7 th semester Core elective module -	IBE 4 th /5 th semester Core elective module Applicable for Production
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	Successful completion of the module FAPL or FPER.	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO or soP (= other examined assignment) according to §§ 26, 27 APO

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Examination - length/format	<ul style="list-style-type: none"> • If sP: 90 minutes • If soP one of the following formats: <ul style="list-style-type: none"> ○ seminar paper/research project ○ presentation ○ multimedia presentation ○ documentation report ○ colloquium ○ written assignment ○ portfolio assignment ○ practical or artistic assignment <p>The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters”.</p>
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Define and differentiate the terms system, model and simulation. • Plan a production process for a selected product. • Design, analyse and evaluate a simulation model of a work station and to derive and implement improvement actions. • Document the simulation model and results.
Content	<ul style="list-style-type: none"> • Definition of digital factory • Functions and working with 3D simulation software • Process planning • Work stations in a digital model • Process simulation • Application of simulation to a specific use case • Time analysis, ergonomic risk analysis
Literature	<ul style="list-style-type: none"> • Duffy, V.G. (2008): <i>Handbook of Digital Human Modeling Research for Applied Ergonomics and Human Factors Engineering</i>, Boca Raton, CRC Press, DOI https://doi.org/10.1201/9781420063523. • Stack, T., Ostrom, L.T., Wilhelmsen, C.A. (2016): <i>Occupational Ergonomics: Practical Approach</i>, Wiley & Sons, DOI:10.1002/9781118814239.

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ENEC - Energy Economics

Module profile			
Modul ID	ENEC		
Module name	Energy Economics		
Exam number	3817294		
Duration	1 semester		
Frequency	Winter semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	SU (= seminar-like lecture); S (= seminar)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Scheller	
Lecturer(s)	Prof. Dr. Scheller	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBE 4 th /5 th semester Core elective module Applicable for purchasing	IBL 5 th /7 th semester Core elective module -
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module		

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO or soP (= other examined assignment) according to §§ 26, 27 APO

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Examination - length/format	<ul style="list-style-type: none"> • If sP: 90 minutes • If soP one of the following formats: <ul style="list-style-type: none"> ○ seminar paper/research project ○ presentation ○ multimedia presentation ○ documentation report ○ colloquium ○ written assignment ○ portfolio assignment ○ practical or artistic assignment <p>The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters”.</p>
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

Learning outcomes, content and literature	
Learning outcomes	<p>Upon successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Distinguish commercial fleet fuel or energy source types concerning costs, emissions, and efficiencies. • Explain operational factors for selecting an adequate fuelling strategy for different kinds of freight transport. • Recognize the link between the energy consumption of commercial transport and energy economics. • Understand basic concepts of economic theory such as demand and supply and price formation in markets. • Compare the wholesale market prices of electricity, liquid fuels, or gaseous fuels with retail prices. • Evaluate opportunities and challenges of fleet electrification in the logistics industry from a business perspective.
Content	<ul style="list-style-type: none"> • Overview of energy sources and fuels for freight transport. • Factors of fuel use and challenges of different fuels. • Principles of energy management and economics. • Management of energy/ fuel demand and costs. • Basics of energy demand, supply, markets and prices. • Fundamentals of electricity markets. • Fundamentals of liquid and gaseous fuel markets. • Components of wholesale vs. retail fuel/ energy prices. • Impacts of high and volatile energy prices on logistics. • Trends regarding carbon neutral logistics and green fuels.
Literature	<ul style="list-style-type: none"> • Bhattacharyya, S. C. (2019): <i>Energy economics: concepts, issues, markets and governance</i>, Springer Nature. • Rodrigue, J. P. (2020): <i>The geography of transport systems</i>, Routledge. • Zweifel, P.; Praktijnjo, A. and Erdmann, G. (2017): <i>Energy economics: theory and applications</i>, Springer.

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FPER - Factory Planning and Ergonomics

Module profile			
Module ID	FPER		
Module name	Factory Planning and Ergonomics		
Exam number	3917101		
Duration	1 semester		
Frequency	Winter and/or summer semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Deutschle	
Lecturer(s)	Prof. Dr. Bräutigam; Prof. Dr. Deutschle; Prof. Dr. Engelmann; Prof. Dr. J. Schmitt	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 5 th /7 th semester Core elective module -	IBE 4 th /5 th semester Core elective module Compulsory for Production
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	Successful completion of the module WWIG or ECSB.	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO or soP (= other examined assignment) according to §§ 26, 27 APO

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Examination - length/format	<ul style="list-style-type: none"> • If sP: 90 minutes • If soP one of the following formats: <ul style="list-style-type: none"> ○ seminar paper/research project ○ presentation ○ multimedia presentation ○ documentation report ○ colloquium ○ written assignment ○ portfolio assignment ○ practical or artistic assignment <p>The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters”.</p>
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

Learning outcomes, content and literature

Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Explain the content and importance of the planning phases. • Design a suitable target system for the factory planning and to use it for the evaluation of planning variants. • Simplify, to depict, to evaluate and systematically redesign value streams. • Select suitable methods for layout planning and to design or optimize material flow optimized layouts. • Differentiate the terms work load, performance capacity and strain. • Design simple manual work systems using ergonomic standards. • Describe and evaluate basic environmental work conditions. • Carry out and interpret simple ergonomic risk assessments.
Content	<ul style="list-style-type: none"> • Systematic approach to factory planning • Design and use of target systems • Value-benefit-analysis • Selection criteria and selection of factory locations • Site master plan, building planning • Value stream analysis and value stream design • Streamlined factory layout planning: triangle grid method, permutation method • Ergonomics: basic definitions and terms • Human performance capability • Laws, standards and guidelines for operational safety and health • Human work work design, examples of industrial work place design (work place, tools, environment, organization) • Ergonomic risk assessment

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Literature	<p>Current ed. of:</p> <ul style="list-style-type: none"> • Erlach, K. (2013): <i>Value Stream Design - The way towards a lean factory</i>, Berlin, Heidelberg: Springer Verlag. • Freivalds, A. (2014): <i>Niebel's Methods, Standards, and Work Design</i>, 13th ed., McGraw Hill. • Rother, M. and Shook, J. (2002): <i>Learning to see</i>, Lean Enterprise Institute. • Stephens, M. P. and Meyers, F. E. (2010): <i>Manufacturing Facilities Design & Material Handling</i>, 4th ed., New Jersey: Pearson Prentice Hall.
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INEN - Industrial Engineering

Module profile			
Module ID	INEN		
Module name	Industrial Engineering		
Exam number	3817201		
Duration	1 semester		
Frequency	Winter and/or summer semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Deutschle	
Lecturer(s)	Prof. Dr. Bräutigam; Prof. Dr. Deutschle; Prof. Dr. Engelmann; Prof. Dr. J. Schmitt	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 5 th /7 th semester Core elective module -	IBE 4 th /5 th semester Core elective module Applicable for Production
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	Successful completion of the modules WWIG or ECSB.	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO or soP (= other examined assignment) according to §§ 26, 27 APO

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Examination - length/format	<ul style="list-style-type: none"> • If sP: 90 minutes • If soP one of the following formats: <ul style="list-style-type: none"> ○ seminar paper/research project ○ presentation ○ multimedia presentation ○ documentation report ○ colloquium ○ written assignment ○ portfolio assignment ○ practical or artistic assignment <p>The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters”.</p>
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

Learning outcomes, content and literature

Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Describe the term authority and competence for the role of the industrial engineer. • Select and apply methods for the collection, evaluation and application of operational data. • Describe, evaluate and suggest improvements for work systems by using operational data. • Differentiate process types and process times and to use them for the design of work systems. • Design standard work places respecting economic and human aspects of work. • Describe the importance of setup times and apply methods for their reduction. • Evaluate influencing factors for standard times and to create standard time modules. • Evaluate and select work systems from an economic standpoint.
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Content	<ul style="list-style-type: none"> • Successful companies, human work and REFA • Social competencies of the REFA industrial engineer • REFA work system • Process-oriented organisation • Management of operational data • Task and work flow • Human work design • Work system design • Setup time • Creation of standard time modules • Predetermined time systems • Cost calculation with operational data • Basics of wage tariffs, job evaluation and performance evaluation <p>The module is based on content of the “REFA Basic Training 2.0”. REFA offers students the possibility to complete the course theory and to participate in additional courses and workshops with the goal to achieve the “REFA Basic Training 2.0” as an additional job qualification.</p>
Literature	<p>Current ed. of:</p> <ul style="list-style-type: none"> • Crowson, R. (2006): <i>The Handbook of Manufacturing Engineering: Product Design and Factory Development</i>, 2nd ed., Boca Rayton: CRC Taylor & Francis. • Freivalds, B. and Niebel, W. (2014): <i>Niebel's Methods, Standards, and Work Design</i>, 13th ed., New York: McGraw Hill. • REFA (2014): <i>REFA Basic Training 2.0</i>, REFA Bundesverband. • Stephens, M.P. and Meyers, F.E. (2013): <i>Manufacturing Facilities Design & Material Handling</i>, 5th ed., New Jersey: Pearson Prentice Hall.

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LEPR - Lean Production and CIP

Module profile			
Module ID	LEPR		
Module name	Lean Production and CIP		
Exam number	3815310		
Duration	1 semester		
Frequency	Winter and/or summer semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	S (= seminar)		
Language of instruction	English		

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Organisation		
Responsible	Prof. Dr. Bräutigam	
Lecturer(s)	Prof. Dr. Bräutigam; Prof. Dr. Engelmann; Prof. Dr. J. Schmitt	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 5 th /7 th semester Core elective module -	IBE 4 th /5 th semester Core elective module Compulsory for Poduction
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	-	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO or soP (= other examined assignment) according to §§ 26, 27 APO
Examination - length/format	<ul style="list-style-type: none"> • If sP: 90 minutes • If soP one of the following formats: <ul style="list-style-type: none"> ○ seminar paper/research project ○ presentation ○ multimedia presentation ○ documentation report ○ colloquium ○ written assignment ○ portfolio assignment ○ practical or artistic assignment <p>The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters”.</p>
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Describe the individual elements, the relationships and the underlying philosophy of Lean Management (LM). • Explain the underlying philosophy of LM. • Select and apply the various methods and tools of LM depending on the individual case. • Recognize the links and differences with classical production control models. • Derive elements of Lean Management on their own and to compare different production systems. • Determine the requirements of the process participants (stakeholders). • Apply the taught methods and tools of LM in various application scenarios. • Reflect the obtained results in the team.
Content	<p>Lean Management Methods and Tools</p> <ul style="list-style-type: none"> • Kaizen • Value stream design • Levelling • 5S • Kanban • SMED <p>Control of material and information flow</p> <ul style="list-style-type: none"> • Push - Pull • Shop Floor Management Cycle • Visual Management • Basics SCM <p>Examples for production systems in practice</p>
Literature	<ul style="list-style-type: none"> • Liker, J.K. (2004): <i>The Toyota Way – 14 Management Principles from the World's greatest manufacturer</i>, Tata McGraw. • Liker, J.K. and Meier, D.P. (2005): <i>The Toyota-Way Fieldbook</i>, McGrawHill. • Rother, M. (2009): <i>Learning to See: Toyota Kata</i>, McGraw Hill Professional.

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MAFS - Material Flow Simulation

Modul profile			
Module ID	MAFS		
Module name	Material Flow Simulation		
Exam number	3817230		
Duration	1 Semester		
Frequency	Winter and/or summer semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Schwindl	
Lecturer(s)	Ms. Ullerich	
Applicability; Semesters according to SPO; Type of module; If applicable specialisation	IBL 5 th /7 th semester Core elective module -	IBE 4 th /5 th semester Core elective module Applicable for Production
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	Successful passing of the module MFPS.	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO or soP (= other examined assignment) according to §§ 26, 27 APO

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Examination - length/format	<ul style="list-style-type: none"> • If sP: 90 minutes • If soP one of the following formats: <ul style="list-style-type: none"> ○ seminar paper/research project ○ presentation ○ multimedia presentation ○ documentation report ○ colloquium ○ written assignment ○ portfolio assignment ○ practical or artistic assignment <p>The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters”.</p>
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Create complex simulation models to answer problems by themselves. • Know and apply the necessary fundamental functions as well as the different objects of Plant Simulation, program methods, and use distribution functions to constitute material flow data correctly. • Have a compact overview of the discrete event simulation and solve complex logistic and technical production questioning.
Content	<ul style="list-style-type: none"> • Principles of Plant Simulation: • Surface • Objects • Methods and the programming language SIM TALK • Creation of simple simulations models • Distribution functions and statistical tools • Creation of extensive simulation models
Literature	<ul style="list-style-type: none"> • Bangsow, S. (2011): <i>Manufacturing Simulation with Plant Simulation and SimTalk</i>, latest ed., Berlin: Springer. • Bangsow, S.: <i>Use Cases of Discrete Event Simulation</i>, latest ed., Berlin: Springer.

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MALA - Machine Learning

Module profile			
Module ID	MALA		
Module name	Machine Learning		
Exam number	3817250		
Duration	1 semester		
Frequency	Winter and/or summer semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Schmitt	
Lecturer(s)	Prof. Dr. Engelmann; Prof. Dr. Schmitt	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 5 th /7 th semester Core elective module -	IBE 4 th /5 th semester Core elective module Applicable for Production
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	Basics in Python and/or Matlab programming	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	soP (= other examined assignment) according to §§ 26, 27 APO
Examination - length/format	One of the following formats: • Seminar paper/research project • Portfolio assignment The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the eLearning course “Studien- und Prüfungsangelegenheiten/study and examination matters” .
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Distinguish between core techniques of Machine Learning e.g. supervised and unsupervised Machine Learning. • Capture a context and its relevant data, functions and documents to derive an abstract model. • Structure data driven issues to prepare big (input) data to feed Machine Learning algorithms. • Use methods of Machine Learning. • Solve application-oriented challenges by Machine Learning techniques. • Implement Machine Learning models and algorithms to certain development environment (Matlab and/or Python). • Evaluate own Machine Learning based models by specific indicators. • Explain the most important functions of Machine Learning models, their related characteristics, and how they effect on the model output. • Interpret the results of the models.
Content	<ul style="list-style-type: none"> • Machine Learning in Industry 4.0 and logistics context • Principle methods of classification and regression learning • Development environments for Machine Learning • CRISP-DM method • Data preparation methods • Application and evaluation of Machine Learning models • Discovering real (industrial) data by Machine Learning techniques
Literature	<ul style="list-style-type: none"> • Disruptor, T., and Vermeulen, A. F. (2020): <i>Industrial Machine Learning</i>, New York: Apress. • Forsyth, D. (2019): <i>Applied Machine Learning</i>, Basel: Springer International Publishing. • Kelleher, J. D.; Mac Namee, B. and D'arcy, A. (2020): <i>Fundamentals of machine learning for predictive data analytics: algorithms, worked examples, and case studies</i>, Cambridge: MIT press. • Meier, A. and Kaufmann, M. (2016): <i>SQL- & NoSQL-Databases</i>, Berlin: Springer. • Rebala, G.; Ravi, A. and Churiwala, S. (2019): <i>An introduction to machine learning</i>, Berlin: Springer.

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MMAN - Materials Management

Module profile			
Module ID	MMAN		
Module name	Materials Management		
Exam number	3817201		
Duration	1 semester		
Frequency	Winter and/or summer semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Bräutigam	
Lecturer(s)	Prof. Dr. Bräutigam; Prof. Dr. Engelmann	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 5 th /7 th semester Core elective module -	IBE 4 th /5 th semester Core elective module Applicable for Purchasing and/or Purchasing
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	-	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO or soP (= other examined assignment) according to §§ 26, 27 APO

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Examination - length/format	<ul style="list-style-type: none"> • If sP: 90 minutes • If soP one of the following formats: <ul style="list-style-type: none"> ○ seminar paper/research project ○ presentation ○ multimedia presentation ○ documentation report ○ colloquium ○ written assignment ○ portfolio assignment ○ practical or artistic assignment <p>The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters”.</p>
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Explain the role of materials management in a changing environment as a cost driver. • Derive and evaluate materials management as a tool for managing a wide range of goods and services for a variety of stakeholders. <ul style="list-style-type: none"> ○ Apply the elements of materials management in theory and practice. ○ Distinguish and apply different methods for demand, capacity and resource planning. ○ Create requirements plans for vendors. ○ Plan production, to recognize the context of the added value and to derive measures for optimisation. • Understand all activities in the material flow from supplier to customer and describe strengths and weaknesses. • Analyse the potential of materials management and to derive improvements.
Content	<ul style="list-style-type: none"> • Overview of supply chain and production systems • Discussion of the systematic of Materials Management • Introduction to Materials Management and Production Planning Systems • Master Planning (MPS & SIOP) Scheduling • Material Requirement and Manufacturing Resource Planning (MRP & MRP II) • Capacity Management • Production Activity Control • Purchasing (if required) • Forecasting • Inventory Fundamentals • Order Quantities and Optimum Lot Sizing (EOQ) • Independent Demand Ordering Systems and Production Management • Physical Inventory and Warehouse Management
Literature	Arnold, J.R.T.; Chapman, S.N. and Clive, L.M.: <i>Introduction to Materials Management</i> , latest ed.; Prentice Hall.

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PCLS - Planning of Complex Logistics Systems

Module profile			
Module ID	PCLS		
Module name	Planning of Complex Logistics Systems		
Exam number	3917103		
Duration	1 semester		
Frequency	Winter and/or summer semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	S (=seminar)		
Language of instruction	English		

Organisation	
Responsible	Prof. Dr. Beer
Lecturer(s)	Prof. Dr. Beer
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 5 th /7 th semester Core elective module -
Particular conditions for the participation in the module according to the SPO	-
Recommended prerequisites for the participation in the module	Successful passing of the modules ILOP and ARIS.

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO or soP (= other examined assignment) according to §§ 26, 27 APO

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Examination - length/format	<ul style="list-style-type: none"> • If sP: 90 minutes • If soP one of the following formats: <ul style="list-style-type: none"> ○ seminar paper/research project ○ presentation ○ multimedia presentation ○ documentation report ○ colloquium ○ written assignment ○ portfolio assignment ○ practical or artistic assignment <p>The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters”.</p>
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Explain the role of warehouses in supply and demand networks. • Engage in planning projects of logistics systems in a systematic and structured manner. • Select and dimension storage systems, picking systems, and other system elements based upon defined planning parameters. • Explain their reasoning behind design decisions in logistics automation projects. • Engage with customers, consultants, sales managers, planning engineers, management, and other stakeholders on a technically advanced level. • Evaluate both, Requests for Quotation (RFQs) of potential customers and offer documents of logistics automation providers. • Evaluate system design choices with respect to technological, logistical, and economic viability.
Content	<ul style="list-style-type: none"> • Types of data analysis for planning of logistics projects. • Deriving system design decisions from data analysis results. • Drivers and principles of logistics automation. • Working with bottlenecks in logistics systems. • Types of material handling equipment. • Sales aspects of planning processes: sales strategy, project portfolio and risk management, customer's buying centre. • Project management and project realization. • Legal aspects of logistics projects: acceptance criteria, penalties, negotiations. • Case studies of logistics projects.
Literature	<ul style="list-style-type: none"> • Goldratt, E. M. and Cox, J. (2012): <i>The Goal: A Process of On-going Improvement</i>, 30th ed., Great Barrington, MA: North River Press. • Hopp, W. J. and Spearman, M. L. (2008): <i>Factory Physics</i>, 3rd ed., New York: McGraw-Hill.

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SEWC - SAP Extended Warehouse Management (Customizing)

Module profile			
Module ID	SEWC		
Module name	SAP Extended Warehouse Management (Customizing)		
Exam number	3337140		
Duration	1 semester		
Frequency	Winter and/or summer semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation	
Responsible	Prof. Dr. Bremer
Lecturer(s)	Mr. Gradt
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 5 th /7 th semester Core elective Module -
Particular conditions for the participation in the module according to the SPO	-
Recommended prerequisites for the participation in the module	Successful passing of the modules ERLA and SEWM.

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO or soP (= other examined assignment) according to §§ 26, 27 APO
Examination - length/format	<ul style="list-style-type: none"> • If sP: 90 minutes • If soP one of the following formats: <ul style="list-style-type: none"> ○ seminar paper/research project ○ presentation ○ multimedia presentation ○ documentation report ○ colloquium ○ written assignment ○ portfolio assignment ○ practical or artistic assignment <p>The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the e-</p>

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	Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters” .
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Set-up the interface between SAP EWM and SAP ERP systems. • Do basic consulting for defining warehouse structures in SAP-EWM and the customizing activities for setting up warehouse structures and operations in an SAP EWM system. • Map logistics processes to SAP EWM using process- and layout-oriented storage control.
Content	<p>Students will be introduced to the customizing of a SAP EWM system based on the IMG (Implementation Guide) provided with the system. The main goal is to achieve a sound understanding of how to map logistics processes to SAP EWM</p> <ul style="list-style-type: none"> • Customizing of business process support within SAP ERP and SAP EWM standard • Interfaces between SAP EWM and SAP ERP • Process- and layout-oriented storage control
Literature	Kannapan, B.; Tripathy, H. and Krishna, V. (2016): <i>Warehouse Management with SAP EWM</i> , Quincy: SAP Press/Rheinwerk Publishing.

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SEWM - SAP Extended Warehouse Management (Processes)

Module profile			
Module ID	SEWM		
Module name	SAP Extended Warehouse Management (Processes)		
Exam number	3337139 -		
Duration	1 semester		
Frequency	Winter and/or summer semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation	
Responsible	Prof. Dr. Bremer
Lecturer(s)	Mr. Gingele
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 5 th /7 th semester Core elective Module -
Particular conditions for the participation in the module according to the SPO	-
Recommended prerequisites for the participation in the module	SAP Basics.

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO or soP (= other examined assignment) according to §§ 26, 27 APO

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Examination - length/format	<ul style="list-style-type: none"> • If sP: 90 minutes • If soP one of the following formats: <ul style="list-style-type: none"> ○ seminar paper/research project ○ presentation ○ multimedia presentation ○ documentation report ○ colloquium ○ written assignment ○ portfolio assignment ○ practical or artistic assignment <p>The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters”.</p>
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Describe the main business processes implemented in the SAP EWM (Extended Warehouse Management) system. • Describe the interface between EWM and an (SAP) ERP system. • Describe the functionality of transactions used within an EWM system to process day-to-day warehouse tasks. • Describe how operational requirements can be mapped into an SAP EWM system.
Content	<ul style="list-style-type: none"> • System environment • SAP EWM processes and functions • Integration of SAP EWM and SAP ERP • Organizational units and master data • Warehouse tasks and warehouse order • Warehouse monitor • Easy Graphic Framework • Radio Frequency Identification • Goods receipt • Goods issue • Storage control • Replenishment • Inventory • S/4HANA foray
Literature	<ul style="list-style-type: none"> • Kannapan, B.; Tripathy, H. and Krishna, V. (2016): <i>Warehouse Management with SAP EWM</i>, Quincy: SAP Press/Rheinwerk Publishing. • Sachan, N. and Jain, A. (2018): <i>Warehouse Management in SAP S/4HANA</i>, Quincy: SAP Press/Rheinwerk Publishing.

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SIXS - Process Optimization with Six Sigma

Module profile			
Module-ID	SIXS		
Module name	Process Optimization with Six Sigma		
Exam number	3817237		
Duration	1 semester		
Frequency	Winter and/or summer semester		
Credit hours (SWS)	4		
ECTS-Credits (CP)	5		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	150	60	90
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Schwindl	
Lecturer(s)	Prof. Dr. Schwindl	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 5 th /7 th semester Core elective module -	IBE 4 th /5 th semester Core elective module Applicable for Production
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	Successful completion of the modules STAT/STAC and PRQS /PRQA.	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	-
Examination - type	sP (= written examination) according to § 23 APO or soP (= other examined assignment) according to §§ 26, 27 APO

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Examination - length/format	<ul style="list-style-type: none"> • If sP: 90 minutes • If soP one of the following formats: <ul style="list-style-type: none"> ○ seminar paper/research project ○ presentation ○ multimedia presentation ○ documentation report ○ colloquium ○ written assignment ○ portfolio assignment ○ practical or artistic assignment <p>The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters”.</p>
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Plan the concept based systematic procedure given in the context of Six Sigma project initiatives in industrial daily business on the basis of real data and case studies. • Develop robust processes according the zero-defect-philosophy. • Design, plan, develop and define process parameters and activities to improve productive processes permanently and consistently in both their technical and economic efficiency. • Apply the DMAIC cycle on quantitative data-driven analysing and planning methods. • Plan and execute a case based Six Sigma project to improve a production process based on data analysis methods.
Content	<ul style="list-style-type: none"> • Six Sigma specific project management: DMAIC structure, SWOT analysis, probability and regression based project management • Sigma Estimation, Sample Size Determination, Statistical Quality Methods • Define Phase: Project Charter, Affinity diagram, Kano's Model, DPU and DPMO • Measure Phase: VoC, VoP, Sources of Variation, Probability Models, Capability Analysis • Analyze Phase: Process Mapping, Parameter Estimation, Testing of Hypothesis, Goodness-of-Fit Tests, Regression Analysis, Non-linear Regression, Analysis of Variance, Root Cause Analysis, Analyze Checklists, Relevance for Managers • Improve Phase: Balanced Scorecard (BSC), Design of Experiments, Process Mapping for Improvements, Simulation Techniques, Process Implementation and Validation, Improve Check Sheets, etc. • Control Phase: Statistical Process Control, Poka Yoke, Process Dashboards, etc. • Sigma Level Estimation, Continuous Improvement (Deming and Crosby's Quality Philosophy, data-driven) <p>The students are given the opportunity to obtain a real Six Sigma green belt certificate after they passed the examination successfully.</p>

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Literature	<ul style="list-style-type: none"> • Cano, E.L.; Moguerza, J.M. and Redchuk, A. (2012): <i>Six Sigma with R</i>, Springer, New York. • Carroll, C.T. (2013): <i>Six Sigma for Powerful Improvement</i>, Taylor & Fancis, New York. • Evans, J.R. and Lindsay, W.M. (2015): <i>An Introduction to Six Sigma & Process Improvement</i>, 2nd ed., Stamford.
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Appendix 2: Catalogue of Courses for the Module Core Competences 2

For the module Core Competences 2, one of the following courses must be completed. As the courses on offer are changing regularly, the actually available courses will be published every semester.

Module ID	Module name	Language of instruction
BUET	Business and Ethics	English
ICC	Intercultural Communication	English
PRSK	Presentation Skills	English
STCO	Stress- and Conflict-Management	English
TISE	Time- and Self-Management	English

Additionally, the following courses from the German Bachelor's programme Logistik (BLO) can be taken:

Module ID	Module name	Language of instruction
IKO	Interkulturelle Kompetenz	German
PRTE	Präsentationstechniken	German
RHET	Rhetorik	German
STKO	Stress- und Konfliktmanagement	German
UETH	Angewandte Unternehmensethik - Werteorientierung	German
VERH	Verhandlungsführung	German
ZESE	Zeit- und Selbstmanagement	German

For more information about these courses, please refer to the Module Handbook for the B.Eng. Programme Logistik (BLO).

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BUET - Business and Ethics

Module profile			
Module ID	BUET		
Module name	Business and Ethics		
Exam number	3930760		
Duration	1 semester		
Frequency	Winter and summer semester		
Credit hours (SWS)	2		
ECTS-Credits (CP)	2		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	60	30	30
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Kraus	
Lecturer(s)	Prof. Dr. Ankenbrand, Prof. Dr. Kraus	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 7 th semester Elective module -	IBE 7 th semester Elective module -
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	Successful passing of the module COC1.	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	Compulsory attendance of the class.
Examination - type	soP (= other examined assignment) according to §§ 26, 27 APO
Examination - length/format	<p>One of the following formats:</p> <ul style="list-style-type: none"> • seminar paper/research project • multimedia presentation • written assignment <p>The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters”.</p>
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module the learner should be able to:</p> <ul style="list-style-type: none"> • Describe the basic terms and contents of recognised standards catalogues. • Know which factors are used to describe responsibility and trust. • Be able to explain the concept of analysis for worldviews and its elements as well as generic examples. • Be able to explain the dual nature of values and their normative core functions in companies. • To know the structure of a goal-oriented value-based argumentation. • to be able to describe their own and others' ideological imprints and to name values that can be derived from them by way of example (reflective competence) as well as to apply them to concrete dilemmas through justified recommendations for action (action competence). • Develop and discuss goal-oriented arguments for different stakeholder groups on the basis of a specific set of values or norms (discourse and persuasion competence).
Content	<ul style="list-style-type: none"> • Ethics, Values, Morals & Norms: Functions and Relevance in Businesses and Organisations • Worldview analysis: Philosophical foundations of specific values • Multi-rational management: Dealing professionally with contradictions and dilemmas in companies and organisations • Value orientation as normative ethics: Use of values and argumentation with values in corporate management • Concept of Corporate Responsibility & Sustainability • Trust as a core factor of functioning market exchange relationships
Literature	<ul style="list-style-type: none"> • Bauer, J. J.; McAdams, D. P. and Pals, J. L. (2008): <i>Narrative identity and eudaimonic well-being</i>. Journal of Happiness Studies, 9(1), 81-104. https://doi.org/10.1007/s10902-006-9021-6. • Brunelli, S. and Di Carlo, E. (Eds.). (2020): <i>Accountability, Ethics and Sustainability of Organizations</i>. Springer International Publishing, https://doi.org/10.1007/978-3-030-31193-3. • Schäfer, H. (2019): On Values: <i>The (Hidden) Ethical Framework in Capital Market Theory (An Outline of Ethics in Economics and Finance)</i>. In On Values in Finance and Ethics: Forgotten Trails and Promising Pathways (pp. 27–42). Springer International Publishing. https://doi.org/10.1007/978-3-030-04684-2_3. • Storchey, M. (2018): <i>Business Ethics as a Science</i>. Springer International Publishing, https://doi.org/10.1007/978-3-319-68861-9.

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ICC - Intercultural Communication

Module profile			
Module ID	ICC		
Module name	Intercultural Communication		
Exam number	3930760		
Duration	1 semester		
Frequency	Winter and summer semester		
Credit hours (SWS)	2		
ECTS-Credits (CP)	2		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	60	30	30
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation		
Responsible	N.N.	
Lecturer(s)	Ms. Shendrick; Prof. Dr. Stadelmann	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 7 th semester Elective module -	IBE 7 th semester Elective module -
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	Successful passing of the module COC1.	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	Compulsory attendance of the class.
Examination - type	soP (= other examined assignment) according to §§ 26, 27 APO
Examination - length/format	<p>One of the following formats:</p> <ul style="list-style-type: none"> • seminar paper/research project • multimedia presentation • written assignment <p>The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters”.</p>
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature

Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Outline the most important theoretical approaches to intercultural communication. • Explain the impact of one's own cultural conditioning on values, perception, expectations and behavior. • Interpret the behaviour of people from different cultures considering their respective cultural values. • Create and apply effective communications strategies to overcome obstacles in intercultural encounters. • Analyse intercultural business encounters by applying intercultural terminology, theory and methods and adopt the own behavior accordingly.
Content	<ul style="list-style-type: none"> • Introduction and Basic Knowledge: concept of culture, cultural identity, perception and interpretation, stereotypes and prejudices. • Cultural Dimensions as a theoretical framework to compare cultures: mainly individualism vs. collectivism, high vs. low power distance, deal- vs. relationship orientation. Focus is on different communication styles (verbal and non-verbal communication). • Application in business: multicultural teamwork, virtual teamwork, meetings with team members from different cultures, presentations in front of an international audience, leading culturally diverse teams.
Literature	<ul style="list-style-type: none"> • Adler, N. J. and Gundersen, A. (2008): <i>International dimensions of organizational behavior</i>, 5th ed., Mason: Thomson South-Western. • Comfort, J. and Franklin, P. (2014): <i>The Mindful International Manager. How to work effectively across cultures</i>, 2nd ed., London: Kogan Page. • Hofstede, G.; Hofstede, G. J. and Minkov, M. (2010): <i>Cultures and organizations. Software of the mind: International cooperation and its importance for survival</i>, 3rd ed., New York: McGraw-Hill. • Schroll-Machl, S. (2016): <i>Doing business with Germans. Their perception, our perception</i>, 6th ed., Göttingen: Vandenhoeck & Ruprecht.

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PRSK - Presentation Skills

Module profile			
Module ID	PRSK		
Module name	Presentation Skills		
Exam number	3930760		
Duration	1 semester		
Frequency	Winter and summer semester		
Credit hours (SWS)	2		
ECTS-Credits (CP)	2		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	60	30	30
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation		
Responsible	Prof. Dr. Brake	
Lecturer(s)	Prof. Dr. Panshef	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 7 th semester Elective module -	IBE 7 th semester Elective module -
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	Successful passing of the module COC1.	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	Compulsory attendance of the class.
Examination - type	soP (= other examined assignment) according to §§ 26, 27 APO
Examination - length/format	<p>One of the following formats:</p> <ul style="list-style-type: none"> ○ presentation ○ multimedia presentation ○ documentation report <p>The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters”.</p>
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature

Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Use presentation techniques and to show how these can be used in different/varying situations. • Identify and name the impact factors of short and long presentations and test them in specialised conversations and lectures. • Analyse the communication processes of a presentation and to actively design these processes with regard to the aims of the presentation. • Adapt presentation topics to a target group and to present these topics logically and in an appropriate register. • Use media correctly and visualise it in a suitable way. • Give a convincing, audience-related presentation.
Content	<p>Professional contents of the module:</p> <ul style="list-style-type: none"> • Basic elements of a presentation • Examples of different presentation techniques • Basic presentation skills • Rules of communication • Preparation and delivery of different types of presentations <p>Methodological contents of the module:</p> <ul style="list-style-type: none"> • Direct and multimedia presentation of learning content • Role play • Workshop • Individual presentation • Peer assessment
Literature	<ul style="list-style-type: none"> • Platow, M. (2002): <i>Giving Professional Presentations in the Behavioral Sciences and Related Fields</i>, New York: Psychology Press. • Williams, E. (2008): <i>Presentations in English. Find your voice as presenter</i>, Oxford: Macmillan. • Wallwork, A. (2014): <i>Presentations, Demos, and Training Sessions. A Guide to Professional English</i>, New York: Springer. • Van Emden, J. and Becker, L. (2016): <i>Presentation skills for students</i>, London: Palgrave. • Bovée, C. and Thill, J. (2020): <i>Business Communication Essentials. Fundamental Skills for the Mobile-Digital-Social Workplace</i>, 8th ed., Harlow: Pearson.

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STCO - Stress- and Conflict Management

Module profile			
Module ID	STCO		
Module name	Stress- and Conflict-Management		
Exam number	3930760		
Duration	1 semester		
Frequency	Winter and summer semester		
Credit hours (SWS)	2		
ECTS-Credits (CP)	2		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	60	30	30
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation		
Responsible	N.N.	
Lecturer(s)	Hr. Stüwe	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 7 th semester Elective module -	IBE 7 th semester Elective module -
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	Successful passing of the module COC1.	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	Compulsory attendance of the class.
Examination - type	soP (= other examined assignment) according to §§ 26, 27 APO
Examination - length/format	<p>One of the following formats:</p> <ul style="list-style-type: none"> • seminar paper/research project • multimedia presentation • written assignment <p>The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters”.</p>
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature	
Learning outcomes	<p>After successful completion of the module, the learner should be able to:</p> <ul style="list-style-type: none"> • Define, explain and evaluate stress situations. • Derive and create concrete forms of action to deal with stress situations. • Use the preventive measures learned. • Name mediative techniques and to use them situationally. • Recognize conflicts, understand and develop solutions based on specific patterns.
Content	<ul style="list-style-type: none"> • Introduction and overview of current stress and conflict management theories • Recognize, evaluate and find solutions to stress • Understand healthy and unhealthy stress • Development of individual stress regulators • Identify and evaluate conflicts and find solutions • Solutions for conflicts in groups • Strategies for dealing with conflicts
Literature	<ul style="list-style-type: none"> • Berne, E. (2002): <i>Games People Play: The Psychology of Human Relationship</i>, New York: Grove Press. • Fisher, R. and Ury, W. (2011): <i>Getting to Yes: Negotiating Agreement Without Giving In</i>, London: Penguin Books. • Glasl, F. (1999): <i>Confronting conflict: a first-aid kit for handling conflict</i>, Stroud, Gloucestershire: Hawthorn Press.

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TISE - Time- and Self-Management

Module profile			
Module ID	TISE		
Module name	Time- and Self-Management		
Exam number	3930760		
Duration	1 semester		
Frequency	Winter and summer semester		
Credit hours (SWS)	2		
ECTS-Credits (CP)	2		
Workload	Total workload	Amount of Attendance time	Amount of Self-study time
Respective hours	60	30	30
Teaching format	S (= seminar)		
Language of instruction	English		

Organisation		
Responsible	N.N.	
Lecturer(s)	Prof. Dr. Stadelmann	
Applicability; Semester according to SPO; Type of module; If applicable specialisation	IBL 7 th semester Elective module -	IBE 7 th semester Elective module -
Particular conditions for the participation in the module according to the SPO	-	
Recommended prerequisites for the participation in the module	Successful passing of the module COC1.	

Examination	
Particular conditions for the participation in the examination according to the SPO appendix	Compulsory attendance of the class.
Examination - type	soP (= other examined assignment) according to §§ 26, 27 APO
Examination - length/format	<p>One of the following formats:</p> <ul style="list-style-type: none"> • seminar paper/research project • multimedia presentation • written assignment <p>The concrete length/format of the examination will be determined in the curriculum and published at the beginning of each semester in the e-Learning course “Studien- und Prüfungsangelegenheiten/study and examination matters”.</p>
Language of examination	English
Condition for the award of credit points	Successful passing of the examination.

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Learning outcomes, content and literature	
Learning outcomes	<p>On successful completion of this module, the learner should be able to:</p> <ul style="list-style-type: none"> • Distinguish different dimensions of time, as well as cultural and personal preferences in dealing with time. • Reflect and analyse one's own way of dealing with time and one's own work behaviour. • Name, understand and put into practice techniques of time- and self-management. • Set and realise goals and priorities in the short, medium and long term. • Recognise and analyse personal stress factors and eliminate them using preventive techniques.
Content	<ul style="list-style-type: none"> • Basics of time and self-management • Typical problems in managing time • Setting objectives and defining steps to achieve them • Planning (Performance curve, priorities, planning techniques) • Work and study organization (learning, transcripts, workplace, organisation system) • Stress and stress management
Literature	<ul style="list-style-type: none"> • Forsyth, P. (2016): <i>Successful Time Management. How to be organized, productive and get things done</i>, 5th ed., London: Kogan Page. • Lussier R. N. (2017): <i>Human Relations in Organizations. Applications and Skill Building</i>, 10th ed., New York: McGraw-Hill Education. • Zimbardo, P. G. and Boyd, J. (2010): <i>The time paradox. Using the new psychology of time to your advantage</i>, London: Rider.