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Faculty of
Business and Engineering

Technical University of
Applied Sciences
Würzburg-Schweinfurt

Module handbook
Logistics (B. Eng.)

Valid from Winter semester 2023/2024

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Table of contents

Preliminary Remarks

This module handbook contains descriptions of all modules and their courses that have to be completed by students of the Bachelor's degree programme Logistics (IBL) at the Technical University of Applied Sciences Würzburg-Schweinfurt (please find an overview on the next page). The following descriptions are related to the Study and Examination Regulations (SPO) dated 26 June 2023. This means that the descriptions are valid for all students who started their studies on 1 October 2023 and later.

In the second part of studies students have to select three Core Elective Modules from a catalogue of various courses. These courses 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.

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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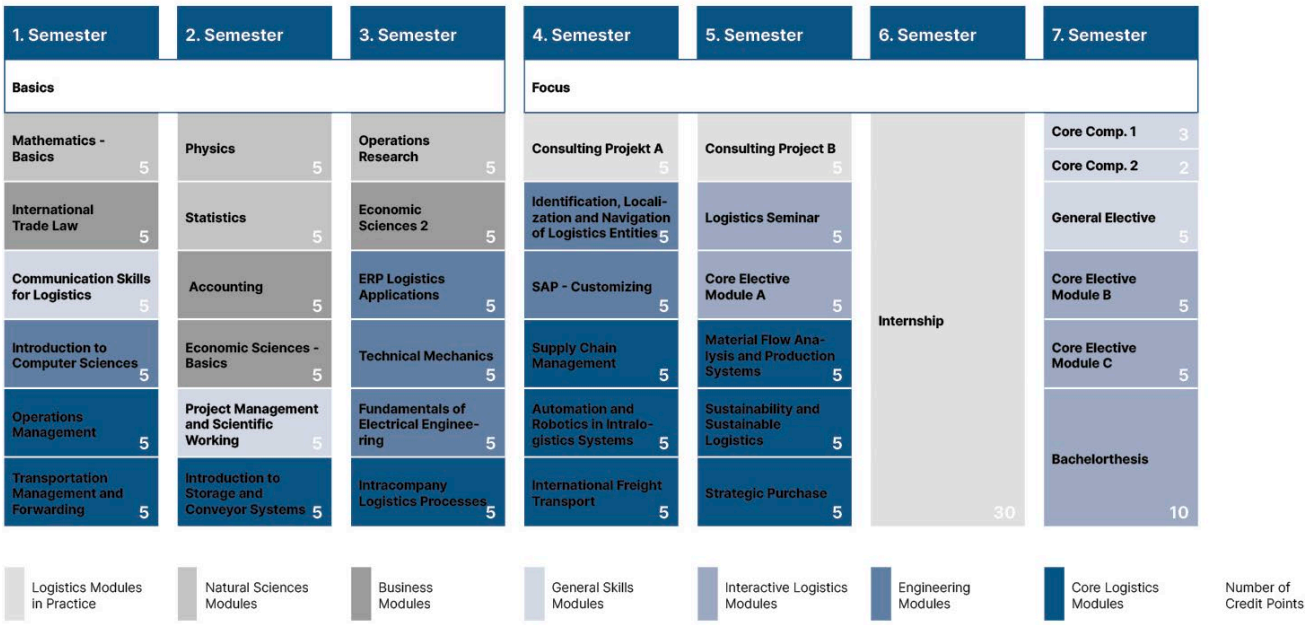
Module overview



Semester 1

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Module: OPME
Operations Management

Module profile

Exam number
3930110

Duration
1 semester

Frequency
Winter semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar-like lecture;
Exercise course

Language of instruction
English

Organisation

Responsible
Prof. Dr. Machholz

Lecturer(s)
Prof. Dr. Beer;
Prof. Dr. Machholz

Applicability	IBL
Semester according to SPO	1st semester
Type of module;	Core module
If applicable specialization	-

Particular conditions for the participation in the module according to the SPO
-

Recommended prerequisites for the participation in the module
-

Content

- 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 satisaction, deliveries on time, tardiness, cost, productivitiy, 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/theory of constraints
- 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

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Written examination according to § 23 APO

Examination – length/format

90–120 minutes

The concrete length of the examination will be determined in the study plan 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.

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).

Learning outcomes

On successful completion of this module, the student is able to:

- 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.

Literature

- Cachon, G. and Terwiesch, C. (2019): Matching supply with demand: An introduction to operations management, 4th ed., International Student Ed., New York: McGraw-Hill.
- Goldratt, E. M. and Cox, J. (2012): The Goal. A Process of Ongoing Improvement, 3rd ed., Great Barrington, MA: North River Press.
- Heizer, J. and Render, B. (2019): Operations Management, 13th ed., Essex: Pearson Education.
- Slack, N.; Chambers, S.; Johnston, R. and Betts, A. (2022): Operations and Process Management, 10th ed., Harlow: Financial Times Prentice Hall.
- Waller, D. (2003): Operations Management - A Supply Chain Approach, 2nd ed., London: Thomson Learning.

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Module: TAFO
Transportation Management and Forwarding

Module profile

Exam number
3930120

Duration
1 semester

Frequency
Winter semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar-like lecture;
Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Schmidt

Lecturer(s)
Prof. Dr. Schmidt

Applicability	IBL
Semester according to SPO	1st semester
Type of module;	Core module
If applicable specialization	-

Particular conditions for the participation in the module according to the SPO
-

Recommended prerequisites for the participation in the module
-

Content

- Terminology and characterisation of demand for freight logistics services
- Components, objectives and conditions for the design of a transport system
- Temporal-geographical integration of transport networks and choice of mode of transport
- 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 transport
- Transport management: planning, operation and improvement of value chains in transport networks

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type
Written examination
according to § 23 APO

Examination – length/format
90–120 minutes

The concrete length
of the examination will be
determined in the study plan
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
On successful completion of this module, the student is able to:

- To know important trends, meanings, objectives and framework conditions for the design of logistics and transport systems in road freight transport.
- Explain temporal, geographical and object-related alternatives in the design of freight forwarding logistics service systems.
- Apply network-based models of logistics to identify key businessand technical improvements in logistics and transport systems.
- Compare modes of land transport and select the appropriate mode of transport according to the specific requirements of different types of goods, infrastructural conditions and customer segments.
- Explain the different roles, business models, technical infrastructures and management challenges of market participants in selected road freight transport value chains.
- Recognise, evaluate and develop solutions to transport management problems using practical examples and standard procedures.

Literature

- Bowersox, D.; Closs, D. and Cooper, B. et.al (2013): Supply Chain Logistics Management, 4th ed., New York: McGraw-Hill (Chapters: Transport Infrastructure, Transportation Management, Warehouse Management, Packaging).
- Gubbins, E. (2009): Managing Transport Operations, 3rd ed., The Chartered Institute of Logistics and Transport (UK), London: Kogan Page.
- Simchi-Levi, D., Kaminsky, P. and Simchi-Levi, E. (2003): Designing & Managing the Supply Chain. Concepts, Strategies & Case Studies, 2nd ed. Boston: McGraw-Hill.

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Module: ECOM
Communications Skills for Logistics

Module profile

Exam number
3930130

Duration
1 semester

Frequency
Winter semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Wunderlich

Lecturer(s)
Hilda Körner;
Prof. Dr. Wunderlich

Applicability	IBL	BLO
Semester according to SPO	1st semester	1st semester
Type of module;	Core module	Core module
If applicable specialization	-	-

Particular conditions for the participation in the module according to the SPO
-

Recommended prerequisites for the participation in the module
Recommended entry level: B2

Content

- 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

Learning outcomes
On successful completion of this module, the student is able to:

- 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

Examination

Particular conditions for the participation in the examination according to the SPO appendix
Präsentation m. E.
(= successfully passed presentation (ungraded))

Examination – type
Written examination according to § 23 APO

Examination – length/format
90–120 minutes

The concrete length of the examination will be determined in the study plan 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.

Literature

- Emmerson, P. (2007): Business English Handbook Advanced, London: Macmillan Education.
- Grant, D.B. et al. (2006): Fundamentals of Logistics Management, European Edition, London: Pearson Education.
- Grussendorf, M. (2010): English for Logistics, Berlin: Cornelsen.
- Pilbeam, A.; O'Driscoll, N. (2010): Market Leader Logistics Management, London: Pearson Education.
- Powell, M. (2010): Dynamic Presentations, Cambridge: Cambridge University Press.
- Wallwork, A. (2014): E-mail and Commercial Correspondence. A Guide to Professional English, BerlinSpringer 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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Module: COSC
Introduction to Computer Sciences

Module profile
Exam number
3930340

Duration
1 semester

Frequency
Winter semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar-like lecture;
Exercise

Language of instruction
English

Organisation
Responsible
Prof. Dr. Diethelm

Lecturer(s)
Dr. Bauchspieß;
Prof. Dr. Diethelm;
Prof. Dr. Knobloch;
Dr. Koslowski;
Prof. Dr. Linsenmann;
Prof. Dr. Motzek;
Prof. Dr. Zirkelbach

Applicability	IBL
Semester according to SPO	1st semester
Type of module;	Core module
If applicable specialization	-

Particular conditions for the participation in the module according to the SPO
-

Recommended prerequisites for the participation in the module
-

Content
- Data types and variables
- Expressions and operators
- Instruction sets
- Control structures
- Functions, procedures and modularization
- Foundations of system and application software: Properties, rollout, provisioning and licensing models
- Software architectures
- Introduction to computer networks
- Database design and use based on SQL

Learning outcomes
On successful completion of this module, the student is able to:
- 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.
- Describe the foundations of hardware and software technology.
- Identify and define network devices and protocols.
- Explain communication between network devices.
- Differentiate various types of databases.
- Develop and apply database structures.

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Written examination according to § 23 APO

Examination – length/format

90–120 minutes

The concrete length/format of the examination will be determined in the study plan 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.

Literature

- Brookshear, J. G.; Brylow, D. (2020): Computer Science: An Overview, 13th ed., Harlow: Pearson Education.
- Coronel, C. and Morris, S. (2022): Database Systems: Design, Implementation, and Management, 14th ed., Boston: Cengage Learning.
- Downey, A. B. (2024): Think Python, 3rd ed., Sebastopol: O'Reilly.
- Kurose, J. F. and Ross, K. W. (2022): Computer Networking: A Top-Down Approach, 8th ed. Harlow: Pearson Education.
- Langtangen, H. P. (2016): A Primer on Scientific Programming with Python, 5th ed. Berlin: Springer.
- Mir, N. F. (2015): Computer and Communication Networks, 2nd ed., Upper Saddle River: Pearson Education.
- Whitington, J. (2023): Python from the Very Beginning, 2nd ed. London: Coherent Press.
- Zingaro, D. (2021): Learn to Code by Solving Problems. San Francisco: No Starch Press.

Further suggestions can be found at https://www.python.org under "Documentation/Python Books".

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Module: INTL
International Trade Law

Module profile

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
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar-like lecture

Language of instruction
English

Organisation

Responsible
Prof. Dr. Ehret

Lecturer(s)
Prof. Dr. Ehret;
Prof. Dr. Meyer

Applicability	IBE	IBL
Semester according to SPO	2nd semester	1st semester
Type of module;	Core module	Core module
If applicable specialization	-	-

Particular conditions for the participation in the module according to the SPO
-

Recommended prerequisites for the participation in the module
-

Content
Fundamentals of international trade law, i.e. WTO and GATT, CISG, and in particular:

- 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

Learning outcomes
On successful completion of this module, the student is able to:

- 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.

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Written examination
according to § 23 APO

Examination – length/format

90–120 minutes

The concrete length of the examination will be determined in the study plan 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.

Literature

- August, R.A.; Mayer, D. and Bixby, M.B (2012): International Business Law: International Ed.: Text, Cases, and Readings, 6th ed., London: Pearson Education Limited.
- Herdegen, M. (2016): Principles of International Economic Law, 2nd ed., Oxford: Oxford University Press.
- Kratz, A.W. (2006): Remedies for breach of contract under the CISG. International review of law and economics, pages 378-396, volume 25, Issue 3, Amsterdam: Elsevier B.V.
- Schweizer, I.; Fountoulakis, C. and Dimsey, M. (2019): International Sales Law, a guide to the CISG, 3rd ed., Oxford: Hart Publishing.

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Module: MATB
Mathematics – Basics

Module profile

Exam number
3811100

Duration
1 semester

Frequency
Winter semester

Credit hours (SWS)
6

ECTS-Credits (CP)
5

Workload
Attendance: 90 hours
Self-study: 60 hours
Total: 150 hours

Teaching format
Seminar-like lecture;
Exercise

Language of instruction
English

Organisation

Responsible
Prof. Dr. Fabeck

Lecturer(s)
Prof. Dr. Bier;
Prof. Dr. Bodewig;
Prof. Dr. Diethelm;
Prof. Dr. Fabeck;
Dr. Koslowski;
Dr. Latour;
Prof. Dr. Linsenmann;
Prof. Dr. Makowski;
Prof. Dr. Walter

Applicability	IBE	IBL
Semester according to SPO	1st semester	1st semester
Type of module;	Core module	Core module
If applicable specialization	-	-

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, maps, real-valued functions of a real variable. First-year students lacking the corresponding mathematical background are advised to attend a mathematics pre-course.

Content

- Logic, sets and numbers (e.g. absolute value, inequalities)
- Vectors (e.g. scalar and vector product, representation of lines and planes, intersection angles, distances)
- Functions of a real variable (e.g. polynomials, rational functions, exponential functions, logarithms, trigonometric functions)
- Sequences, limits and continuity
- Differential calculus of a single real variable (e.g. approximation by tangent, Newton's method, L'Hospital's rule, determination of maxima and minima)
- Integral calculus of a single real variable (e.g. integration by parts, integration by substitution)
- Complex numbers (e.g. algebraic and exponential form)

Learning outcomes
On successful completion of this module, the student is able to:

- Understand and apply fundamental mathematical concepts and methods that are relevant for modules in higher semesters.
- Apply elementary mathematical concepts like statements, sets, (complex) numbers, vectors and functions.
- 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.

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Written examination
according to § 23 APO

Examination – length/format

90–120 minutes

The concrete length of the examination will be determined in the study plan 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.

Literature

- Mendelson, E. (2021): Schaum's Outline of Calculus, 7th ed. New York: McGraw-Hill.
- Stewart, J. (2015): Calculus: Early Transcendentals - International Metric Ed., 8th ed. Andover: Cengage Learning EMEA.
- Strang, G. (2017): Calculus, 3rd ed. Wellesley: Wellesley-Cambridge Press.

Semester 2

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Module: ISCS
Introduction to Storage and Conveyor Systems

Module profile

Exam number
3930210

Duration
1 semester

Frequency
Summer semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar-like lecture; Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Beer

Lecturer(s)
Prof. Dr. Beer

Applicability	IBL
Semester according to SPO	2nd semester
Type of module;	Core module
If applicable specialization	-

Particular conditions for the participation in the module according to the SPO
-

Recommended prerequisites for the participation in the module
Successful passing of Operations Management.

Content
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:

- 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

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Written examination
according to § 23 APO

Examination – length/format

90–120 minutes

The concrete length
of the examination will be
determined in the study plan
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

On successful completion of this module, the student is able to:

- 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.

Literature

- Gudehus, T. and Kotzab, H. (2009): Comprehensive Logistics, Berlin/Heidelberg: Springer.
- Pfohl, H.-C. (2022): Logistics Systems, Berlin/Heidelberg: Springer.
- Rushton, A.; Croucher, P. and Baker, P. (2014): The Handbook of Logistics and Distribution Management: Understanding the Supply Chain, 5th ed., London: Kogan Page.

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Module: PMSW
Project Management and Scientific Working

Module profile

Exam number
3930220

Duration
1 semester

Frequency
Winter and summer semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
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	IBE	IBL
Semester according to SPO	3rd semester	2nd semester
Type of module;	Core module	Core module
If applicable specialization	-	-

Particular conditions for the participation in the module according to the SPO
-

Recommended prerequisites for the participation in the module
-

Content

- Function, types, content 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
- Target, process and resource planning in projects
- Use of an IT tool with practical relevance for project planning and control
- Communication, teamwork, self-reflection and versatility in projects
- Introduction and practise of agile project management methods
- Scientific citation and citation methods
- Developing research questions and writing an introduction
- Structure and organisation of an outline in scientific papers
- Scientific methods and empirical tools
- Organisation and planning of scientific papers
- Literature research in electronic databases and selection of suitable sources
- Use of writing and citation programmes
- Scientific writing style
- Presentation of methodological and content-related results

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Written examination (sP)
according to § 23 APO
or
Other examined
assignment (soP)
according to §§ 26, 27 APO

Passed successfully/failed

Examination – length/format

If sP: 90 minutes
If soP: documentation report

The concrete length/format of the examination will be determined in the study plan 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

On successful completion of this module, the student is able to:

- Describe and apply the approaches, methods and tools of conventional and agile project management.
- Plan, document and control the content and timing of a project with the help of IT tools.
- Identify technical, organisational and team-related problems in project management and develop solution strategies.
- Develop or derive a logically coherent introduction, structure and research questions for seminar papers and bachelor theses.
- Apply the rules of proper scientific citation in a scientific paper.
- Identify relevant scientific sources and methods for your research question.
- Develop a coherent argument in the paper using scientific language and present the research results.

Literature

- Aken van, J.; Berends, H. and Bij van der, H. (2012): Problem solving in organizations. A methodological handbook for business and management students, Cambridge: Cambridge University Press.
- Campell, C. (2007): The One-Page-Project Manager, Communicate and manage any project with a single sheet of paper. Hoboken: Wiley.
- Easterby-Smith, M.; Thorpe, R. and Jackson, P.R. (2015): Management & Business Research, 5th ed., Los Angeles: SAGE.
- Hermarij, J. (2016): The Better Practices of Project Management. Based on the IPMA Competences, 4th ed., Amersfoort: Van Haren Publishing.
- Minto, B. (2009): The Pyramid Principle, Logic in Writing and Thinking.,Harlow: Prentice Hall Education.
- Müller, S. and Roth A. (2015): Academic Writing. Guidelines for a Term Paper, Bachelor and Master Thesis, Nürnberg: self-publishing.

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Module: ACCO
Accounting

Module profile

Exam number
3823400

Duration
1 semester

Frequency
Winter and summer semester
(WS in IBE; SS in IBL)

Credit hours (SWS)
6

ECTS-Credits (CP)
5

Workload
Attendance: 90 hours
Self-study: 60 hours
Total: 150 hours

Teaching format
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	IBE	IBL
Semester according to SPO	3rd semester	2nd semester
Type of module;	Core module	Core module
If applicable specialization	-	-

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.

Content
Accounting as a Social, Technical, and Moral Practice:

- Introduction to accounting's interdisciplinary nature and its societal, environmental, and organizational implications.
- The role of accountability, transparency, responsibility, and ethical decision-making in accounting.
- Introduction to Doughnut Economics

Financial Accounting:

- Reasons for Accounting Differences and Need for Globally Converged Accounting Standards
- The International Accounting Standards Board
- Role and Structure of the IFRS as well as Major Accounting Issues under IFRS

Management Accounting:

- Basics of cost- and activity accounting
- Cost type- and Cost center calculations
- Overhead and cost unit calculations

Basic Corporate Finance and Monetary Theory

- Introduction to Monetary Theories and Money Systems
- The Time Value of Money and Investment Decisions
- Risk and uncertainty in investment decisions

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type
Written examination
according to § 23 APO

Examination – length/format
90–120 minutes

The concrete length/format of the examination will be determined in the study plan 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
On successful completion of this module, the student is able to:

- Explain accounting as a technical, social, and moral practice influencing societal and organizational outcomes.
- Identify the basic principles of annual financial statements.
- Classify cost accounting terms.
- Apply overhead costs and activity-based costing.
- Explain the concept of the time value of money.
- Apply methods of investment calculation adequate to the target.
- Utilize digital tools and emerging technologies to enhance accounting practices and decision-making.
- Use accounting practices to promote the well-being of organizations, people, and nature.
- Understand and explain various monetary theories
- Reflect existing and reimaging new money systems

Literature

- Barinaga, E. (2024): Remaking money for a sustainable future: Money Commons. Bristol University Press. Available at: https://library.oapen.org/handle/20.500.12657/89799
- Brealey, R.; Myers, S. and Allen, F. (2010): Principles of Corporate Finance - Concise Ed., 2nd ed., New York: McGraw-Hill Education.
- Carnegie, G.; Parker, L.; and Tsahuridu, E. (2021): It's 2020: What is Accounting Today? Australian Accounting Review, Vol. 31 No. 1, pp. 65-73.
- Raworth, K. (2017): Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist, London: Random House Business
- Rich, J.; Jones, J.; Heitger, D.; Mowen, M. and Hansen, D. (2012): Financial and Managerial Accounting. The Cornerstone of Business Decisions, 2nd ed., Boston: Cengage Learning.
- Weber, J.; and Schäfer, U. (2008): Introduction to Controlling 1st ed., Stuttgart: Schäffer-Poeschel.
- White, A.; Franklin, M.; Graybeal, P.; and Cooper, D. (2022): Accounting and Accountability, Sydney: UTS Open Press. Available at: https://oer.pressbooks.pub/utsaccounting1/.

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Module: PHYC
Physics

Module profile

Exam number
3930240

Duration
1 semester

Frequency
Winter and summer semester
(WS in IBE; SS in IBL)

Credit hours (SWS)
6

ECTS-Credits (CP)
5

Workload
Attendance: 90 hours
Self-study: 60 hours
Total: 150 hours

Teaching format
Seminar-like lecture;
Exercise

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. Schicktanz
Prof. Dr. H. Walter

Applicability	IBE	IBL
Semester according to SPO	1st semester	2nd semester
Type of module;	Core module	Core module
If applicable specialization	-	-

Particular conditions for the participation in the module according to the SPO
-

Recommended prerequisites for the participation in the module
-

Content
Mechanics

- Basics of kinematics
- Introduction to dynamics
- Momentum and collisions
- Rotational motion

Fluid mechanics

- Basics of fluid statics and fluid dynamics
- The Bernoulli equation and its applications
- Laminar flow
- Turbulent flow
- The Bernoulli equation with friction

Oscillations

- Simple harmonic motion
- Undamped and damped harmonic oscillations

Learning outcomes
On successful completion of this module, the student is able to:

- 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.

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Written examination
according to § 23 APO

Examination – length/format

90–120 minutes

The concrete length of the examination will be determined in the study plan 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.

Literature

- Halliday, D.; Resnick, R. and Walker, J. (2014): Principles of Physics, 10th ed., New York: John Wiley & Sons.
- Mosca, G. and Tipler, P.A. (2007): Physics for Scientists and Engineers, 6th ed., Basingstoke: Palgrave Macmillan.

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Module: STAC
Statistics

Module profile

Exam number
3930250

Duration
1 semester

Frequency
Winter and summer semester
(WS in IBE; SS in IBL)

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
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	IBE	IBL
Semester according to SPO	1st semester	2nd semester
Type of module;	Core module	Core module
If applicable specialization	-	-

Particular conditions for the participation in the module according to the SPO
-

Recommended prerequisites for the participation in the module
-

Content
Descriptive statistics

- 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)

Probability calculation

- 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

Inductive statistics

- Estimation theory, especially estimation of mean values of normally distributed variables
- Hypotheses testing, especially about mean values of normally distributed variables

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Written examination
according to § 23 APO

Examination – length/format

90–120 minutes

The concrete length of the examination will be determined in the study plan 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

On successful completion of this module, the student is able to:

- 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.

Literature

- Diez, D. M.; Barr, C. D. and Çetinkaya-Rundel, M. (2015): OpenIntro Statistics, 3rd ed., Scotts Valley: CreateSpace Independent Publishing Platform
- Schiller, J.J.; Srinivasan, R. A. and Spiegel, M. R. (2013): Schaum's outline of Probability and Statistics, 4th ed., New York: McGraw-Hill.
- Sullivan, M. (2017): Statistics: Informed Decisions Using Data, 5th ed., London: Pearson.

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Module: ECSB
Economic Sciences – Basics

Module profile

Exam number
3821500

Duration
1 semester

Frequency
Winter and summer semester
(WS in IBE; SS in IBL)

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar-like lecture

Language of instruction
English

Organisation

Responsible
Prof. Dr. Huttelmaier

Lecturer(s)
Prof. Dr. Farmanara;
Prof. Dr. Huttelmaier;
Julian Mantel,
Mariola Muci

Applicability	IBE	IBL
Semester according to SPO	1st semester	2nd semester
Type of module;	Core module	Core module
If applicable specialization	-	-

Particular conditions for the participation in the module according to the SPO
-

Recommended prerequisites for the participation in the module
-

Content
Elements of general business administration:

- Introduction to Business Administration
- Decision Theory
- Constitutive corporate decisions: Location, legal form, intercompany relationships
- Financial Accounting

Business functions and value creation processes:

- Research and development/innovation management
- Operations Logistics
- Marketing & Sales
- Supportive functions

Learning outcomes
On successful completion of this module, the student is able to:

- Understand, discuss and apply the fundamentals of business administration.
- Understand, discuss and apply basic concepts of decision theory
- Understand, discuss and apply constitutive decisions such as location, legal form and intercompany relationship decisions
- Understand, discuss and apply basic concepts of financial accounting
- Understand, discuss and apply fundamental concepts of the core business functions

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Written examination (sP)
according to § 23 APO
or
Other examined
assignment (soP)
according to §§ 26, 27 APO

Examination – length/format

If sP: 90–120 minutes
If soP one of the following formats:

- written assignment
- portfolio assignment

The concrete length/format of the examination will be determined in the study plan 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.

Literature

- Nickels, W./McHugh, J./McHugh, S. (2019): Understanding Business, 12th edition, McGraw-Hill Companies.
- Bovee, C.L./Paul, C.A./Thill, J.V.: Business in Action, latest edition, Pearson.
- Ebert, R.J./ Griffin, R.W.: Business Essentials, latest edition, Pearson.

Semester 3

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Module: ILOP
Intracompany Logistics Processes

Module profile
Exam number
3930310

Duration
1 semester

Frequency
Winter semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar-like lecture;
Seminar

Language of instruction
English

Organisation
Responsible
Prof. Dr. Bremer

Lecturer(s)
Prof. Dr. Bremer;
Prof. Dr. Dobhan

Applicability	IBL
Semester according to SPO	3rd semester
Type of module;	Core module
If applicable specialization	-

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.

Content
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:

- 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

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Written examination (sP)
according to § 23 APO
or
Other examined
assignment (soP)
according to §§ 26, 27 APO

Examination – length/format

If sP: 90–120 minutes
If soP: Portfolio assignment

The concrete length/format of the examination will be determined in the study plan 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

On successful completion of this module, the student is able to:

- 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.

Literature

- Chopra, S. (2019): Supply Chain Management, 7th ed. (Global), Harlow: Pearson Education.
- Dumas, M.; La Rosa, M.; Mendling, J. and Reijers, H. A. (2019): Fundamentals of Business Process Management, 2nd ed., Heidelberg: Springer.
- Gudehus, T. and Kotzab, H. (2012): Comprehensive Logistics, 2nd ed., Berlin/Heidelberg: Springer.
- Kurbel, K. (2021): Enterprise Resource Planning and Supply Chain Management, Berlin/Heidelberg: Springer.
- Richards, G. (2021): Warehouse Management. The Definitive Guide to Improving Efficiency and Minimizing Costs in the Modern Warehouse, 4th ed., London: Kogan Page.
- ten Hompel, M. and Schmidt, T. (2007): Warehouse Management. Automation and Organisation of Warehouse and Order Picking Systems, Berlin/Heidelberg: Springer.

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Module: ERLA
ERP Logistics Applications

Module profile
Exam number
3930320

Duration
1 semester

Frequency
Winter semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar-like lecture;
Exercise course

Language of instruction
English

Organisation
Responsible
Prof. Dr. Hennermann

Lecturer(s)
Prof. Dr. Hennermann

Applicability	IBL
Semester according to SPO	3rd semester
Type of module;	Core module
If applicable specialization	-

Particular conditions for the participation in the module according to the SPO
-

Recommended prerequisites for the participation in the module
-

Content

- Procurement (MM-PUR)
  - Master Data Supplier and Material
  - Procure to Pay process
- Inventory management (MM-INV)
  - Goods issue, withdrawl
  - Transfer postings
  - Stock transport order
- Production planning and scheduling (PP)
  - Master data (bill of materials, work center, routing)
  - Sales and operations planning
  - Demand planning
  - Production order processing
- Sales and distribution (SD)
  - Master data: customers and Conditions
  - Order to Cash process
- Warehouse Management (WM)
  - Warehouse topology
  - Putaway processes
  - Stock removal processes
  - Physical inventory

Practical exercises on an ERP system deepen the knowledge.

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Written examination
according to § 23 APO

Examination – length/format

90–120 minutes

The concrete length of the examination will be determined in the study plan 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

On successful completion of this module, the student is able to:

- 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 performance of these business processes in ERP-systems.
- Know different possibilities of analysis.

Literature

- Bhattacharjee D.et al. (2022): Logistics with SAP S/4HANA, Bonn: Rheinwerk.

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Module: ECS2
Economic Sciences 2

Module profile

Exam number
3822600

Courses
(1) Customer oriented management/marketing (2 SWS)
(2) Organization, strategy, and company (2 SWS)

Duration
1 semester

Frequency
Winter and summer semester (SS in IBE; WS in IBL)

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar-like lecture

Language of instruction
English

Organisation

Responsible
Prof. Dr. Schulz

Lecturer(s)
Prof. Dr. Farmanara;
Prof. Dr. Schulz
Mr. Mantel

Applicability	IBE	IBL
Semester according to SPO	2nd semester	3rd semester
Type of module;	Core module	Core module
If applicable specialization	-	-

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.

Content
Part: Customer oriented management/marketing

- 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)

Part: Organization, strategy, and company

- Instruments of strategic analysis (industry analysis, external environment, competence analysis and development, business models) and business strategies (differentiation, cost leadership, nishes)
- 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

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Written examination (sP)
according to § 23 APO
or
Other examined
assignment (soP)
according to §§ 26, 27 APO

Examination – length/format

If sP: 90–120 minutes
If soP one of the following formats:

- written assignment
- portfolio assignment

The concrete length/format of the examination will be determined in the study plan 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

On successful completion of this module, the student is able to:

- 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.
- 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.

Literature

- Grant, R.M. (2013): Contemporary Strategy Analysis, 8th ed., Hoboken, NJ: Wiley.
- Johns, G. and Saks, A. (2011): Organizational Behavior. Understanding and Managing Life at Work, 8th ed., London: Pearson.
- Jones, G.R. (2013): Organizational Theory, Design and Change, 7th ed., London: Pearson.
- Kotler, P.; Armstrong, G.; Opresnik, M.O. (2021): Principles of Marketing, 18e ed., Pearson Benelux B.V.
- Kotler, P.; Armstrong, G.; Harris, L.C. and Piercy, N. (2013): Principles of Marketing, 6th ed., Harlow: Pearson Education Limited.
- Kotler, P. and Keller, K.L. (2012): Marketing Management, 14th ed., Pearson Education Limited.
- Kotler, P.; Keller, K.L. and Opresnik (2015): Marketing Management 14 - Konzepte, Instrumente, Unternehmensfallstudien, Harlow: Pearson Education Limited.
- Malhotra, N.K.; Birks, D.F. and Wills, P. (2012): Marketing Research - An Applied Approach, 6th ed., Harlow: Pearson Education Limited.
- Robbins, S.P. and Coulter, M. (2016): Management, 13th ed., London: Pearson.

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Module: TEME
Technical Mechanics

Module profile

Exam number
3812200

Duration
1 semester

Frequency
Winter and summer semester
(SS in IBE; WS in IBL)

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar-like lecture

Language of instruction
English

Organisation

Responsible
Prof. Dr. Schreiber

Lecturer(s)
Prof. Dr. Hörtnagl;
Prof. Dr. Missbach;
Prof. Dr. Spielfeld

Applicability	IBE	IBL
Semester according to SPO	2nd semester	3rd semester
Type of module;	Core module	Core module
If applicable specialization	-	-

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.

Content

- Addition and equilibrium of forces in central and general systems of forces
- Characteristic features of selected joints and supports
- Calculation of the center of gravity
- Method of sections, Newton's laws
- Calculation of support reactions and stress resultants
- Spatial systems of forces and systems of rigid bodies. Statical determinacy.
- Static friction, kinetic friction, belt friction

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type
Written examination
according to § 23 APO

Examination – length/format
90–120 minutes

The concrete length
of the examination will be
determined in the study plan
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
On successful completion of this module, the student is able to:

- decompose forces and moments into their components and determine the resultant of systems of forces acting on rigid bodies
- list the essential components of a mechanical model (beam, rod, supports, joints, load types, etc.), recognize the symbols in existing mechanical models, name the terms statical and kinematical determinacy, describe the meaning and analyze simple mechanical systems in this regard
- find the position of the center of gravity by calculation and, for example, consider the weight force of a body correctly in the mechanical model
- formulate the conditions of equilibrium for a free body diagram and solve the system of equations for the unknowns (e. g. support / joint reactions, stress resultants, rod or contact forces)
- describe the difference between static friction (adhere) and kinetic friction (slide), calculate the contact forces using Coulomb`s theory of friction and enumerate the factors influencing the coefficient of friction
- use the correct technical terminology in group discussions as well as for questions and assess each other regarding the correct use of the technical terminology.

Literature

- D. Gross, W. Hauger, J. Schröder und W. Wall, N. Rajapakse, Engineering Mechanics 1 (Statics), 2nd edition. Berlin, Heidelberg: Springer, 2013.
- D. Gross, W. Ehlers, P. Wriggers, J. Schröder und R. Müller, Formeln und Aufgaben zur Technische Mechanik 1 (Statik), 12., überarbeitete Auflage. Berlin, Heidelberg: Springer Vieweg, 2016.
- C. Eller, Holzmann/Meyer/Schumpich, Technische Mechanik Statik, 15., überarbeitete Auflage. Wiesbaden: Springer Vieweg, 2018.
- U. Gabbert und I. Raecke, Technische Mechanik für Wirtschaftsingenieure, 8., aktualisierte Auflage. München: Carl Hanser, 2021.
- M. Mayr, Technische Mechanik, 9. Auflage. München, Wien: Carl Hanser Verlag, 2021.
- O. Romberg und N. Hinrichs, Keine Panik vor Mechanik, 9. Auflage. Wiesbaden: Springer Vieweg, 2020.
- Lecture notes, video tutorials and online tests in the university's eLearning system.
- Interactive simulations on the topics of "equilibrium", "force and motion" and "vector addition" on the PhET website, e. g. https://phet.colorado.edu/en/simulation/forces-and-motion-basics

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Module: ELEN
Fundamentals of Electrical Engineering

Module profile

Exam number
3812300

Duration
1 semester

Frequency
Winter and summer semester
(SS in IBE; WS in IBL)

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar-like lecture

Language of instruction
English

Organisation

Responsible
Prof. Dr. Wellhöfer

Lecturer(s)
Prof. Dr. Wellhöfer

Applicability	IBE	IBL
Semester according to SPO	2nd semester	3rd semester
Type of module;	Core module	Core module
If applicable specialization	-	-

Particular conditions for the participation in the module according to the SPO
-

Recommended prerequisites for the participation in the module
-

Content
The following topics will be covered and deepened with examples and exercises:

Part A: Basic electrical quantities and terms

- Charge, charge carrier, current, current density, specific resistance, temperature dependence of the resistance, electrical power and energy
- Electrostatic field: field strength, field lines, forces, electrical voltage and potential, Coulomb's law
- Properties of important components: resistance, capacitor and capacitance, coil and inductance

Part B: Analysis of direct current (DC) networks

- 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

Part C: Alternating current (AC) technology

- Periodic functions in time-domain
- Introduction to the characteristics of alternating current (AC)
- Phasor diagrams and complex quantities
- Basic two-terminal elements: resistance, inductance and capacitance
- Analysis of linear circuits by complex calculation

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Written examination
according to § 23 APO

Examination – length/format

90–120 minutes

The concrete length of the examination will be determined in the study plan 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

On successful completion of this module, the student is able to:

- Explain the basic electrical terms with physical background.
- Calculate forces and strength in electric fields.
- Determine characteristics and parameters of components.
- Analyse simple networks of electrical components.
- Apply network analysis methods to DC and AC networks.
- Explain fundamentals of AC technology and periodic functions.
- Calculate with complex numbers.

Literature

- Hüning, F. (2014): The fundamentals of electrical engineering, De Gruyter Oldenbourg.
- Prasad, R. (2014): Fundamentals of electrical engineering, PHI learning.

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Module: OPRE
Operations Research

Module profile

Exam number
3930360

Duration
1 semester

Frequency
Winter semester

Credit hours (SWS)
5

ECTS-Credits (CP)
4

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar-like lecture;
Exercise

Language of instruction
English

Organisation

Responsible
Prof. Dr. M. Bier

Lecturer(s)
Prof. Dr. M. Bier;
Prof. Dr. M. Bodewig;
Prof. Dr. C. Zirkelbach

Applicability	IBE
Semester according to SPO	3rd semester
Type of module;	Core module
If applicable specialization	-

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.

Content

- Systems of linear equations
- Modelling of optimisation problems
- Linear optimisation
- Network optimisation

Learning outcomes
On successful completion of this module, the student is able to:

- 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.

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Written examination
according to § 23 APO

Examination – length/format

90–120 minutes

The concrete length of the examination will be determined in the study plan 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.

Literature

- Bronson, R.and Govindasami, N. (1997): Operations Research, 2nd ed. New York: McGraw-Hill.
- Hillier, F. S. and Lieberman, G. J. (2015): Introduction to Operations Research, New York: McGraw-Hill.
- Poler, R.; Mula Bru, J. and Díaz-Madroñero, M. (2014): Operations Research Problems, London: Springer.

Semester 4

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Module: ILNE
Identification, Localization and Navigation of Logistics Entities

Module profile
Exam number
3930410

Duration
1 semester

Frequency
Summer semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar-like lecture;
Seminar

Language of instruction
English

Organisation
Responsible
Prof. Dr. Bremer

Lecturer(s)
Prof. Dr. Bremer

Applicability	IBL
Semester according to SPO	4th semester
Type of module;	Core module
If applicable specialization	-

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.

Content
- 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

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Written examination (sP)
according to § 23 APO
or
Other examined
assignment (soP)
according to §§ 26, 27 APO

Examination – length/format

If sP: 90–120 minutes
If soP: Portfolio assignment

The concrete length/format of the examination will be determined in the study plan 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

On successful completion of this module, the student is able to:

- 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.

Literature

- Finkenzeller, K. (2010): RFID Handbook. Fundamentals and Applications in Contactless Smart Cards, Radio Frequency Identification and Near-Field Communication, 3rd ed., Chichester: Wiley.
- Samama, N. (2019): Indoor Positioning. Technologies and Performance, Hoboken: Wiley.
- ten Hompel, M. and Schmidt, T. (2007): Warehouse Management. Automation and Organisation of Warehouse and Order Picking Systems, Berlin: Springer.
- Ullrich, G. (2015): Autonomous Guided Vehicle Systems. A Primer with Practical Applications, 2nd ed., Berlin/Heidelberg: Springer.

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Module: SCME
Supply Chain Management

Module profile

Exam number
3930420

Duration
1 semester

Frequency
Summer semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar-like lecture;
Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Gampl

Lecturer(s)
Prof. Dr. Gampl

Applicability	IBE	IBL
Semester according to SPO	4th/5th semester	4th semester
Type of module;	Core elective module	Core module
If applicable specialization	Optional 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.

Content

- 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

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type
Written examination
according to § 23 APO

Examination – length/format
90–120 minutes

The concrete length
of the examination will be
determined in the study plan
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
On successful completion of this module, the student is able to:

- 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.

Literature

- Chopra, S. and Meindl, P. (2019): Supply Chain Management, 7th ed. (Global), Harlow: Pearson Education.
- Hugos M. (2018): Essentials of Supply Chain Management, 4th ed., New Jersey: Wiley.
- Simichi Levi, D.; Kaminsky, P. and Simichi Levi, E. (2009): Designing and Managing the Supply Chain: Concepts, Strategies and Case Studies, 3rd ed., Boston: Irwin/McGraw-Hill.
- Stadtler, H.; Kilger, C. and Meyr, H. (2015): Supply Chain Management and Advanced Planning, 5th ed., Berlin: Springer Verlag.

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Module: ARIS
Automation and Robotics in Intralogistics Systems

Module profile
Exam number
3930430

Duration
1 semester

Frequency
summer semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar-like lecture;
Exercise

Language of instruction
English

Organisation
Responsible
Prof. Dr. Beer

Lecturer(s)
Prof. Dr. Beer

Applicability	IBL
Semester according to SPO	4th semester
Type of module;	Core module
If applicable specialization	-

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.

Content
The module aims to cover the most important aspects of planning of intralogistics systems with focus on automation and robotics technology. Topics covered include:

- 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

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Written examination (sP)
according to § 23 APO
or
Other examined
assignment (soP)
according to §§ 26, 27 APO

Examination – length/format

If sP: 90–120 minutes
If soP: Portfolio assignment

The concrete length/format of the examination will be determined in the study plan 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

On successful completion of this module, the student is able to:

- 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

Literature

- Goldratt, E. M. and Cox, J. (2012): The Goal: A Process of Ongoing Improvement, 30th ed., Great Barrington, MA: North River Press.
- Hopp, W. J. and Spearman, M. L. (2008): Factory Physics, 3rd ed., New York: McGraw-Hill.
- Pfohl, H.-C. (2022): Logistics Systems, Berlin/Heidelberg: Springer.
- Rushton, A.; Croucher, P. and Baker, P. (2014): The Handbook of Logistics and Distribution Management: Understanding the Supply Chain, 5th ed., London: Kogan Page.

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Module: IFTA
International Freight Transport

Module profile

Exam number
3930440

Duration
1 semester

Frequency
Summer semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar-like lecture;
Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Schmidt

Lecturer(s)
Prof. Dr. Schmidt

Applicability	IBL
Semester according to SPO	4th semester
Type of module;	Core module
If applicable specialization	-

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.

Content

- Globalisation and world trade as driving forces of cross-border trade in goods
- Foreign trade agreements and the foundations of customs law
- Continental road and rail transport and intermodal freight transport in Europe
- International sea freight and container shipping
- International air freight transport
- The management of international logistics markets in a disruptive global economy

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Written examination
according to § 23 APO

Examination – length/format

90–120 minutes

The concrete length
of the examination will be
determined in the study plan
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

On successful completion of this module, the student is able to:

- Explain the main driving forces of globalisation 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 be able to explain the basics of drafting foreign trade contracts.
- Identify possible payment and delivery risks in foreign trade as well as starting points for risk management, e.g. through the use of INCOTERMS.
- Know and be able to explain the business challenges, characteristics and examples of solutions in international land transport or the operation of intermodal supply chains between rail, road and sea.
- Know and be able to explain the importance, the market and the processes of order fulfilment in maritime and container shipping.
- Outline which economic and technical factors influence the economic and technical operation of shipping services.
- Know and be able to explain the international air freight chain with its players, trends, organisations, business models, organisational processes and competition.
- Stutents are familiar with trends and markets in international freight transport and can explain current market developments.

Literature

- Beresford, A. and Pettit, S. (2017): International Freight Transport: Cases, structures and prospects, London: Kogan Page.
- Branch, A. (2007): Elements of Shipping, 8th ed., Oxon: Routledge.
- Coyle J.; Novack, R. and Gibson, B. (2015): Transportation. A Global Supply Chain Perspective, 8th ed., Boston: Cengage Learning.
- Hill, C. W. L. (2013): International Business - Competing in the Global Marketplace, 9th ed., New York: McGraw-Hill. (p.518f: Coca Cola case study).

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Module: SAPC
SCM- and APS-Systems, Customizing

Module profile
Exam number
3930450

Duration
1 semester

Frequency
Winter semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar-like lecture;
Seminar

Language of instruction
English

Organisation
Responsible
Prof. Dr. Hennermann

Lecturer(s)
Prof. Dr. Hennermann

Applicability	IBL
Semester according to SPO	5th semester
Type of module;	Core module
If applicable specialization	-

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.

Content
Customizing:

- Customizing-projects
- Production order
  - Order type
  - Number range
  - Termination
  - Availability check
  - Printing
  - Feedback
  - Status management
  - Purchasing: Automatic account locating
- Quality management
  - Nature of message
  - Partner determination
  - Design of screen layouts
- Warehouse Management
  - Warehouse Topology
  - Putaway strategies
  - Stock removal strategies

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Written examination
according to § 23 APO

Examination – length/format

90–120 minutes

The concrete length
of the examination will be
determined in the study plan
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

On successful completion of this module, the student is able to:

- Understand and describe the nature and tasks of configuring an SAP system and describe them.
- Map and structure configuration projects.
- Distinguish and apply different methods and concepts of system and apply them.
- To be able to meet selected requirements from the area of production orders through suitable customizing settings in an SAP system.
- To map selected requirements from the area of quality notifications using suitable customizing settings in an in an SAP system.
- To map selected requirements from the area of warehouse management through suitable customizing settings in an SAP system in an SAP system

Knowledge is deepened through practical exercises

Literature

- Akhtar, Jawad (2021): Production Planning with SAP S/4 HANA, Bonn: SAP Press.
- Akhtar, Jawad (2025): Quality Management with SAP S/4 HANA, Bonn: SAP Press.

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Module: CPRA
Consulting Project A

Module profile

Exam number
3930460

Duration
1 semester

Frequency
Summer semester

Credit hours (SWS)
2

ECTS-Credits (CP)
5

Workload
Attendance: 30 hours
Self-study: 120 hours
Total: 150 hours

Teaching format
Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Schmidt

Lecturer(s)
Prof. Dr. Beer;
Prof. Dr. Bremer
Prof. Dr. Gampl;
Prof. Dr. Machholz;
Prof. Dr. Schmidt;

Applicability	IBL
Semester according to SPO	4th semester
Type of module;	Core module
If applicable specialization	-

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.

Content
The project groups meet 1–3 times a week and systematically discuss project-specific issues relating to project objectives, team building/management and customer relations.

Obligatory deliverables of the project groups are:

- the project order (signed by the customer),
- the work-breakdown-structure and project schedule,
- an intermediate and a final presentation in front of the industrial client,
- a final individual project report describing the own project results in brief words,
- a short final (poster) presentation to all other student groups, which can be used by the university for marketing purposes.

Learning outcomes
On successful completion of this module, the student is able to:

- Development of a project proposal and derivation of a project order in the context of a practical logistics problem in coordination with the industrial customer.
- Based on a practical logistics case, develop a framework for problem identification, project analysis and the solution path with the support of the project coach / project client.
- Apply project management concepts, methods and tools in a project team with other students.
- Present and communicate the project progress, all findings and results to the client in a professional manner.

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

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 study plan 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.

Literature

- Aken van, J.; Berends, H. and Bij van der, H. (2012): Problem solving in organizations. A methodological handbook for business and management students. Cambridge: Cambridge University Press.
- Campell, C. (2007): The One-Page- Project Manager, Communicate and manage any project with a single sheet of paper. Hoboken: Wiley.
- Easterby-Smith, M.; Thorpe, R. and Jackson, P.R. (2015): Management & Business Research, 5th ed., Los Angeles: SAGE.
- Hermarij, J. (2016): The Better Practices of Project Management. Based on the IPMA Competences, 4th ed., Amersfoort: Van Haren Publishing.
- Minto, B. (2009): The Pyramid Principle, Logic in Writing and Thinking, Harlow: Prentice Hall Education.

Semester 5

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Module: MFPS
Material Flow Analysis and Production Systems

Module profile

Exam number
3930510

Duration
1 semester

Frequency
Winter semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar-like lecture;
Exercise

Language of instruction
English

Organisation

Responsible
Prof. Dr. Schwindl-Braun

Lecturer(s)
Prof. Dr. Deutschle;
Prof. Dr. Schwindl-Braun;
Mrs. Ullerich

Applicability	IBL
Semester according to SPO	5th semester
Type of module;	Core module
If applicable specialization	-

Particular conditions for the participation in the module according to the SPO
-

Recommended prerequisites for the participation in the module
-

Content

- 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)

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type
Written examination
according to § 23 APO

Examination – length/format
90–120 minutes

The concrete length
of the examination will be
determined in the study plan
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
On successful completion of this module, the student is able to:

- 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.

Literature

- Askin, R. and Goldberg, R. (2002): Design and analysis of lean production systems, New York: Wiley.
- Baudin, M. (2005): Lean Logistics The Nuts and Bolts of Delivering Materials and Goods, CRC Press.
- Gwynne, R. (2022): Warehouse Management: The Definitive Guid to Improving Efficiency and Minimizing Costs in the Modern Warehouse, 4th ed., London: Kogan Page.

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Module: SSLO
Sustainability and Sustainable Logistics

Module profile
Exam number
3930520

Duration
1 semester

Frequency
Winter semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar-like lecture;
Seminar

Language of instruction
English

Organisation
Responsible
Prof. Dr. Beer

Lecturer(s)
Prof. Dr. Beer;
Prof. Dr. Gampl

Applicability	IBL
Semester according to SPO	5th semester
Type of module;	Core module
If applicable specialization	-

Particular conditions for the participation in the module according to the SPO
-

Recommended prerequisites for the participation in the module
-

Content
- 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

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type
Written examination
according to § 23 APO

Examination – length/format
90–120 minutes

The concrete length
of the examination will be
determined in the study plan
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
On successful completion of this module, the student is able to:

- 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.

Literature

- Aras, G. and Crowther, D. (2008): Governance and sustainability: An investigation into the relationship between corporate governance and corporate sustainability. Management Decision, 46(3), 433–448.
- Brundtland, G. H. (1987): Our Common Future: Report of the World Commission on Environment and Development.
- Esty, D. C. and Porter, M. E. (1998). Industrial Ecology and Competitiveness: Strategic Implications for the Firm. Journal of Industrial Ecology, 2(1), 35–43.
- Hardin, G.J. (1968): The Tragedy of the Commons. Science, 162 (3859), 1243–1248.

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Module: STPU
Strategic Purchasing

Module profile

Exam number
3815350

Duration
1 semester

Frequency
Winter semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar-like lecture, Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Machholz

Lecturer(s)
Prof. Dr. Machholz

Applicability	IBE	IBL
Semester according to SPO	4th/5th semester	5th semester
Type of module	Core elective module	Core module
If applicable specialization	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.

Content

- Introduction & overview, business impact & recent development of the purchasing function within the last decades
- Kraljic`s pocurement matrix and tools vs. Puchasing Chessboard, comparison of similarities & differences of these 2 portfolio approaches
- Procurement processes (S2C, P2P) and organization models (central, local, lead buyer, shared service, outsourced procurement organizations
- Performance Measurements & relevant KPIs for purchasing
- Contracts (specific clauses, critical factors), negotiations and communication models (von Thun, DISG, NLP, Harvard concept, FBI/Schranner and Trump model
- Supplier selection, assessment, and strategic development incl. different industry examples (Siemens, Bosch, Utilities, Munich, voestalpine, 3M, Claas, Apple, Coca Cola, John Deere, Dt. Bahn)
- Non traditional categories, long tail spend, C- Articles
- Risk management & business exposure, Risk matrix- dimensions + time aspects, processes, real-time RM tools, black swans & grey rhinos, Investors & governmental view, current legislations and regulations (e,g., EU green deal, LkSG, CSRD; EUDR,…)
- Green Procurement, sustainability, de-carbonitaion of Supply Chains, Scope 1,2,3 emissions

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Written examination (sP) according to § 23 APO

Examination – length/format

90–120 minutes

The concrete length of the examination will be determined in the study plan and published at the beginning of each semester in the e-Learning course "Studien- und Prüfungsangelegenheiten/ study and examination matters".

Condition for the award of credit points

Successful passing of the examination.

Learning outcomes

On successful completion of this module, the student is able to:

- Describe, interpret and determine the value-driving role of procurement today.
- 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. gen. AI, RPA, bots,…).
- Increase purchasing`s business, social and environmental impact.

Literature

- 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.
- Spiller, P.; Reinecke, N.; Ungerman, D. and Teixera, H. (2014): Procurement 20/20- Supply Entrepreneurship in a changing world, Hoboken/NJ: Wiley.
- Palamariu, R., & Alicke, K. (2022). From source to sold: Stories of leadership in supply chain. Wiley.
- Schuh, C., Schnellbächer, W., Triplat, A., & Weise, D. (2022). Profit from the source: Transforming your business by putting suppliers at the core. Harvard Business Review Press.

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Module: CPRB
Consulting Project B

Module profile
Exam number
3930540

Duration
1 semester

Frequency
Summer semester

Credit hours (SWS)
2

ECTS-Credits (CP)
5

Workload
Attendance: 30 hours
Self-study: 120 hours
Total: 150 hours

Teaching format
Seminar

Language of instruction
English

Organisation
Responsible
Prof. Dr. Schmidt

Lecturer(s)
Prof. Dr. Beer;
Prof. Dr. Bremer
Prof. Dr. Gampl;
Prof. Dr. Machholz;
Prof. Dr. Schmidt;

Applicability	IBL
Semester according to SPO	5th semester
Type of module;	Core module
If applicable specialization	-

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.

Content
The project groups meet 1–3 times a week and systematically discuss project-specific issues relating to project objectives, team building/management and customer relations.

Obligatory deliverables of the project groups are:

- the project order (signed by the customer),
- the work-breakdown-structure and project schedule,
- an intermediate and a final presentation in front of the industrial client,
- a final individual project report describing the own project results in brief words,
- a short final (poster) presentation to all other student groups, which can be used by the university for marketing purposes.

Learning outcomes
On successful completion of this module, the student is able to:

- Development of a project proposal and derivation of a project order in the context of a practical logistics problem in coordination with the industrial customer.
- Based on a practical logistics case, develop a framework for problem identification, project analysis and the solution path with the support of the project coach / project client.
- Apply project management concepts, methods and tools in a project team with other students.
- Present and communicate the project progress, all findings and results to the client in a professional manner.

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

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 study plan 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.

Literature

- Aken van, J.; Berends, H. and Bij van der, H. (2012): Problem solving in organizations. A methodological handbook for business and management students. Cambridge: Cambridge University Press.
- Campell, C. (2007): The One-Page- Project Manager, Communicate and manage any project with a single sheet of paper. Hoboken: Wiley.
- Easterby-Smith, M.; Thorpe, R. and Jackson, P.R. (2015): Management & Business Research, 5th ed., Los Angeles: SAGE.
- Hermarij, J. (2016): The Better Practices of Project Management. Based on the IPMA Competences, 4th ed., Amersfoort: Van Haren Publishing.
- Minto, B. (2009): The Pyramid Principle, Logic in Writing and Thinking, Harlow: Prentice Hall Education.

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Module: LSEE
Logistics Seminar

Module profile
Exam number
3930550

Duration
1 semester

Frequency
Winter semester

Credit hours (SWS)
2

ECTS-Credits (CP)
5

Workload
Attendance: 30 hours
Self-study: 120 hours
Total: 150 hours

Teaching format
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	IBL
Semester according to SPO	5th semester
Type of module;	Core module
If applicable specialization	-

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.

Content
- Search for a suitable research question
- Literature research; collection and analysis of empirical data
- Academic citations and scientific writing
- Creation and continuous adaptation of the table of contents
- Creating and logically structuring a chain of argumentation
- Presenting the results in a short presentation

Learning outcomes
On successful completion of this module, the student is able to:
- Write a well-founded scientific seminar paper on a logistics-related topic.
- Distinguish between scientific and non-scientific sources.
- List and utilise databases that can be used to search for academic sources.
- Independently research and evaluate the quality and suitability of the literature found.
- Correct citation according to a given standard.
- Describe the requirements for a well-structured table of contents and create a table of contents that is relevant to the topic.
- Write texts in an appropriate, scientific style.
- Present the results obtained in an appropriate manner.

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

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.

Literature

- Easterby-Smith, M.; Thorpe, R. and Jackson, P. R. (2012): Management Research, 4th ed., London: SAGE Publications.
- Minto, B. (2009): The Pyramid Principle. Logic in Writing and Thinking, 4th ed., Harlow: Prentice Hall.
- Müller, S. and Roth, A. (2015): Academic Writing: Guidelines for a Term Paper, Bachelor and Master Thesis, Nürnberg: self-publishing.
- Balzert, H.; Schäfer, C.; Schröder, M. and Kern, U. (2010): Wissenschaftliches Arbeiten, Herdecke: W3l.
- Prexl, L. (2015): Mit digitalen Quellen arbeiten. Richtig zitieren aus Datenbanken, E-Books, YouTube und Co., UTB-Band-Nr. 4420, Paderborn: Ferdinand Schöningh.

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Module: ELMA/B/C
Core Elective Module A/B/C

Module profile

Exam number
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 for each module
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar

Language of instruction
English

Organisation

Responsible
Programme Director IBL

Lecturer(s)
Depends on the chosen course. Please find further information in the respective course description (see appendix).

Applicability	IBL
Semester according to SPO	5th/7th semester
Type of module;	Core elective module
If applicable specialization	-

Particular conditions for the participation in the module according to the SPO
-

Recommended prerequisites for the participation in the module
Depending on the chosen course. Further information can be found in the respective course description (see appendix).

Content
The core electives ELMA/B/C offer courses on specific topics from the field of logistics.

The available ELMA/B/C courses change regularly. Therefore, the actual courses offered will be announced each semester.

Learning outcomes
On successful completion of this module, the student is able to:

- Explain specific topics from the field of logistics.
- Know the basic terms, the relevant market participants and their technical and business problems.
- Apply this knowledge to practical logistics problems.

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.

Literature

Depends on the chosen ELMA/B/C. Please find further information in the respective course description (see appendix).

Semester 6

Module: INMO
Internship Module

The Internship Module consists of

a) a continuous, supervised internship lasting 20, but no more than 26 weeks and is

b) accompanied by the seminar "**Preparation and Reflection of Internship**". (see § 6 SPO IBE resp. § 6 SPO IBL)

The internship Module is deemed to be successfully completed if

a) evidence of the activities during the internship and its duration in relation to a full-time activity is provided through the employer and

b) 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)

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Module: PRIN
Preparation and Reflection of Internship

Module profile

Exam number
3826110

Duration
1 semester

Frequency
Winter and summer semester

Credit hours (SWS)
2

ECTS-Credits (CP)
2

Workload
Attendance: 30 hours
Self-study: 30 hours
Total: 60 hours

Teaching format
Seminar

Language of instruction
English

Organisation

Responsible
IBE: Prof. Dr. Farmanara;
IBL: Prof. Dr. Gampl

Lecturer(s)
Prof. Dr. Farmanara;
Prof. Dr. Gampl

Applicability	IBE	IBL
Semester according to SPO	6th semester	6th semester
Type of module;	Core module	Core module
If applicable specialization	-	-

Particular conditions for the participation in the module according to the SPO

- Acquisition of all 90 CPs of the first three regular semesters (§ 6 (2) SPO IBE resp. § 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
-

Content

- 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

Learning outcomes
On successful completion of this module, students are able to:

- 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.

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 resp. § 6 (2) SPO IBL).
Compulsory attendance of the class.

Examination – type
Other examined assignment according to §§ 26, 27 APO

Passed successfully/failed

Examination – length/format
One of the following formats:

- multimedia presentation
- documentation

The concrete length/format of the examination will be determined in the study plan 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.

Literature

- Minto, B. (2010): The Pyramid Principle, 3rd ed., Upper Saddle River, NJ: Prentice Hall.

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Module: INTS
Internship

Module profile

Exam number
3826100

Duration
1 semester

Frequency
Winter and summer semester

Credit hours (SWS)
0

ECTS-Credits (CP)
28

Workload
Attendance: 0 hours
Self-study: 840 hours
Total: 840 hours

Teaching format
Practical

Language of instruction
English

Organisation

Responsible
IBE: Prof. Dr. Farmanara;
IBL: Prof. Dr. Gampl

Lecturer(s)
Prof. Dr. Farmanara;
Prof. Dr. Gampl

Applicability	IBE	IBL
Semester according to SPO	6th semester	6th semester
Type of module;	Core module	Core module
If applicable specialization	-	-

Particular conditions for the participation in the module according to the SPO

- Acquisition of all 90 CPs of the first three regular semesters (§ 6 (2) SPO IBE resp. § 6 (2) SPO IBL).
- Submission of an internship contract to students' office prior to starting the internship (§11 (5) APO).

Recommended prerequisites for the participation in the module

-

Content

- 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 specialization area of the degree course

Learning outcomes

On successful completion of this module, students are able to:

- 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.

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 resp. § 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).

Literature

- Will be provided by company (internal documentation).
- Standard textbooks of the relevant functional areas.

Semester 7

Module: ELMB/C
Core Elective Module B/C

See description at ELMA.

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Module: GENE
General Elective

Module profile

Exam number
Depends on the chosen courses.

Duration
1 semester

Frequency
Winter and summer semester

Credit hours (SWS)
4

Either two general electives (Allgemeinwissenschaftliche Wahlpflichtfächer, 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
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar-like lecture; Seminar; Exercise course

Language of instruction
The respective language(s) will be laid down and published by the Faculty of Applied Natural Sciences and Humanities.

The module serves to develop interdisciplinary competences ("studium generale"); 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:

Applicability	IBL	IBE
Semester according to SPO	7th semester	7th semester
Type of module	General Elective module	General Elective module
If applicable specialization	-	-

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.

Content
FANG offers AWPFs from the areas of

- Languages
- Cultural Sciences
- Natural Sciences and Technology
- Politics, Law, Economics
- Pedagogy, Psychology, Social Sciences
- Soft Skills
- Creativity and Art

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.

The content of each AWPF is published on FANG's website.

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.

Examination

Particular conditions for the participation in the examination according to the SPO appendix
-

Examination – type
Every AWPF is completed by an examination; its 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
Subject-specific learning outcomes depend in each case on the chosen AWPF. Students…

- 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.

Literature
Depends in each case on the chosen AWPFs.

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Module: BCTH
Bachelorthesis

Module profile

Exam number
3817400

Duration
1 semester

Frequency
Winter and summer semester

Credit hours (SWS)
0

ECTS-Credits (CP)
10

Workload
Attendance: 0 hours
Self-study: 300 hours
Total: 300 hours

Teaching format
-

Language of instruction
English

Organisation

Responsible
Prof. Dr. Schmidt

Lecturer(s)
Depends on the chosen topic.

Applicability	IBE	IBL
Semester according to SPO	7th semester	7th semester
Type of module;	Core module	Core module
If applicable specialization	-	-

Particular conditions for the participation in the module according to the SPO
According to § 11 SPO IBE:

- Successful completion of the supervised internship and the preparation and reflection of the internship
- At least 150 CPs

Recommended prerequisites for the participation in the module
Successful passing of the module PMSW.

Content
The aims and content of the Bachelor's thesis are either chosen by the student or suggested by the lecturer. These can be concrete practical topics or scientific topics in connection with practical application.
The topic must be related to “Business and Engineering” or “Logistics” and/or relate to general or specific current issues and topics.

Learning outcomes
On successful completion of this module, the student is able to:

- Independently work on a topic agreed between the supervisor and the candidate within the given time frame according to scientific criteria.
- Work on a topic agreed between the supervisor and the candidate within the given time frame according to scientific criteria.
- Understand the topic and derive the research question from it.
- Select appropriate scientific methods and procedures and use them to find suitable solutions.
- Are able to interpret, evaluate and prepare the results in an appropriate manner and to communicate them according to the needs.

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.

Literature

- Easterby-Smith M.; Thorpe R.; Jackson P. and Jaspersen L. (2018): Management and Business Research, 6th Ed., Sage Publishing, Los Angeles.
- Minto, B. (2009): The Pyramid Principle, Logic in Writing and Thinking, 3rd ed., Prentice Hall, Upper Saddle.
- Balzert, H.; Schröder, M. and Schäfer, Chr. (2011): Wissenschaftliches Arbeiten - Ethik, Inhalt & Form wiss. Arbeiten, Handwerkszeug, Quellen, Projektmanagement, Präsentationen, 2. Aufl., Herdecke, W3L Verlag.

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Module: COC1
Core Competences 1

Module profile

Exam number
3827200

Duration
1 semester

Frequency
Winter and summer semester

Credit hours (SWS)
2

ECTS-Credits (CP)
3

Workload
Attendance: 30 hours
Self-study: 60 hours
Total: 90 hours

Teaching format
Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Stadelmann

Lecturer(s)
Prof. Dr. Stadelmann;
N.N.

Applicability	IBE	IBL
Semester according to SPO	7th semester	7th semester
Type of module;	Core module	Core module
If applicable specialization	-	-

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.

Content

- Basic characteristics of communication
- Influences of personality on our behaviour
- Influences of the situation on our behaviour
- Communication models and techniques (comprehensibility, active listening, questioning techniques, non-verbal communication)
- Conducting conversations using the example of giving and receiving feedback
- Teamwork: basics, success factors, team development, conflicts in teams

Learning outcomes
On successful completion of this module, students are able to:

- present the influences of personality and situation on our behaviour and explain them with scientific models.
- consciously shape communication and conduct goal-oriented conversations.
- explain success factors for teamwork, recognise conflicts in teams and strive for a common solution.
- assess themselves in relation to the above-mentioned topics and change their perspective in order to put themselves into the shoes of others.

Examination

Particular conditions for the participation in the examination according to the SPO appendix
Compulsory attendance of the class.

Examination – type
Other examined assignment according to §§ 26, 27 APO

Examination – length/format
One of the following formats:

- seminar paper/ research project
- multimedia presentation
- written assignment

The concrete length/format of the examination will be determined in the study plan 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.

Literature

- Aronson, E.; Akert, R.M.; Sommers, S.; Wilson, T. (2020): *Social Psychology*. 10th ed. Harlow: Pearson
- Comfort, J. & Franklin, P. (2014): The mindful international manager: How to work effectively across cultures. Kogan
- De Janasz, S. C.; Dowd, K. O. and Schneider, B. Z. (2012): *Interpersonal skills in organizations*, 4th ed., Boston: McGraw-Hill.
- Lencioni, P. (2015). The five dysfunctions of a team: A leadership fable. Clitheroe: Joosr.
- Sternad, D. (2020): Effective management: *Developing yourself, others and organizations.* London: Macmillan International Higher Education; Red Globe Press.

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Module: COC2
Core Competences 2

Module profile

Exam number
3827300

Duration
1 semester

Frequency
Winter and summer semester

Credit hours (SWS)
2

ECTS-Credits (CP)
2

Workload
Attendance: 30 hours
Self-study: 30 hours
Total: 60 hours

Teaching format
Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Hiemer;

Lecturer(s)
Prof. Dr. Ankenbrand;
Prof. Dr. Hiemer;
Prof. Dr. Panshef;
Prof. Dr. Stadelmann;

Applicability	IBE	IBL
Semester according to SPO	7th semester	7th semester
Type of module;	Elective module	Elective module
If applicable specialization	-	-

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.

Content
Depends on the chosen course. Please find further information in the respective COC2 module description (see appendix).

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.

Learning outcomes
After successful completion of a module COC2 (Core Competences 2), the student is able to:

- 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.

Examination

Particular conditions for the participation in the examination according to the SPO appendix
Compulsory attendance of the class.

Examination – type
Other examined assignment according to §§ 26, 27 APO

Examination – length/format
One of the following formats:

- seminar paper/ research project
- presentation
- written assignment
- portfolio assignment

The concrete length/format of the examination will be determined in the study plan 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.

Literature
Depends on the chosen course. Please find further information in the respective COC2 module description (see appendix).

Appendix 1:
Catalogue of Core Elective Modules

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.

Modul-ID	Modulname	Unterrichtssprache
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
MMAN	Materials Management	English
SIXS	Process Optimization with Six Sigma	English
STCM	Strategies and Technologies for Climate Change Mitigation	English

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

Course ID	Course name	Langugage of instruction
DFAB	Digitale Fabrik	German
ENEW	Energiewirtschaft	German
FAPL	Fabrikplanung & Ergonomie	German
IENG	Industrial Engineering	German
LOTR	Logistik- und Transportrecht	German
MASI	Materialflusssimulation	German
MWIR	Materialwirtschaft	German
POPT	Produktionsoptimierung & KVP	German
STE2	Strategischer Einkauf 2	German
TKFM	Technologie- und Klimafolgenmanagement	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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Module: ADPU
Advanced Purchasing

Module profile

Exam number
3825450

Duration
1 semester

Frequency
Winter and/or summer semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Machholz

Lecturer(s)
Prof. Dr. Machholz

Applicability	IBE	IBL
Semester according to SPO	4th/5th semester	5th/7th semester
Type of module	Core elective module	Core elective module
If applicable specialization	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.

Content

- Kraljic Matrix – balance of power portfolios/views, Kraljic 2.0 – today´s views on this groundbreaking strategy/required aspects to be updated
- Details of 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
- Platforms, technological trends, procurement software solutions and SaaS tool providers E-Procurement
  (B2B, B2C, SAP Ariba, Coupa, DPW/Amazon-like buying)
- Game theory in procurement- what is this and where is it used?
- Tech trends/Procurement 4.0: Processes, Automation + Systems (e.g. Jaggaer, Sphera, Prewave, everstream , spend cubes), gen. AI/Cognitive Systems, Future role of CPOs/strategic and operational purchasing, Young Professionals/ required skills & opportunities in procurement, 3D printing, RPA and robotics and its impacts on procueremnt/SCM/operations
- Blockchain and its applications/use cases in Procurement/ global Supply Chains
- Guest lectures from various CPOs and industry leaders

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type
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.

Learning outcomes
On successful completion of this module, the student is able to:

- Describe, analyze and use modern tools for global purchasing.
- Gain profound understanding about state-of-the art SaaS procurement tools, processes and eco-systems.
- Learn to analyze portfolios, processes and organizational forms of procurement departments.
- Propose optimized solutions for global companies/blue chips, as well as for small and medium enterprises (SMEs).
- Gain specific insights regarding new tools (e.g., gen. AI, game theory) and smart contracts
- Be qualified for a new, technology driven business and process environment (IoT, Procurement 4.0).
- Learn about future requirements of procurement and their required skills sets.

Literature
Basic literature (in the current edition):

- 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.
- Spiller, P.; Reinecke, N.; Ungerman, D. and Teixera, H. (2014): Procurement 20/20- Supply Entrepreneurship in a changing world, Hoboken /NJ: Wiley.
- Palamariu, R., & Alicke, K. (2022). From source to sold: Stories of leadership in supply chain. Wiley.
- Schuh, C., Schnellbächer, W., Triplat, A., & Weise, D. (2022). Profit from the source: Transforming your business by putting suppliers at the core. Harvard Business Review Press.
- Epstein, E. (2021). *Trade wars, pandemics, and chaos: How digital procurement enables business success in a disordered world*. Kearney.
- Epstein, E. (2023). How to hack your supply chain: Breaking today, building tomorrow. Kearney.
- Schumann, R., Oswald, S., & Gillen, P. (2023). *System of negotiations: Game theory and behavioral economics in procurement – the guide for professionals*. Springer.
- Pfeiffer, C. (2023). *Game theory – Successful negotiation in purchasing*. Springer.

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Module: COIN
Connected Industry

Module profile

Exam number
3817238

Duration
1 semester

Frequency
Winter and/or summer semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Engelmann

Lecturer(s)
Prof. Dr. Engelmann;
Prof. Dr. J. Schmitt

Applicability	IBE	IBL
Semester according to SPO	4th/5th semester	5th/7th semester
Type of module	Core elective module	Core elective module
If applicable specialization	Optional for Production; optional for Digital Business	-

Particular conditions for the participation in the module according to the SPO
-

Recommended prerequisites for the participation in the module
-

Content

- 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
- Concepts for data persistence
- Internet technologies and services
- Selection of suited IoT sensors
- Graphical programming with Node-RED

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Written examination (sP)
according to § 23 APO
or
Other examined
assignment (soP)
according to §§ 26, 27 APO

Examination – length/format

If sP: 90 minutes
If soP one of the following formats:

- seminar paper/ research project
- portfolio assignment

The concrete length/format of the examination will be determined in the study plan 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

On successful completion of this module, the student is able to:

- 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, recognize data storage characteristics and to use databases.
- Distinguish and evaluate Internet communication concepts.
- Know methods of sensor selection and apply them using practical application examples.
- Integrate Internet services in their own projects.
- Abstract and implement processes and simple visualizations of practical tasks.

Literature

- Alasdair G. (2016): Industry 4.0 - The Industrial Internet of Things, Apress.
- Meier, A. and Kaufmann, M. (2016): SQL- & NoSQL-Databases, Springer.
- Rayes, A. and Salam, S. (2016): Internet of Things: From Hype to Reality: The Road to Digitization, Springer.
- Robertazzi, T.: Introduction to Computer Networking, Springer International Publishing.

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Module: DILS
Design of Intralogistics Systems

Module profile

Exam number
3917105

Duration
1 semester

Frequency
Winter and/or summer semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Bremer

Lecturer(s)
Prof. Dr. Beer;
Prof. Dr. Bremer

Applicability	IBL
Semester according to SPO	5th/7th semester
Type of module;	Core elective module
If applicable specialization	-

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.

Content
In a case-study approach with cases modelled on actual industry projects, we will work on providing improved technical solutions for intralogistics systems.

- 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.
- Presenting performance characteristics of the to-be intralogistics system.

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Other examined assignment according to §§ 26, 27 APO

Examination – length/format

Portfolio assignment

Language of examination

English

Condition for the award of credit points

Successful passing of the examination.

Learning outcomes

On successful completion of this module, the student is able to:

- 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.

Literature

- Gudehus, T. and Kotzab, H. (2009): Comprehensive Logistics, Berlin/Heidelberg: Springer-Verlag.
- Segerlund, S. and Halbeisen, D. (2016): Intralogistics: A Guide to Warehouse Planning, Lund: Studentlitteratur AB.
- ten Hompel, M. and Schmidt, T. (2006): Warehouse management: automation and organisation of warehouse and order picking systems, Berlin/Heidelberg: Springer Science + Business Media

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Module: DIFA
Digital Factory

Module profile

Exam number
3817223

Duration
1 semester

Frequency
Winter and/or summer semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Deutschle

Lecturer(s)
Prof. Dr. Deutschle

Applicability	IBL	IBE
Semester according to SPO	5th/7th semester	4th/5th semester
Type of module	Core elective module	Core elective module
If applicable specialization	-	Optional for Production; optional for Digital Business

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.

Content

- 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

Learning outcomes
On successful completion of this module, the student is able to:

- 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.

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

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.

Literature

- Duffy, V.G. (2008): Handbook of Digital Human Modeling Research for Applied Ergonomics and Human Factors Engineering, Boca Raton, CRC Press, DOI: https://doi.org/10.1201/9781420063523.
- Stack, T., Ostrom, L.T., Wilhelmsen, C.A. (2016): Occupational Ergonomics: Practical Approach, Wiley & Sons, DOI:10.1002/9781118814239

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Module: ENEC
Energy Economics

Module profile

Exam number
3817294

Duration
1 semester

Frequency
Summer semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar-like lecture;
Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Scheller

Lecturer(s)
Prof. Dr. Scheller

Applicability	IBE	IBL
Semester according to SPO	4th/5th semester	5th/7th semester
Type of module	Core elective module	Core elective module
If applicable specialization	Optional for Purchasing	-

Particular conditions for the participation in the module according to the SPO
-

Recommended prerequisites for the participation in the module
-

Content

- Definition of energy and power, as well as the history, objectives, and challenges of the energy industry
- Overview of various energy sources, fuels, forms of energy, markets, roles of actors, and policy
- Principles and dynamics of markets and pricing, as well as supply and demand curves considering current events
- Analysis of factors influencing energy consumption or production, thereby affecting energy trade
- Analysis of factors that influence energy prices and an overview of various energy markets
- Fundamentals of electricity markets and insights into various energy markets and auctions
- Exploration of the mechanisms and challenges in electricity markets, e.g., market liberalization, network regulation, and integration of renewable energies
- Inclusion of incentive mechanisms, support programs, and their relevance for sustainability policy

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Written examination (sP)
according to § 23 APO
or
Other examined
assignment (soP)
according to §§ 26, 27 APO

Examination – length/format

If sP: 90 minutes
If soP one of the following formats:

- seminar paper/ research project
- portfolio assignment

The concrete length/format of the examination will be determined in the study plan 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

On successful completion of this module, the student is able to:

- Explain and discuss the basic concepts of markets, prices, supply curves, and demand curves.
- Understand the actors and the structure of the energy industry and describe their role and functions in the energy system.
- Recognize important energy policies and regulations at the national and international level and assess their impact on the energy industry.
- Discuss relevant aspects that influence energy consumption and energy demands.
- Analyze factors that influence energy prices and understand the mechanisms of energy markets.
- Identify and discuss challenges and opportunities for the future electrification of industrial and transportation companies.
- Critically engage with market pricing, network charges, and levies design of energy sources to assess the implications for a successful energy transition.

Literature

- Bhattacharyya, S. C. (2019): Energy economics: concepts, issues, markets and governance, Springer Nature.
- Rodrigue, J. P. (2020): The geography of transport systems, Routledge.
- Zweifel, P.; Praktiknjo, A. and Erdmann, G. (2017): Energy economics: theory and applications, Springer.

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Module: FPER
Factory Planning and Ergonomics

Module profile

Exam number
3815410

Duration
1 semester

Frequency
Winter and/or summer semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
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	IBE	IBL
Semester according to SPO	4th/5th semester	5th/7th semester
Type of module	Core elective module	Core elective module
If applicable specialization	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.

Content

- 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 design, examples of industrial work place design (work place, tools, environment, organization)
- Ergonomic risk assessment

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

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.

Learning outcomes

On successful completion of this module, the student is able to:

- 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.
- To simplify, to depict, to evaluate and systematically redesign production systems applying the value stream analysis and design method.
- Select suitable methods for layout planning and to design or optimize material flows.
- Differentiate the terms work load, performance capacity and stress.
- Design simple manual work systems using ergonomic standards.
- Describe and evaluate basic environmental work conditions.
- Carry out and interpret simple ergonomic risk assessments.

Literature

- Erlach, K. (2013): Value Stream Design - The way towards a lean factory, Berlin, Heidelberg: Springer Verlag.
- Freivalds, A. (2014): Niebel's Methods, Standards, and Work Design, 13th ed., McGraw Hill.
- Rother, M. and Shook, J. (2002): Learning to see, Lean Enterprise Institute.
- Stephens, M. P. and Meyers, F. E. (2010): Manufacturing Facilities Design & Material Handling, 4th ed., New Jersey: Pearson Prentice Hall.c

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Module: LEPR
Lean Production and CIP

Module profile

Exam number
3815310

Duration
1 semester

Frequency
Winter and/or summer semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Bräutigam

Lecturer(s)
Prof. Dr. Bräutigam;
Prof. Dr. Engelmann;
Prof. Dr. J. Schmitt

Applicability	IBE	IBL
Semester according to SPO	4th/5th semester	5th/7th semester
Type of module	Core elective module	Core elective module
If applicable specialization	Compulsory for Production	-

Particular conditions for the participation in the module according to the SPO
-

Recommended prerequisites for the participation in the module
-

Content
Lean Management Methods and Tools

- Kaizen
- Value stream design
- Levelling
- 5S
- Kanban
- SMED

Control of material and information flow

- Push - Pull
- Shop Floor Management Cycle
- Visual Management
- Basics SCM

Examples for production systems in practice

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Other examined assignment according to §§ 26, 27 APO

Examination – length/format

One of the following formats:

- presentation
- documentation report
- portfolio assignment

The concrete length/format of the examination will be determined in the study plan 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

On successful completion of this module, the student is able to:

- 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.

Literature

- Liker, J.K. (2004): The Toyota Way – 14 Management Principles from the World´s greatest manufacturer, Tata McGraw.
- Liker, J.K. and Meier, D.P. (2005): The Toyota-Way Fieldbook, McGrawHill.
- Rother, M. (2009): Learning to See: Toyota Kata, McGraw Hill Professional.

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Module: MAFS
Material Flow Simulation

Module profile

Exam number
3817230

Duration
1 semester

Frequency
Winter and/or summer semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Schwindl-Braun

Lecturer(s)
Ms. Ullerich

Applicability	IBE	IBL
Semester according to SPO	4th/5th semester	5th/7th semester
Type of module	Core elective module	Core elective module
If applicable specialization	Optional for Production	-

Particular conditions for the participation in the module according to the SPO
-

Recommended prerequisites for the participation in the module
-

Content

- Principles of Plant Simulation:
- Application Surface
- Objects
- Methods and the programing language SIM TALK
- Creation of simple simulations models
- Distribution functions and statistical tools
- Creation of extensive simulation models

Learning outcomes
On successful completion of this module, the student is able to:

- 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.

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Written examination (sP)
according to § 23 APO
or
Other examined
assignment (soP)
according to §§ 26, 27 APO

Examination – length/format

If sP: 90 minutes
If soP: portfolio assignment

The concrete length/format of the examination will be determined in the study plan 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.

Literature

- Bangsow, S. (2011): Manufacturing Simulation with Plant Simulation and SimTalk, latest ed., Berlin: Springer.
- Bangsow, S.: Use Cases of Discrete Event Simulation, latest ed., Berlin: Springer.

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Module: MMAN
Materials Management

Module profile

Exam number
3817201

Duration
1 semester

Frequency
Winter and/or summer semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Bräutigam

Lecturer(s)
Prof. Dr. Bräutigam;
Prof. Dr. Engelmann

Applicability	IBE	IBL
Semester according to SPO	4th/5th semester	5th/7th semester
Type of module	Core elective module	Core elective module
If applicable specialization	Optional for Production; optional for Purchasing	-

Particular conditions for the participation in the module according to the SPO
-

Recommended prerequisites for the participation in the module
-

Content

- 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 & MRPII)
- 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

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

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.

Learning outcomes

On successful completion of this module, the student is able to:

- 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.
  - 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.

Literature

- Arnold, J.R.T.; Chapman, S.N. and Clive, L.M.: Introduction to Materials Management, latest ed.; Prentice Hall.

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Module: SIXS
Process Optimization with Six Sigma

Module profile

Exam number
3817237

Duration
1 semester

Frequency
Winter and/or summer semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Schwindl-Braun

Lecturer(s)
Prof. Dr. Schwindl-Braun

Applicability	IBE	IBL
Semester according to SPO	4th/5th semester	5th/7th semester
Type of module	Core elective module	Core elective module
If applicable specialization	Optional 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.

Content

- Six Sigma specific project management according to CSSGB ASQ Body of Knowledge: 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, Nonlinear 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)
- The students are given the opportunity to obtain a real Six Sigma green belt certificate after they passed the examination successfully.

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

Written examination (sP)
according to § 23 APO
or
Other examined
assignment (soP)
according to §§ 26, 27 APO

Examination – length/format

If sP: 90 minutes
If soP: portfolio assignment

The concrete length/format of the examination will be determined in the study plan 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

On successful completion of this module, the student is able to:

- 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.

Literature

- Cano, E.L.; Moguerza, J.M. and Redchuk, A. (2012): Six Sigma with R, Springer, New York.
- Carroll, C.T. (2013): Six Sigma for Powerful Improvement, Taylor & Fancis, New York.
- Evans, J.R. and Lindsay, W.M. (2015): An Introduction to Six Sigma & Process Improvement, 2nd ed., Stamford.

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Module: STCM
Strategies and technologies for climate change mitigation

Module profile

Exam number
3815209

Duration
1 semester

Frequency
Summer semester

Credit hours (SWS)
4

ECTS-Credits (CP)
5

Workload
Attendance: 60 hours
Self-study: 90 hours
Total: 150 hours

Teaching format
Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Gonzalez-Salazar

Lecturer(s)
Prof. Dr. Gonzalez-Salazar

Applicability	IBE	IBL
Semester according to SPO	4th/5th semester	5th/7th semester
Type of module	Core elective module	Core elective module
If applicable specialization	-	-

Particular conditions for the participation in the module according to the SPO
-

Recommended prerequisites for the participation in the module
- Physics and mathematics
- Fundamentals of electrical engineering
- Technical mechanics

Content
- Introduction to the science of climate change, including the causes and effects of global warming.
- The history of climate change research and policy.
- Climate change impacts on ecosystems and biodiversity.
- Climate change impacts on human health and society.
- Overview of most important drivers for climate change.
- Climate change mitigation strategies, including:
  - Renewable and sustainable energy and carbon sequestration.
  - Sustainable transport technologies.
  - Sustainable buildings and cities.
  - Others (e.g., improved food consumption and supply, sustainable materials, land use, etc.).

Examination

Particular conditions for the participation in the examination according to the SPO appendix

-

Examination – type

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.

Learning outcomes

On successful completion of this module, the student is able to:

- Explain the basic science of climate change, including the causes and effects of global warming.
- Describe the impacts of climate change on human society and the economy, as well as on ecosystems and biodiversity.
- Explain the various policy mechanisms in place to address climate change, including international agreements and national/local actions.
- Evaluate the effectiveness of different climate change mitigation and adaptation strategies, including sustainable energy and transport, buildings and cities, food supply and consumption, materials, land use, etc.
- Develop an awareness of the complexity of the problem and an understanding that climate change is a global issue that requires collective action and cooperation.

Literature

- IPCC (2021): Climate Change 2021: The Physical Science Basis.
- Hawken, P. (2017): Drawdown: the most comprehensive plan ever proposed to reverse global warming, Penguin Books.
- Mathez, E. and Smerdon, J.E. (2018): Climate change: the science of global warming and our energy future, 2nd ed., Columbia University Press.

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.

Course ID	Module name	Language of instruction
CREAT	Creative Thinking	English
ICC	Intercultural Communication	English
MIME	Mindfulness and Meditation	English
NECO	Negotiation and Conflict Management	English
PRSK	Presentation Skills	English
TISO	Time and Self Management	English
TSID	Transformational Skills for Inner Development	English

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

Course ID	Module name	Language of instruction
ACME	Achtsamkeit und Meditation	German
IKO	Interkulturelle Kompetenz	German
PRTE	Präsentationstechniken	German
TKID	Transformative Kompetenzen für Inner Development	German
VEKO	Verhandeln und Konfliktmanagement	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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Module: CREAT
Creative Thinking

Module profile

Exam number
3930760

Duration
1 semester

Frequency
Winter and summer semester

Credit hours (SWS)
2

ECTS-Credits (CP)
2

Workload
Attendance: 30 hours
Self-study: 30 hours
Total: 60 hours

Teaching format
Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Hiemer

Lecturer(s)
Prof. Dr. Hiemer

Applicability	IBE	IBL
Semester according to SPO	7th semester	7th semester
Type of module;	Elective module	Elective module
If applicable specialization	-	-

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.

Content

- Definitions and types of creativity
- Insights into the creative process – myths vs. facts about creativity
- Different thinking styles and approaches of creative people
- Reflecting on creativity blockers and enhancing factors
- Application of creativity techniques individually and in groups, e.g. think bigger method, different brainstorming methods, SCAMPER

Learning outcomes
After successful completion of the module, the students are able to:

- Name and understand the basic principles of creativity
- Understand the significance of creativity in business and engineering and its connection to agile methods
- Recognize beliefs/behaviors/environments that can hinder or enhance creativity
- Apply different creative tools/techniques to generate ideas and solve problems – individually and in groups

Examination

Particular conditions for the participation in the examination according to the SPO appendix
Compulsory attendance of the class.

Examination – type
Other examined assignment according to §§ 26, 27 APO

Examination – length/format
One of the following formats:

- seminar paper/ research project
- presentation
- written assignment
- portfolio assignment

The concrete length/format of the examination will be determined in the study plan 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.

Literature

- Childs, P., Han, J., Chen, L., Jiang, P., Wang, P., Park, D., Yin, Y., Dieckmann E., Vilanova, I. (2022). The Creativity Diamond: A Framework to Aid Creativity. Journal of Intelligence, 10(4): 73. doi: 10.3390/jintelligence10040073.
- Csikszentmihalyi; M. (2013). Creativity: Flow and the Psychology of Discovery and Invention. Harper Perennial Modern Classics.
- Iyengar, S. (2023). Think Bigger. How to innovate. Columbia University Press.
- Michalko, M. (2011). Cracking creativity. New York: Random House US.
- Nöllke, M. (2020). Kreativitätstechniken (8th edition). Haufe TaschenGuide

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Module: ICC
Intercultural Communication

Module profile
Exam number
3930760

Duration
1 semester

Frequency
Winter and summer semester

Credit hours (SWS)
2

ECTS-Credits (CP)
2

Workload
Attendance: 30 hours
Self-study: 30 hours
Total: 60 hours

Teaching format
Seminar

Language of instruction
English

Organisation
Responsible
Prof. Dr. Hiemer

Lecturer(s)
Prof. Dr. Panshef

Applicability	IBE	IBL
Semester according to SPO	7th semester	7th semester
Type of module;	Elective module	Elective module
If applicable specialization	-	-

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.

Content
- Introduction and Basic Knowledge: concept of culture, cultural identity, perception and interpretation, stereotypes and prejudices.
- Cultural Dimensions (according to Hofstede) as a theoretical framework to compare cultures: mainly individualism vs. collectivism, high vs. low power distance, deal- vs. relationship orientation. The focus is on the different communication styles (verbal and non-verbal communication) as well as on idiolectics as a methodical use of one's own language, which is essential on the path to trust, understanding and cooperation.
- 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.

Learning outcomes
On successful completion of this module, the student is able to:
- 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 behavior of people from different cultures considering their respective cultural values.
- Develop and apply an idiolectic conversation as an effective communication strategy for recognizing and overcoming obstacles in intercultural encounters.
- Analyze intercultural business encounters by applying intercultural terminology, theory and methods and adopt the own behavior accordingly.

Examination

Particular conditions for the participation in the examination according to the SPO appendix
Compulsory attendance of the class.

Examination – type
Other examined assignment according to §§ 26, 27 APO

Examination – length/format
One of the following formats:

- seminar paper/ research project
- presentation
- written assignment
- portfolio assignment

The concrete length/format of the examination will be determined in the study plan 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.

Literature

- Adler, N. J. and Gundersen, A. (2008): International dimensions of organizational behavior, 5th ed., Mason: Thomson South-Western.
- Comfort, J. and Franklin, P. (2014): The Mindful International Manager. How to work effectively across cultures, 2nd ed., London: Kogan Page.
- Hofstede, G.; Hofstede, G. J. and Minkov, M. (2010): Cultures and organizations. Software of the mind: International cooperation and its importance for survival, 3rd ed., New York: McGraw-Hill.
- Poimann, H.; Bindernagel, D.; Winkler, P. and Krüger, E. (2010): first steps to IDIOLECTICS, Huttenscher Verlag 507, Würzburg.
- Schroll-Machl, S. (2016): Doing business with Germans. Their perception, our perception, 6th ed., Göttingen: Vandenhoeck & Ruprecht.

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Module: MIME
Mindfulness and Meditation

Module profile

Exam number
IBE:38xx
IBL:39xx

Duration
1 semester

Frequency
Winter and summer semester

Credit hours (SWS)
2

ECTS-Credits (CP)
2

Workload
Attendance: 30 hours
Self-study: 30 hours
Total: 60 hours

Teaching format
Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Hiemer

Lecturer(s)
Prof. Dr. Stadelmann

Applicability	IBE	IBL
Semester according to SPO	7th semester	7th semester
Type of module;	Core elective module	Core elective module
If applicable specialization	-	-

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.

Content

- Formal mindfulness and meditation practice according to the secular and scientifically researched approach "Mind-fulness Based Stress Reduction (MBSR)" by Jon Kabat-Zinn.
- Background knowledge and research results
- Individual perspective: stress, (digital) distractions
- Social perspective: mindful dialogue, deep listening
- Ecosystemic perspective: Collective creativity, transformation

Learning outcomes
On successful completion of this module, the student is able to:

- Build on initial experiences with regard to focussing attention on the here and now and accepting the present moment as it is.
- Discovering choices in dealing with oneself, in encounters with others and in shaping the ecological and social challenges of our time.
- Reflect the current state of mindfulness and meditation research.

Examination

Particular conditions for the participation in the examination according to the SPO appendix
Compulsory attendance of the class.

Examination – type
Other examined assignment according to §§ 26, 27 APO

Examination – length/format
One of the following formats:

- seminar paper/ research project
- presentation
- written assignment
- portfolio assignment

The concrete length/format of the examination will be determined in the study plan 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.

Literature

- Chade-Meng, T. (2012): *Search inside yourself*, London: Harper Collins.
- Kabat-Zinn, J. (2013): Full catastrophe living. Using the wisdom of your body and mind to face stress, pain, and illness, New York: Bantam books.
- Scharmer, O. (2018): *The essentials of Theory U. Core principles and applications*, Oakland, CA: Berrett-Loehler Publishers.
- Singer, T.: *The ReSource Project.* URL: https://www.resource-project.org/en/

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Module: NECO
Negotiation and Conflict Management

Module profile

Exam number
3930760

Duration
1 semester

Frequency
Winter and summer semester

Credit hours (SWS)
2

ECTS-Credits (CP)
2

Workload
Attendance: 30 hours
Self-study: 30 hours
Total: 60 hours

Teaching format
Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Hiemer

Lecturer(s)
Prof. Dr. Hiemer

Applicability	IBE	IBL
Semester according to SPO	7th semester	7th semester
Type of module;	Elective module	Elective module
If applicable specialization	-	-

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.

Content

- Negotiation types and negotiation process
- The Harvard negotiation program – in theory and practice
- Dealing with conflicts
  (conflict styles, emotions, responses to conflict)
- Conflict resolution techniques
- Special conflict and negotiation situations, e.g., difficult people, cross-cultural negotiation, virtual negotiation

Learning outcomes
After successful completion of the module, the students are able to:

- Name, understand and put into practice negotiation techniques
- Understand different situations of negotiations and adapt accordingly to achieve better negotiation results
- Examine own's own conflict style, strengths and improvement potentials when dealing with conflicts
- Name, understand and apply methods of conflict resolution, e.g., moderation and mediation
- Know special conflict und negotiation situations

Examination

Particular conditions for the participation in the examination according to the SPO appendix
Compulsory attendance of the class.

Examination – type
Other examined assignment according to §§ 26, 27 APO

Examination – length/format
One of the following formats:

- seminar paper/ research project
- presentation
- written assignment
- portfolio assignment

The concrete length/format of the examination will be determined in the study plan 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.

Literature

- Fisher, R. & Ury, W. & Patton, B. (2011). *Getting to yes. Negotiating agreement without giving in.* Penguin Books.
- LaVena, W. & Yashwant, P. (2022). *De Gruyter handbook of organizational conflict management.* De Gruyter
- Shapiro, D. (2016). Negotiating the nonnegotiable: How to resolve your most emotionally charged conflicts. Penguin Books.
- Thompson, L. (2022). *The heart and mind of the negotiator.* (7th edition). Pearson Education.

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Module: PRSK
Presentation Skills

Module profile

Exam number
3930760

Duration
1 semester

Frequency
Winter and summer semester

Credit hours (SWS)
2

ECTS-Credits (CP)
2

Workload
Attendance: 30 hours
Self-study: 30 hours
Total: 60 hours

Teaching format
Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Hiemer

Lecturer(s)
Prof. Dr. Panshef

Applicability	IBE	IBL
Semester according to SPO	7th semester	7th semester
Type of module;	Elective module	Elective module
If applicable specialization	-	-

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.

Content
Professional contents of the module:

- Basic elements of a presentation
- Examples of different presentation techniques
- Basic presentation skills
- Rules of communication
- Preparation and delivery of different types of presentations

Methodological contents of the module:

- Direct and multimedia presentation of learning content
- Role play
- Workshop
- Individual presentation
  Peer assessment

Learning outcomes
On successful completion of this module, the student is able to:

- 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 specialized conversations and lectures.
- Analyze 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 visualize it in a suitable way.
- Give a convincing, audience-related presentation.

Examination

Particular conditions for the participation in the examination according to the SPO appendix
Compulsory attendance of the class.

Examination – type
Other examined assignment according to §§ 26, 27 APO

Examination – length/format
One of the following formats:

- seminar paper/ research project
- presentation
- written assignment
- portfolio assignment

The concrete length/format of the examination will be determined in the study plan 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.

Literature

- Bovée, C. and Thill, J. (2020): Business Communication Essentials. Fundamental Skills for the Mobile-Digital-Social Workplace, 8th ed., Harlow: Pearson.
- Platow, M. (2002): Giving Professional Presentations in the Behavioral Sciences and Related Fields, New York: Psychology Press.
- Van Emden, J. and Becker, L. (2016): Presentation skills for students, London: Palgrave.
- Wallwork, A. (2014): Presentations, Demos, and Training Sessions. A Guide to Professional English, New York: Springer.
- Williams, E. (2008): Presentations in English. Find your voice as presenter, Oxford: Macmillan.

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Module: TISE
Time- and Self-Management

Module profile

Exam number
3930760

Duration
1 semester

Frequency
Winter and summer semester

Credit hours (SWS)
2

ECTS-Credits (CP)
2

Workload
Attendance: 30 hours
Self-study: 30 hours
Total: 60 hours

Teaching format
Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Hiemer

Lecturer(s)
Prof. Dr. Stadelmann

Applicability	IBE	IBL
Semester according to SPO	7th semester	7th semester
Type of module;	Elective module	Elective module
If applicable specialization	-	-

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.

Content

- 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 (cognitive stress management, mindfulness-based stress reduction)

Learning outcomes
On successful completion of this module, the student is able to:

- 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.

Examination

Particular conditions for the participation in the examination according to the SPO appendix
Compulsory attendance of the class.

Examination – type
Other examined assignment according to §§ 26, 27 APO

Examination – length/format
One of the following formats:

- seminar paper/ research project
- presentation
- written assignment
- portfolio assignment

The concrete length/format of the examination will be determined in the study plan 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.

Literature

- Forsyth, P. (2016): Successful Time Management. How to be organized, productive and get things done, 5th ed., London: Kogan Page.
- Lussier R. N. (2017): Human Relations in Organizations. Applications and Skill Building, 10th ed., New York: McGraw-Hill Education.
- Sternad, D. (2020). Effective management: Developing yourself, others and organizations. London: Macmillan International Higher Education; Red Globe Press.
- Zimbardo, P. G. and Boyd, J. (2010): The time paradox. Using the new psychology of time to your advantage, London: Rider.

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Module: TSID
Transformational Skills for Inner Development

Module profile

Exam number
IBE: 3827300
IBL: 3930760

Duration
1 semester

Frequency
Winter and summer semester

Credit hours (SWS)
2

ECTS-Credits (CP)
2

Workload
Attendance: 30 hours
Self-study: 30 hours
Total: 60 hours

Teaching format
Seminar

Language of instruction
English

Organisation

Responsible
Prof. Dr. Hiemer

Lecturer(s)
Prof. Dr. Ankenbrand

Applicability	IBE	IBL
Semester according to SPO	7th semester	7th semester
Type of module;	Core elective module	Core elective module
If applicable specialization	-	-

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.

Content

- Critical analysis of the Sustainable Development Goals (SDG) adopted by all United Nations Member States and the progress so far
- Overview of the Inner Development Goals (IDGs) initiative and the developed framework with an in-depth study of the 23 skills and qualities across 5 dimensions
- Assessment of the specific IDGs contribution for further progress towards SDGs
- Application of the IDGs to students personal and professional development
- Co-creation of individual roadmaps of personal IDG implementation utilizing the Transition Makers Toolbox and other tools.

Learning outcomes
On successful completion of this module, the student is able to:

- provide an overview of the Inner Development Goals (IDGs) building on the Sustainable Development Goals (SDG).
- assess how specific IDGs contribute to reach certain the SDGs
- apply the IDGs to their personal and professional development.
- co-design a roadmap of their personal IDG implementation.

Examination

Particular conditions for the participation in the examination according to the SPO appendix
Compulsory attendance of the class.

Examination – type
Other examined assignment according to §§ 26, 27 APO

Examination – length/format
One of the following formats:

- seminar paper/ research project
- presentation
- written assignment
- portfolio assignment

The concrete length/format of the examination will be determined in the study plan 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.

Literature

- IDG (2023): Inner Development Goals Framework https://drive.google.com/file/d/1xEonoHPCkn-O41ckX8uWg68ujjmnPA5R/
- Jordan, T. (2021): Inner Development Goals: Background, method and the IDG framework, https://drive.google.com/file/d/13fcf9xmYrX9wrsh3PC3aeRDs0rWsWCpA/
- Jurisic, N. (2023): Orienting inner development in organisations - White Paper #1 focus on corporates, Stockholm.
- Lee, M., Henriksson, J. et al (2024): The Harvard Human Flourishing Pro-gram hosts Inner Development Goals, https://youtu.be/nFM7aFZdDD8?si=V0HuKSv5eShcOXi2
- Stålne K., Greca S. (2022): Inner development goals: phase 2 research report https://idg.tools/assets/221215_IDG_Toolkit_v1.pdf
- Transition Makers (2023): Transition Makers Toolbox https://transitionmakers.nl/
- United Nations (2023): The Sustainable Development Goals Report 2023: Special Edition. https://unstats.un.org/sdgs/report/2023/