

Hochschule Bremerhaven

University of Applied Sciences



ECTS - Handbook of the Master Degree Course in Logistics Engineering and Management (LEM)



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A. Description of the Master Degree Course “Logistics Engineering and Management (LEM)”

A.1. Brief description of the Master Degree Course

The department of Transport Engineering/Logistics at Bremerhaven University of Applied Sciences is renowned for producing experts – a fact appreciated by logistics enterprises throughout Europe. There is over 30 years' experience with transport and logistics in seafaring in the city by the sea. The quality of the academic training is clearly reflected in a strong practical focus, its standing amongst enterprises in the region and beyond, as well as the high places it occupies on various logistics ranking lists. This was the foundation for a new Master programme in “Logistics Engineering and Management (LEM)”.

The Master Degree Course is a 2-year full-time Master course with a high level of practical content that has been accredited since March 2006. It takes up the new and continuously growing challenges in the area of logistics and qualifies its students for demanding management tasks in international logistics. The objective of the Master course is to examine topics in greater depth whilst at the same time teaching skills needed for the planning, design and steering of international networks.

The first three terms focus on different interdisciplinary aspects of logistics. The fourth term centres on the Master Thesis. The problem examined in the Master Thesis should derive from an application oriented industrial or research project carried out in home country or abroad.

Teaching languages in the Master degree course are German (60%) and English (40%).

After successful termination of the Master degree course the students receive the academic degree of:

Master of Science (M.Sc.)

A.2. Study objectives of the Master Degree Course

The Master degree course qualifies its students for applied research activities and places special emphasis on an intensive transfer of knowledge and technology between university and enterprises. Graduates of the Master degree course hold the qualifications necessary for a subsequent doctorate and gain skills required for the planning, design and steering of international enterprises.

A.3. Study contents of the Master Degree Course

The Master degree course follows on from a Bachelor degree or other higher education diploma in logistics or a related subject. On this basis, students obtain a deeper knowledge of logistical issues as well as of management topics in an international context. In addition, students learn specialist skills and methods which reflect the very latest scientific state of the art.

A.4. Employment opportunities for graduates

The development of logistics in recent years has been characterised by a continuous increase in volume, major dynamic changes and growing complexity. The demands of global markets are leading to new forms of co-operation between enterprises, such, for example, as the emergence of supra-company logistics networks. This development demands new and additional qualifications from logisticians. This is the core of the Master course in “Logistics Engineering and Management” at Bremerhaven University of Applied Sciences. Graduates should be able – using scientific methods - to analyse highly complex systems and processes, implement optimisation measures and to develop and apply new solutions. Master graduates are prepared for taking on conceptual tasks at a scientific/abstract level in logistics and thus are also qualified for management tasks.

A.5. Structure of the Master Degree Course

The course comprises modules from the areas of transport and transshipment engineering, information and communication technology as well as business administration. The modules in the first three terms contain the most important specialist topics of the various interdisciplinary aspects of logistics. The fourth term is devoted entirely to the Master thesis. Master thesis focuses on application-oriented research or planning projects in national or international commerce. The Master course comprises 18 modules. The modules generally comprise four hours per week per term. Students are expected to undertake their own work on specialist topics both in the course units as well as in private study. The module structure facilitates the interlinking of courses offered by the international partner universities. A total of 120 Credit Points are awarded for the Master course.

Module structure of the Master Degree Course

1st term	2nd term	3rd term	4th term
Application of Mathematics in Logistics	Packaging Management and Reverse Logistics	Packaging Management and Reverse Logistics	Project for Master Thesis
International Transport Systems	Electives I	Electives I	Master Thesis
Economics	Technical Risks due to Hazardous Materials	Technical Risks due to Hazardous Materials	
IT Technologies	International Law for Logisticians	Production Planning and Quality Management	
Decision Support Systems	Process and Cost Management	Electives II	
	Simulation and Artificial Intelligence	Logistics Management	
	Logistics Management	Risk Management and Logistics Law	
	Risk Management and Logistics Law	Global Management	

A.6. Internationalization of the Master Degree Course

Internationalisation is a key qualification aspect for the “Logistics Engineering and Management” Master course. This international focus is reflected in course units with a specific international orientation. At the same time, the international dimension of each topic in question is – so far as it is relevant – handled in all course components. Internationalisation also means that students are encouraged to participate in international exchanges within the framework of specific projects. Bremerhaven University of Applied Sciences co-operates, for example, with the International School of Economics in Rotterdam (Netherlands), the Mikkeli Institute of Business Studies in Mikkeli (Finland), the Universidad de Vigo (Spain), the Napier University Business School in Edinburgh (Great Britain), Gdynia Maritime University (Akademia Morska Gdynia, Poland) and the Université du Havre (France).

A.7. Curriculum of the study programme

S	Modules and Subjects	HW	CP	Type of exam	Valence factor
1	Application of Mathematics in Logistics	4	6		1
1	Operations Research	2	6	K	0,5
1	Statistics	2		K	0,5
1	International Transport Systems	4	6		1
1	Planning of International Transport Systems	2	6	K/R/P	0,5
1	International Modal Transport Systems	1		K/R/P	0,5
1	International Modal Transport Systems - Laboratory	1			
1	Economics	4	6		1
1	Transport Economics	2	6	R/H	1
1	Sourcing	2			
1	IT Technologies	4	6		1
1	IT Technologies	2	6	R/P	0,5
1	Workflow Management	2		K/R	0,5
1	Decision Support Systems	4	6		1
1	Project Management	2	6	R/P	0,5
1	Decision Support Methods	2		R/P	0,5
2+3	Packaging Management and Reverse Logistics	4	6		1
2	Packaging Management	1	3	K/R	0,5
2	Packaging Management - Laboratory	1			
3	Reverse Logistics	2	3	K/R	0,5
2+3	Electives I	4	5		1
2	Choice of key qualification subjects from general studies	2	2,5	H/M/P/R	0,5
3	Personnel Placement, Contracts of Employment	2	2,5	H/M/P/R	0,5
2+3	Technical Risks due to Hazardous Materials	4	6		1
2	Risk Assessment, Loss Prevention	1	3	P/M/R	0,5
2	Risk Assessment, Loss Prevention - Laboratory	1			
3	Safety Management Systems in Dangerous Goods Logistics	2	3	P/M/R	0,5

S	Modules and Subjects	HW	CP	Type of exam	Valence factor
3	Production Planning and Quality Management	4	6		1
3	Production Planning (PP)	1	6	K/P	1
3	Production Planning (PP) - Laboratory	1			
3	Total Quality Management (TQM)	2			
2	International Law for Logisticians	4	5		1
2	English for Logisticians	2	5	K/R/H	1
2	Law for Logisticians	2			
2	Process and Cost Management	4	5		1
2	Supply Chain Management	2	5	H/M/P/R	1
2	Logistics Controlling	2			
2	Simulation and Artificial Intelligence	4	6		1
2	Simulation and Optimization	2	6	K/P	0,5
2	Data Mining	2		P	0,5
3	Electives II Technology and Management	4	4		1
3	Materials Handling Engineering and Automation	2	2	K/H/P	0,5
3	Problems in International Transport Law	2	2	R/H	0,5
3	Case Study – Material Flow	2	2	P	0,5
3	Case Study – Process Management	2	2	P	0,5
2+3	Logistics Management	4	5		1
2	Global Operations Management	2	2,5	H/R	1
3	Strategic Logistics Management	2	2,5		
2+3	Risk Management and Logistics Law	4	6		1
2	Risk Management	2	3	H/R	1
3	Contracts	2	3		
3	Global Management	4	6		1
3	Business Management	2	6	H/R	1
3	Organizational Theory	2			
4	Project for Master Thesis	1	5	P	1
4	Master thesis		25		1
4	Thesis			Thesis	0,8
4	Colloquium			Colloquium	0,2
			120		

Explanations:

Frequency of the module: All modules are offered annually.
A list of references will be announced at the beginning of each course.

Abbreviations:

- CP – Credit Point (1 CP equals 30 teaching hours per week)
- D – Teaching language German
- E – Teaching language English
- H – Essay
- HW – Teaching hours per week
- K – Written examination

- L – Teaching language
- M – Oral examination
- P – Study project
- R – Presentation
- S – Term
- WLP – Workload hours of the compulsory lectures
- WLS – Student self-study workload hours

Fields:

There are no specific pre-conditions, limitations or applicability of the module intended, unless the fields are filled out.

A.8. Lecturers in the Master Degree Course

Names of Lecturers	Teaching Areas
Prof. Dr. habil. (PL) Waldemar Czuchra	Project Management; Decision Support Methods; Data Mining
Prof. Dr.-Ing. Carsten Dorn	Planning of International Transport Systems; International Modal Transport Systems
Prof. Dr.-Ing. Walter Fedderwitz	IT-Technologies; Workflow Management; Simulation and Optimization, Data Bases
Prof. Dr.-Ing. Dieter Heimann	Packaging Management; Reverse Logistics
Prof. Dr. Jochem Piontek	Sourcing; Supply Chain Management; Logistics Controlling; Strategic Logistics Management; Organizational Theory
Prof. Dr.-Ing. Ernst-Jürgen Ribbert	Production Planning (PP); Quality Management, TQM; Case Study – Material Flow; Case Study – Process Management
Prof. Dr. rer. pol. Heinz-Jürgen Scheibe	Transport Economics; Global Operations Management; Business Management
Prof. Dr.-Ing. Wolfgang Schwanebeck	Risk Assessment, Loss Prevention; Safety Management Systems in Dangerous Goods Logistics
Dr. phil. Edmund Voges	English for Logisticians
Prof. Dr.-Ing. Friedhelm Wesselmann	Materials Handling Engineering and Automation
Prof. Dr. Thomas Wieske	Personnel Placement, Contracts of Employment; Law for Logisticians; Problems in International Transport Law; Risk Management; Contracts
N.N.	Operations Research; Statistics

A.9. Admission requirements for the Master Degree Course

Prerequisites:

- ✓ A first university degree (Diploma or Bachelor) with a logistics focus, at least 180 credit points in such disciplines as transport, logistics, engineering science, business administration, economics, information technology or business IT and at least "Good" (ECTS B) as an overall grade;
- ✓ Knowledge of English corresponding to at least level B2 of the Common European Framework of Reference for Languages

Admission to the Master Degree course is in the **winter** term of a given year and is restricted to 40 study places. The selection of students generally takes place on the basis of their final school grade.

B. Detailed module descriptions of the Master Degree Course “Logistics Engineering and Management”

Application of Mathematics in Logistics

Module 1: Application of Mathematics in Logistics			CP Module: 6			
Course	S	Lecturer:	L	WLP	WLS	CP
Operations Research	1	N.N.	E			6
Statistics	1	N.N.	E			
Objectives						
<p>The students will acquire competences to apply statistical methods to quality assurance and quality management. They should gain knowledge and skills to analyse and predict logistic facts and their interrelations and should be able to use estimation and testing methods in the field of strategic planning.</p> <p>In the course “Operations Research” the students will acquire essential knowledge for the application of mathematical methods to optimize the logistics processes.</p>						
Course contents						
<p>Statistics:</p> <ul style="list-style-type: none"> • Two-dimensional frequency distribution • Stock and time series analysis • Prediction techniques • Index numbers • Simple estimation methods • X^2-, F- and T-distribution • Introduction to sampling procedure • Basics of the test theory • Special testing methods • Statistical quality control <p>Operations Research:</p> <ul style="list-style-type: none"> • Linear optimization (simplex algorithm) • Special cases of linear optimization • Network analysis (Pert- and CPM-method) • Dynamic optimization • Queueing theory • Stock-keeping theory • Decision theory • Prediction techniques • Simulation • Game theory • Non linear programming 						
Learning methods						
Lectures						
Assessment / Grades						
Written examination						
Prerequisites for course participation						
Basics of mathematics, statistics and operations research, corresponding to the modules 1 and 8 of the Bachelor degree course Transport Engineering/Logistics						
Application and usage of the module/ single courses in other courses of studies						

International Transport Systems

Module 2: International Transport Systems				CP Module: 6			
Course	S	Lecturer:	L	WLP	WLS	CP	
Planning of International Transport Systems	1	Prof. Dr. Carsten Dorn	E			6	
International Modal Transport Systems	1	Prof. Dr. Carsten Dorn	E				
International Modal Transport Systems - Laboratory	1	Prof. Dr. Carsten Dorn	E				
Objectives							
<p>The students will learn to design and optimize logistics systems and networks. They will become acquainted with various elements of logistics systems and will learn methods of analysis and methods for optimization of the systems according to the particular circumstances.</p> <p>Within the scope of the course the basics of the modal transport will be presented to students. The focus of the course is placed on the carriage of goods by rail.</p> <p>By conducting systematic analysis of the current transport situation, the students will learn to apply such analysis, in order to evaluate transport processes with regard to various logistics aspects.</p> <p>In the long-term 50 % of the module will be conducted in English.</p>							
Course contents							
<p>International Modal Transport Systems:</p> <ul style="list-style-type: none"> • Core processes within railroading • Basics of rail transportation system • Parties involved in the rail transport operation process • Securing of the succession of trains; track system elements • Schedule design • Operating control • Vehicles and transport technologies of combined transport • European networks for carriage of goods by rail • Design, structure and service offer of existing railway companies • Production and operating processes within international carriage of goods • Designing logistics system outputs in railway transportation <p>Planning of International Transport Systems:</p> <ul style="list-style-type: none"> • Basics of logistics – networks • Basics of planning logistics systems • Designing logistics networks • Aptitude and usability of methods and tools for optimizing logistics networks • Case studies 							
Learning methods							
Lectures, laboratories							
Assessment / Grades							
Written examination, presentation, study project							
Prerequisites for course participation							
Bachelor degree course Transport Engineering/Logistics							
Application and usage of the module/ single courses in other courses of studies							

Economics

Module 3: Economics			CP Module: 6			
Course	S	Lecturer:	L	WLP	WLS	CP
Transport Economics	1	Prof. Dr. Heinz-Jürgen Scheibe	E/D			6
Sourcing	1	Prof. Jochem Piontek	E			
Objectives						
<p>The module deepens the knowledge of economics acquired in the module “Macroeconomics” in the Bachelor degree course Transport Engineering/Logistics and presents transport economics theories. The teaching languages of the course “Transport Economics” are English (70 %) and German (30 %).</p> <p>Moreover the students will become acquainted with different sourcing strategies – global sourcing, modular sourcing, just-in-time-sourcing and process sourcing etc. – the sourcing will be here interpreted exclusively as process-oriented concept. During the course the students will learn about theory-based practical solutions rather than day-to-day sourcing operations. They should understand that sourcing will than succeed in influencing exchange processes, if they search together for international solutions.</p>						
Course contents						
<p>Transport Economics:</p> <ul style="list-style-type: none"> • Production, growth and trade • Markets in action • Markets and governments • Global economy • The theory of transport economics • Transport market dynamics • Costing and pricing policies • Integrated transport policy • The third world <p>Sourcing:</p> <ul style="list-style-type: none"> • Analysis of sourcing strategies, goals, instruments and control • Process sourcing • Internal sourcing, outsourcing • Global sourcing • Local sourcing • Single sourcing • Multiple sourcing • Collaborative sourcing • Reverse sourcing • Modular sourcing • System sourcing 						
Learning methods						
Lectures						
Assessment / Grades						
Presentation, essay						
Prerequisites for course participation						
Modules: Macroeconomics, Traffic Management of the Bachelor degree course Transport Engineering/Logistics						
Application and usage of the module/ single courses in other courses of studies						

IT Technologies

Module 4: IT Technologies			CP Module: 6			
Course	S	Lecturer:	L	WLP	WLS	CP
IT Technologies	1	Prof. Dr.-Ing. Walter Fedderwitz	E			6
Workflow Management	1	Prof. Dr.-Ing. Walter Fedderwitz	D			
Objectives						
<p>Workflow Management looks into structure and formalization of operational procedures. The goal is to decide if certain worksteps can be moved to computers or have to be done by humans. Individual work steps and processes will be analysed and classified regarding to possible formalization and automation. Limits and possibilities of automation will be examined.</p> <p>The IT Technologies part implements concepts derived from the workflow course. A major effort goes into data bases multi user operation of data bases and remote access to these. Students should understand the relation between technical implementation and commercial requirements, in order to apply it efficiently for information acquisition. Moreover, the course covers selected application examples and EDI-approaches in Internet/Extranet environment.</p> <p>The course "Workflow Management" covers formal aspects and notations of administrative workflows.</p>						
Course contents						
<p>IT-Technologies:</p> <ul style="list-style-type: none"> • Relational Data Bases • Transactions in Data Bases and the relation to workflow analysis • Formal structure of information, EDIFACT, XML • Hands-on implementation of selected problems <p>Workflow Management:</p> <ul style="list-style-type: none"> • Structure and characteristics of work steps – structured vs. unstructured work processes • Structure and form of work step results – structured vs. unstructured results • Relationships/independence between work step and result according the formal aspects • Formal representation of workflows using software methods of structured analysis and the EPK model 						
Learning methods						
Lectures, case studies						
Assessment / Grades						
Written examination, presentation, study project						
Prerequisites for course participation						
Basic Informatics, Data Bases, Algorithms and Data Structures						
Application and usage of the module/ single courses in other courses of studies						

Decision Support Systems

Module 5: Decision Support Systems			CP Module: 6			
Course	S	Lecturer:	L	WLP	WLS	CP
Project Management	1	Prof. Dr.habil. Waldemar Czuchra	D			6
Decision Support Methods	1	Prof. Dr.habil. Waldemar Czuchra	D			
Objectives						
<p>In the course "Project Management" the students will gain basic knowledge of project planning, project management and project control. They will learn methods for developing an appropriate project structure and monitoring project progress (performance), deadlines and costs. Knowledge acquired in the course enables students to design management structures, to motivate and lead a team, to define project documentation framework and to control its compliance.</p> <p>In the course "Decision Support Methods" the students will become familiarized with methods of decision support systems. They will learn to evaluate which logistics problems can be solved with the help of these systems. The students should be able to formulate upcoming problems mathematically, apply proper software tools and present achieved results effectively to decision makers. Moreover, the course presents exemplary decision support systems.</p>						
Course contents						
<p>Decision Support Methods:</p> <ul style="list-style-type: none"> Principles of predicate logic, knowledge representation, heuristics, uncertainty, fuzzy logic, belief theory Expert systems Multicriteria decision aid systems Forecast models Queueing theory and inventory models Supply chain optimization Risk management Complexity and structuring of the decision problems Decisions upon certainty and one goal or many goals Weights of the decision criteria Decision trees Group decisions <p>Project Management:</p> <ul style="list-style-type: none"> Basic techniques and methods of project management (network design - critical path method, allocation of resources) Time, cost and capacity planning Project organisation and implementation Project planning Project team, project leader Project documentation Introduction to MS-Project 						
Learning methods						
Lectures						
Assessment / Grades						
Presentation, study project						
Prerequisites for course participation						
Module Basic Informatics of the Bachelor degree course Transport Engineering/Logistics						
Application and usage of the module/ single courses in other courses of studies						

Packaging Management and Reverse Logistics

Module 6: Packaging Management and Reverse Logistics			CP Module: 6			
Course	S	Lecturer:	L	WLP	WLS	CP
Packaging Management	2	Prof. Dr. Dieter Heimann	E			3
Packaging Management - Laboratory	2	Prof. Dr. Dieter Heimann	E			
Reverse Logistics	3	Prof. Dr. Dieter Heimann	E			3
Objectives						
<p>The course "Packaging Management" enables students to design adequate transport packages tailored to meet functional, economical and environmental requirements.</p> <p>During the course "Reverse Logistics" students will develop their competences in the field of waste management. They will become familiar with technologies, organisational measures and legal regulations in order to build up reverse logistics processes that lead to a reduced consumption of limited resources and have less environmental impact.</p> <p>Case studies and laboratory exercises emphasize the practical aspects of the topics.</p> <p>A requirement of the first course is proof of successfully completed laboratory work (experiments and laboratory reports)</p>						
Course contents						
<p>Packaging Management:</p> <p>According to a practical focus of the Master degree course, students carry out laboratory exercises and complete the required laboratory work (experiments and laboratory reports).</p> <ul style="list-style-type: none"> • Terms and definitions • Features of packaging materials, packages and packaging aids • Transport packages for packaged goods, bulk goods and liquids • Transportation stress within transport chains • Requirements for functional, efficient and environmental friendly implementation of transport packages • Packaging planning as multi criteria decision making process • Computer-based packaging design • Selection and design of packages, means for load securing and cargo care • Preshipment testing and data evaluation • Reusable transport packages – forms, system operator • Life cycle of packages – collection, reusing and recycling <p>Reverse Logistics:</p> <ul style="list-style-type: none"> • Terms and definitions of waste • Quantity and composition of waste • Legal regulations • Waste management concepts and balance • Waste collection vehicles and waste containers • Transfer stations • Waste collection and treatment • Technical means for waste reduction • Energy recovery and substance recycling • Disposal / Landfill of residual waste • Case studies – waste cycles and cycles of recyclable materials 						
Learning methods						
Lectures, laboratories, case studies						
Assessment / Grades						

Written examination, presentation
Prerequisites for course participation
Packaging Technology
Application and usage of the module/ single courses in other courses of studies

Electives I

Module 7: Electives I			CP Module: 5			
Course	S	Lecturer:	L	WLP	WLS	CP
Choice of key qualification subjects from general studies	2	N.N.				2,5
Personnel Placement, Contracts of Employment	3	Prof. Thomas Wieske	D			2,5
Objectives						
Course contents						
Learning methods						
Assessment / Grades						
Essay, oral examination, study project, presentation						
Prerequisites for course participation						
Application and usage of the module/ single courses in other courses of studies						

Technical Risks due to Hazardous Materials

Module 8: Technical Risks due to Hazardous Materials				CP Module: 6			
Course	S	Lecturer:	L	WLP	WLS	CP	
Risk Assessment, Loss Prevention	2	Prof. Dr. Wolfgang Schwanebeck	E			3	
Risk Assessment, Loss Prevention - Laboratory	2	Prof. Dr. Wolfgang Schwanebeck	E				
Safety Management Systems in Dangerous Goods Logistics	3	Prof. Dr. Wolfgang Schwanebeck	D			3	
Objectives							
<p>Dangerous goods and dangerous materials can cause a lot of harm to people, things and environment. The students should therefore learn in project work to identify and assess technical risks when dealing with hazardous goods and materials and to design appropriate measures of loss prevention and limitation of loss. Moreover, the students should be able to apply such measures in practice and integrate them into company's environment and safety management systems. The module will also explain the relation between safety management and quality management systems.</p>							
Course contents							
<p>Project I:</p> <ul style="list-style-type: none"> Company's standard operations in dangerous goods logistics Risk identification: deviations from company's standard operating procedures as cause of failure Loss scenarios Quantitative and qualitative risk analysis Methods of risk minimization (loss prevention, limitation of loss, damage control) Risk communication <p>Project II:</p> <p>After an introduction to Safety Management System (SMS) and its requirements each project team will design SMS for a given company's environment taking into account results of the project I and the following issues:</p> <ul style="list-style-type: none"> Determining essential steps to protect company's standard operations Determining and evaluating other risks Preparing an emergency plan Safe implementation of changes Monitoring and further development of SMS System testing in normal conditions System testing when failures occur 							
Learning methods							
Lectures, laboratories							
Assessment / Grades							
Oral examination, study project, presentation							
Prerequisites for course participation							
<p><u>Modules (lectures) of the Bachelor degree course Transport Engineering/Logistics:</u> Mathematics; Technical Physics; Introduction to Business Administration; Statistics; Physical-chemical Safety Engineering; Technical Mechanics II; Transport Technology II; Traffic Systems; Dangerous Goods; Warehouse Management; Commodity Science, Cargo Care, Hazards in Transportation</p> <p><u>Modules (lectures) of the Master degree course:</u> Application of Mathematics in Logistics; Workflow Management, Decision Support Methods, Quality Management</p>							
Application and usage of the module/ single courses in other courses of studies							

Production Planning and Quality Management

Module 9: Production Planning and Quality Management			CP Module: 6			
Course	S	Lecturer:	L	WLP	WLS	CP
Production Planning (PP)	3	Prof. Dr. Ernst-Jürgen Ribbert	D			6
Production Planning (PP) - Laboratory	3	Prof. Dr. Ernst-Jürgen Ribbert	D/E			
Total Quality Management (TQM)	3	Prof. Dr. Ernst-Jürgen Ribbert	D			
Objectives						
<p>The subject matters of TQM are changing continuously in view of practical and theoretical approaches. In the course "Total Quality Management" the students will become acquainted with the modern methods of quality assurance and quality management. Nowadays, these methods are applied in almost every well established company worldwide.</p> <p>The aim of the lecture and laboratory course "Production Planning" is to enable students to understand the principles of production planning and control and be familiar with such terms as: bill of materials, working plan, disposition, production program planning etc.</p> <p>Laboratory classes provide comprehensive training in SAP applications and give students the opportunity to work on projects and present solutions to selected logistics problems in the field of production planning and control using SAP products, primarily the modules PP (Production Planning), MM (Material Management), LO (Logistics) and SD (Sales & Distribution).</p>						
Course contents						
<p>Total Quality Management:</p> <ul style="list-style-type: none"> • Total Quality Management (TQM) • Deming cycle (Plan-Do-Check-Act) • DIN ISO 9000-9004 • Poka Yoke • Ishikawa diagram • Kaizen • FMEA (Failure Mode and Effect Analysis) • Quality Function Deployment (QFD) • Statistical Process Control (SPC) • 5S-Method • 8-D Problem Solving • Six Sigma <p>Production Planning:</p> <ul style="list-style-type: none"> • Introduction to MPCS (= Manufacturing Planning and Control System) • Basic elements (bill of materials, working plan, work place) • Production program planning • Inventory-Demand situation • Methods of MPCS • Value added chains • Production data acquisition and processing • MPCS -elements as base elements for detailed applications • Overview of SAP-branch-solutions and their particularities • Examples of SAP-branch-solutions in the field of MPCS • Simultaneous Engineering <p>Production Planning - Laboratory:</p> <ul style="list-style-type: none"> • The SAP company and its product R/3, introduction to SAP • Basic elements (bill of materials, working plan, work place) • Production program planning • Production planning and TQM in SAP • Inventory-Demand situations • Methods of MPCS 						

- Value added chains
- Presenting complex company models
- R/3 reference model
- Business Engineering: customizing/process model; workbench

Learning methods

Lectures, laboratories

Assessment / Grades

Written examination, study project

Prerequisites for course participation

Total Quality Management: statistics

Production Planning - Laboratory: basics of SAP

Application and usage of the module/ single courses in other courses of studies

International Law for Logisticians

Module 10: International Law for Logisticians			CP Module: 5			
Course	S	Lecturers:	L	WLP	WLS	CP
English for Logisticians	2	Dr. phil. Edmund Voges	E			5
Law for Logisticians	2	Prof. Dr. Thomas Wieske	E			
Objectives						
<p>The module is directed to students of the logistics course with profound knowledge of English, corresponding to at least level B2 of the Common European Framework of Reference for Languages, with solid knowledge of logistics and basics of business law, transport law and insurance law.</p> <p>The module aims at the application of logistics knowledge in practice with regard to economic issues in international law and dealing with contractual matters in English. The main focus of the module is put on the ability to negotiate in English.</p>						
Course contents						
<p>English for Logisticians:</p> <p>The students will develop their communication skills, particularly in international contexts and improve their presentation techniques with the preparing of business and marketing plans. In discussions, the negotiation competences will be practiced. With online role plays students will be able to improve their business correspondence skills in English. The subjects covered in the role plays are based on human resource management, Technical English, Business English and international law.</p> <p>Law for Logisticians:</p> <p>The students will develop their communication skills and presentation techniques in international contexts. The first part of the course introduces students to international conventions (CMR; WA; MÜ; CIM; Hague-Visby Rules). In the second part, students will develop their negotiating abilities in economic and legal contexts.</p>						
Learning methods						
Exercises						
Assessment / Grades						
Written examination, presentation, essay						
Prerequisites for course participation						
B.A. or its equivalent with proof of performance in law						
Application and usage of the module/ single courses in other courses of studies						

Process and Cost Management

Module 11: Process and Cost Management			CP Module: 5			
Course	S	Lecturer:	L	WLP	WLS	CP
Supply Chain Management	2	Prof. Jochem Piontek	E			5
Logistics Controlling	2	Prof. Jochem Piontek	E			
Objectives						
<p>The module explains how to plan, organize, manage and control the whole supply chain. The students will learn how to organize the cross-company cooperation between suppliers, producers, distributors, dealers and consumers. The main focus of the module is placed on the importance of the network design and supply chain collaboration with its wide range of possibilities for cost reduction. The students will recognize that the focus of logistics has changed – from function optimization to process chain optimization, i.e. to cross-company integration of networks. The students will learn that in the Internet era the limiting factor is no longer the production or assembly facility but information and customer relationship management. The special emphasis is placed therefore on knowledge, learning and reliance on performance processes and project experience. The students should understand that the companies no longer compete with one another – the logistics networks are the ones that compete. Moreover, the module introduces the key elements of logistics controlling and controlling instruments that make it possible to organize networks in an effective way. Students will also learn how to apply controlling tools in logistics practice.</p>						
Course contents						
Supply Chain Management:						
<p>The course presents cross-company possibilities of supply chain and process chain optimization.</p> <ul style="list-style-type: none"> • Goals of supply chain management • Driving factors of supply chain management • Collaborative planning, forecasting and replenishment (CPFR) • Continuous replenishment • Vendor managed inventory • Inventory collaboration • Order collaboration • Transport collaboration • Capacity collaboration • Advanced planning and scheduling (APS) • Different supply chain designs 						
Logistics Controlling:						
<p>The course shows the possibilities of holistic planning, coordination and control of a supply chain as well as cost reduction possibilities.</p> <ul style="list-style-type: none"> • Supply chain controlling • Supply collaboration costing • Simultaneous costing • Target costing • Process costing 						
Learning methods						
Lectures						
Assessment / Grades						
Oral examination, presentation, study project, essay						
Prerequisites for course participation						
Module Logistics Management of the Bachelor degree course Transport Engineering/Logistics						
Application and usage of the module/ single courses in other courses of studies						

Simulation and Artificial Intelligence

Module 12: Simulation and Artificial Intelligence			CP Module: 6			
Course	S	Lecturer:	L	WLP	WLS	CP
Simulation and Optimization	2	Prof. Dr.-Ing. Walter Fedderwitz	E			6
Data Mining	2	Prof. Dr. habil. Waldemar Czuchra	E			
Objectives						
<p>On the basis of practical examples from the field of transport and in-house material flow, the students will become familiar with design, process and application of simulation systems. They will use simulation systems for planning and optimizing business processes – material flow, warehouse organisation, transport fleet and resource planning (personnel planning). From a methodological perspective the processes described are interactive, mostly stochastic processes with waiting times, processing times and breakdowns. Statistical methods will be used to assess and judge the results of simulation runs.</p> <p>The course “Data Mining” provides students with processes, methods and techniques of data mining and enables them to search for information in huge amount of data in day-to-day situations. The term information is interpreted here as universally valid, not trivial, new, useful and understandable data sets.</p>						
Course contents						
<p>Simulation and Optimization:</p> <ul style="list-style-type: none"> • Overview of essential mathematical foundations • Introduction to a simulation tool (emPlant) – performing simulation and optimization tasks using modern simulation tools • Relation between simulation experiments, theoretical calculations and stochastic modelling • Carrying out, evaluating and optimizing hands-on simulation project • Statistics and stochastic processes in simulation of operational procedures <p>Data Mining:</p> <ul style="list-style-type: none"> • Introduction to Data Mining (data preparation, rule identification) • Data Mining techniques (classification, decision trees, clustering, neural networks) • Introduction to Data Mining tool – Clementine 						
Learning methods						
Lectures, laboratories						
Assessment / Grades						
Written examination, study project						
Prerequisites for course participation						
Basic Informatics of the Bachelor degree course Transport Engineering/Logistics						
Application and usage of the module/ single courses in other courses of studies						

Electives II Technology and Management

Module 13: Electives II Technology and Management			CP Module: 4			
Course	S	Lecturer:	L	WLP	WLS	CP
Materials Handling Engineering and Automation	3	Prof. Dr. Friedhelm Wesselmann	D			2
Problems in International Transport Law	3	Prof. Dr. Thomas Wieske	E			2
Case Study – Material Flow	3	Prof. Dr. Ernst-Jürgen Ribbert	D			2
Case Study – Process Management	3	Prof. Dr. Ernst-Jürgen Ribbert	D			2
Objectives						
Course contents						
<ul style="list-style-type: none"> • material flow • optimization in material flow • planning of logistic areas • planning of transport concept in factories • other examples 						
Learning methods						
Assessment / Grades						
Written examination, essay, study project, presentation						
Prerequisites for course participation						
Application and usage of the module/ single courses in other courses of studies						

Logistics Management

Module 14: Logistics Management			CP Module: 5			
Course	S	Lecturer:	L	WLP	WLS	CP
Global Operations Management	2	Prof. Heinz-Jürgen Scheibe	E			2,5
Strategic Logistics Management	3	Prof. Jochem Piontek	E			2,5
Objectives						
<p>Based on the module “Logistics Management” of the Bachelor degree course Transport Engineering/Logistics, the module covers strategic processes and global trends in logistics and reviews the functions of strategic planning, scheduling and controlling in logistics. With the help of case studies the students will learn to evaluate methods and instruments of strategic decision making.</p> <p>The students will become familiar with logistics management in a context of logistics function and factor of success. They will become acquainted with possibilities of operative and strategic logistics planning with regard to business and cooperation strategies, as well as model-driven decision support systems in logistics.</p> <p>The principal focus of the module is logistics in a global context and practice oriented application of knowledge.</p>						
Course contents						
<ul style="list-style-type: none"> • Development in international trade and transport • Global trends in logistics • Decision strategies in logistics • The global marketplace – uncontrollable and controllable elements • Strategic logistics planning and tools • Evaluation and selection of target markets • Strategic controlling in logistics 						
Learning methods						
Lectures						
Assessment / Grades						
Essay, presentation						
Prerequisites for course participation						
Module Logistics Management of the Bachelor degree course Transport Engineering/Logistics						
Application and usage of the module/ single courses in other courses of studies						

Risk Management and Logistics Law

Module 15: Risk Management and Logistics Law			CP Module: 6			
Course	S	Lecturer:	L	WLP	WLS	CP
Risk Management	2	Prof. Dr. Thomas Wieske	D/E			3
Contracts	3	Prof. Dr. Thomas Wieske	D/E			3
Objectives						
<p>The students will gain an overview of risk management in modern enterprises, particularly in logistics companies.</p> <p>The potential risks will be discussed under legal, economic and environmental aspects, and according to privacy and consumer protection issues. With the help of exercises and practical examples the students will determine and estimate risks, and develop risk prevention and minimization strategies.</p> <p>The exercises and part of lectures, particularly the international aspects, will take place in English.</p>						
Course contents						
<ul style="list-style-type: none"> • The meaning of risk management • Aspects of modern risk management • Risk management strategies under economic aspects • Problems of risk management - privacy and consumer protection issues • Prospects of modern risk management to increase sales • Risk management and bankruptcy • Aspects of international risk management • Risk management and international air transportation • Risk management and international sea transportation • Legal defence strategies 						
Learning methods						
Lectures						
Assessment / Grades						
Essay, presentation						
Prerequisites for course participation						
Bachelor's degree with courses in business law, logistics law, basics of transport and insurance law and the course Law for Logisticians						
Application and usage of the module/ single courses in other courses of studies						

Global Management

Module 16: Global Management			CP Module: 6			
Course	S	Lecturer:	L	WLP	WLS	CP
Business Management	3	Prof. Heinz-Jürgen Scheibe	D			6
Organizational Theory	3	Prof. Jochem Piontek	D			
Objectives						
The module covers methods of business management and organisation of global enterprises. Furthermore, recent trends in the subject will be critically discussed.						
Course contents						
<ul style="list-style-type: none"> • Theory of multinational enterprises • Identity-oriented intercultural human resources management • Result oriented management of multinational enterprises • International cooperations and joint ventures • Behaviour of staff • Negotiation skills • Performance behaviour and appraisal • Executive development • Corporate downsizing 						
Learning methods						
Lectures						
Assessment / Grades						
Essay, presentation						
Prerequisites for course participation						
None						
Application and usage of the module/ single courses in other courses of studies						

Project for Master Thesis

Module 17: Project for Master Thesis			CP Module: 5			
Course	S	Lecturer:	L	WLP	WLS	CP
Project for Master Thesis	4	all teaching Lecturers	E			5
Objectives						
The research project should give the students the possibility to work out scientific problems and develop solutions independently. Alternatively to the project the students can do an industrial placement.						
Course contents						
Contents of the project depend on current logistics and scientific matters.						
Learning methods						
Assessment / Grades						
Study project						
Prerequisites for course participation						
The first three terms of the Master degree course LEM						
Application and usage of the module/ single courses in other courses of studies						

Master Thesis

Module 18: Master Thesis			CP Module: 25			
Course	S	Lecturer:	L	WLP	WLS	CP
Master thesis	4	all teaching Lecturers				25
Presentation	4					
Objectives						
The Master thesis should derive from an application oriented industrial or research project carried out in home country or abroad.						
Course contents						
Contents of the Master thesis depend on a scientific project or a company based assignment of a particular problem formulation.						
Learning methods						
Study project						
Assessment / Grades						
Thesis, presentation						
Prerequisites for course participation						
The first three terms of the Master degree course LEM						
Application and usage of the module/ single courses in other courses of studies						

C. General information about Hochschule Bremerhaven

C.1. Why to study at Hochschule Bremerhaven?

Characteristic of Bremerhaven University of Applied Sciences is its campus with an ensemble of architecturally charming historical and new buildings right on the waterfront. No sign of overcrowded lecture theatres and masses of anonymous faces here, a good learning climate and the compact size of the university makes it possible to find your way on the campus very quickly. This almost familiar atmosphere is underlined by the close collaboration with the professors.

Excellently equipped laboratories and institutes guarantee a practical focus in the Bachelor degree course. Of significant importance for the student are: the Institute of Transport Engineering and Logistics, the Institute of Risk Management and Logistics Legislation, the Hazardous Goods and Hazardous Substances Information Centre as well as the Centre for Safety. The practice-based training and the close contact to companies are additional stimuli for studying in Bremerhaven. The VdWT (www.vdwt.de) – association of transport and logistics business engineers – creates a network of former and present students, professors as well as enterprises and sponsors and enables to exchange know-how and experience between its members.

The central location of the university is very advantageous to students, who can spend their leisure time at the dyke or strolling around in the city. In a direct vicinity of the university, the city theatre, the pedestrian zone, museums, the harbour and various restaurants are located.

Ships, ports, locks and dykes give Bremerhaven its special character. The close distance to the City of Bremen with its historic old city, Hamburg or Hanover, the academic sailing club, the 12 km of beaches in Cuxhaven, the famous mud flats of the Wattenmeer National Park are all attractive features of the region.

Beyond this, the city of Bremerhaven has a lot of things to offer. For example the “Schaufenster Fischereihafen” (shop-window of the fishery harbour) is worth mentioning here. Its aquarium “Atlanticum”, “TiF” (theatre in the fishery harbour) and numerous little stores as well as cosy taverns, bistros and restaurants are certainly worth more than just one visit.

Apart from exciting student life, university parties which in any case you shouldn't miss and lively pubs, the favourable rents and low cost of living are convincing arguments for Bremerhaven since after all, you do not only want to work in your free time, but also experience other things.

Further reasons that are in favour of Bremerhaven are itemized hereafter:

- ✓ Modern laboratories for transport engineering and logistics (Transport Technology, Production Logistics, Warehouse Logistics, Transport Logistics, Data Processing Systems, Dangerous Goods);
- ✓ Cooperation with established companies and institutions (Institute of Shipping Economics and Logistics, Institute of Risk Management and Logistics Legislation, the Hazardous Goods and Hazardous Substances Information Centre, Centre for Safety, VdWT);
- ✓ International alignment of the study contents;
- ✓ Bilingual study course (German 60% – English 40%);
- ✓ Cooperation with universities abroad (Finland, France, Great Britain, Netherlands, Poland and Spain);
- ✓ Up-to-date, practice-oriented syllabus;
- ✓ Project-oriented teamwork in small groups;
- ✓ Semester ticket for public transportation;
- ✓ Optimal technical facilities;
- ✓ Extensive library with up-to-date literature;
- ✓ Internet, wireless LAN;
- ✓ Copy and print service in all buildings of the university;
- ✓ Students union (AStA) with its sport program and other events;
- ✓ Self-learning centre with a wide spectrum of foreign languages.

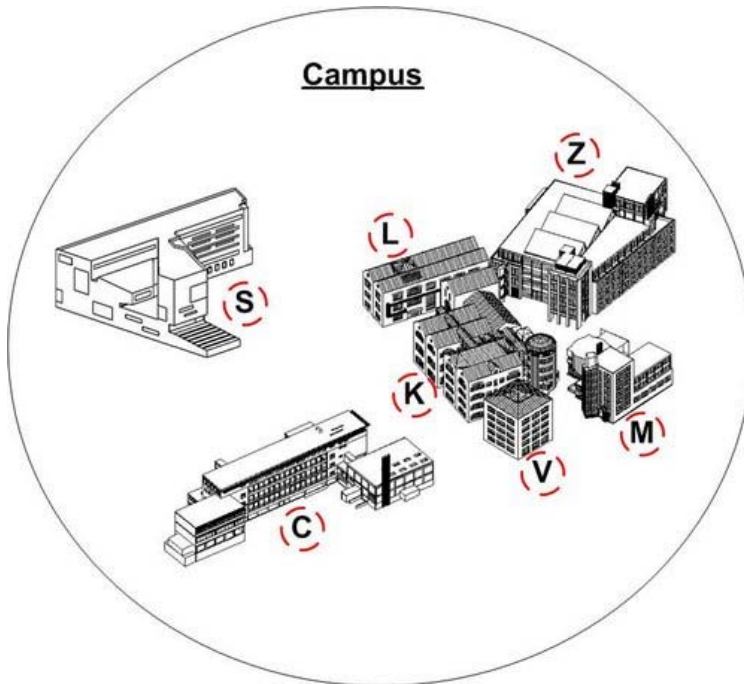
C.2. Site Plan of Hochschule Bremerhaven

Bremerhaven University of Applied Sciences is located directly in the city centre.

The address is:

Hochschule Bremerhaven
Zentrale Studienberatung
An der Karlstadt 8
27568 Bremerhaven

Phone: + 49 – 471 – 4823 556
Fax: + 49 – 471 – 4823 555
E-mail: info@hs-bremerhaven.de



Building C: Columbusstr. 21
Building K: An der Karlstadt 8
Building L: Laboratories
Building M: An der Karlstadt 10 (Lecture hall, Canteen)
Building S: Karlsburg 7
Building V: An der Karlstadt 8 (Administration)
Building Z: An der Karlstadt 6

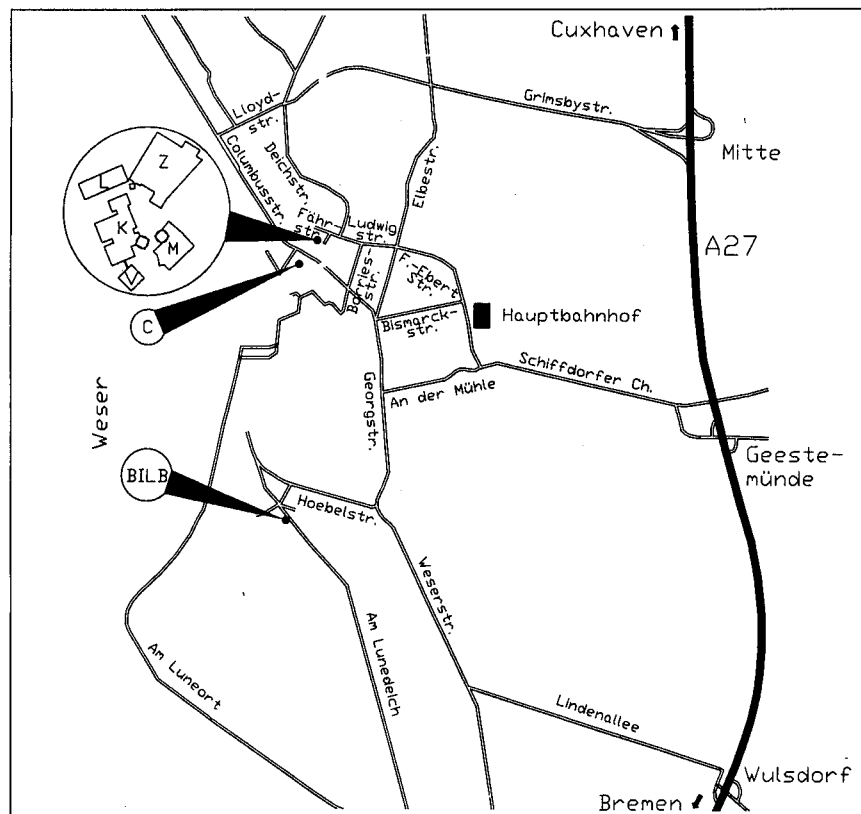
C.3. How to travel to Bremerhaven?

By airplane

The best way to travel to Bremerhaven from overseas is by airplane via Frankfurt to Bremen. But you can also get to Bremen and finally Bremerhaven by train from any town or city within Germany, or the neighbouring countries namely the Netherlands (Amsterdam), France or Belgium within the Schengen agreement.

By car

Bremerhaven is connected to the motorway A27 and can be reached via A27 from the north as well as from the south.



By train

Bremerhaven can easily be reached by train via Bremen or Hamburg.

- ✓ Travelling time from Bremen to Bremerhaven: approx. 3/4 hr.
- ✓ Travelling time from Hamburg to Bremerhaven: approx. 1 1/2 to 2 1/2 hrs.

C.4. Application and selection procedure

National and international applicants must fill out the relevant application form and either submit it in person or send it by mail together with all the necessary documents before the closing date to the Admission and Examination Office of the University on the following address:

Hochschule Bremerhaven
Immatrikulationsamt
An der Karlstadt 8
D - 27568 Bremerhaven

The application form can be obtained either from the Central Student Information or the homepage of Bremerhaven University of Applied Sciences (www.hs-bremerhaven.de).

Enrolment Information:

The Admissions and Examination Office is responsible for questions about admission requirements.

Ms. Miriam Pargmann
Phone: + 49 – 471 – 4823 189
Fax: + 49 – 471 – 4823 127
E-mail: mpargmann@hs-bremerhaven.de

Closing dates for study applications:

Closing dates for applications and other deadlines are published on the University's homepage (www.hs-bremerhaven.de/Bewerbung.html) or can be obtained from the Central Student Information.

End of application period is **July 15** of a given year.

In order to be able to eventually clarify open questions within the application deadlines it is recommended to send in the application six weeks before deadline.

Lecture period:

Winter term: begin of October until end of January
Summer term: mid-March until begin of July

C.5. Important Facilities at Hochschule Bremerhaven

Library

The library of Bremerhaven is a part of the library of the state Bremen. Local students can also borrow books from the library of the University of Bremen on an inter-library exchange system.

In September 2005 the library was moved to the new "S" building. Since the enlargement of the library it has not only offered up-to-date technical literature and magazines for particular study courses but also provided students with PC-working places and self-learning areas.

Opening hours during lecture period:

Mon. – Fri.: 9:00 a.m. – 6:00 p.m.
Sat.: 9:00 a.m. – 1:00 p.m.

Opening hours during non-lecture period:

Mon. – Fri.: 9:00 a.m. – 3:00 p.m.

Additionally, it is possible to make a book reservation and to extend the lending period on the internet web page (www.suub.uni-bremen.de).

Address:

Karlsburg 7 (Building S)
D - 27568 Bremerhaven

Phone: +49 – 471 4823 – 250
Fax: +49 – 471 4823 – 252

Computer Center

The Computer Center (ZBRV), placed in building "Z", is the centre of expertise at Bremerhaven University of Applied Sciences for electronic information processing and communication technology. It provides PC-rooms (Z 2210; S 1.07) that can be used by students and members of Bremerhaven University of Applied Sciences, students from Bremerhaven with a correspondence course at the Open University Hagen and students of the Universities of the Federal State of Bremen, who already have a special VPN-account.

The PC-rooms are equipped with computers connected to a network system and having an internet access.

Opening hours:

Mon. – Fri.: 8 a.m. – 6 p.m.

At the moment, only the PC-room number Z 2210 can be used outside opening hours, though, a special key card for entering the building Z is required.

After prior consultation with the Computer Center also a PC-room number Z 2200 is at students' disposal, however, the regular classes which take place there are given priority.

Additionally, a Multimedia-Service room (Z 4110) with its cameras and video editing systems based on Apple-Power-Macs and Intel PC is available to students, if some extra individual or team work is required.

To apply for the key card, e-mail, VPN and e-learning account please contact the Computer Center (Z 2250) on the following days:

Mon. – Thurs.: 11 a.m. – 1 p.m. and
2 p.m. – 3 p.m.

The key card costs 10 € deposit and is valid to September 30th.

Laboratories

The Master degree course “Logistics Engineering and Management” provides excellently equipped technical laboratories that are used by students for practical training in the topics of transport technology, production logistics, warehouse management, transport logistics, data processing and dangerous goods and substances.

In the lab courses students will work on projects and case studies and develop application-oriented solutions to logistics problems. The students will gain relevant laboratory experience and receive a chance to apply acquired knowledge into practice.

“Transport Technology” Laboratory
Director Prof. Dr.-Ing. D. Heimann
Building K, Room 116
Phone: +49 – 471 4823 – 279

“Production Logistics” Laboratory
Director Prof. Dr.-Ing. E.-J. Ribbert
Building M, Room 2050
Phone: +49 – 471 4823 – 518

“Warehouse Logistics” Laboratory
Director Prof. Dr.-Ing. F. Wesselmann
Building Z, Room 3220
Phone: +49 – 471 4823 – 471
<http://www.lagerlogistik.hs-bremerhaven.de/>

“Transport Logistics” Laboratory
Director Prof. Dr. habil. W. Czuchra
Building Z, Room 3220
Phone: +49 – 471 4823 – 472

“Data Processing Systems” Laboratory
Director Prof. Dr.-Ing. W. Fedderwitz
Building Z, Room 3220
Phone: +49 – 471 4823 – 472

“Dangerous Goods” Laboratory
Director Prof. Dr. W. Schwanebeck
Building Z, Room 3190
Phone: +49 – 471 4823 – 468

“SAP” Laboratory
Directors Prof. Dr. Wilden, Prof. Dr. Ribbert, Prof. Dr. Viefhues

Further information about lectures in the laboratories can be found at the study schedules on the university website.

D. Imprint and Copyrights

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