Karlsruher Institut für Technologie

Module Handbook Information Engineering and Management (B.Sc.)

Summer Term 2012
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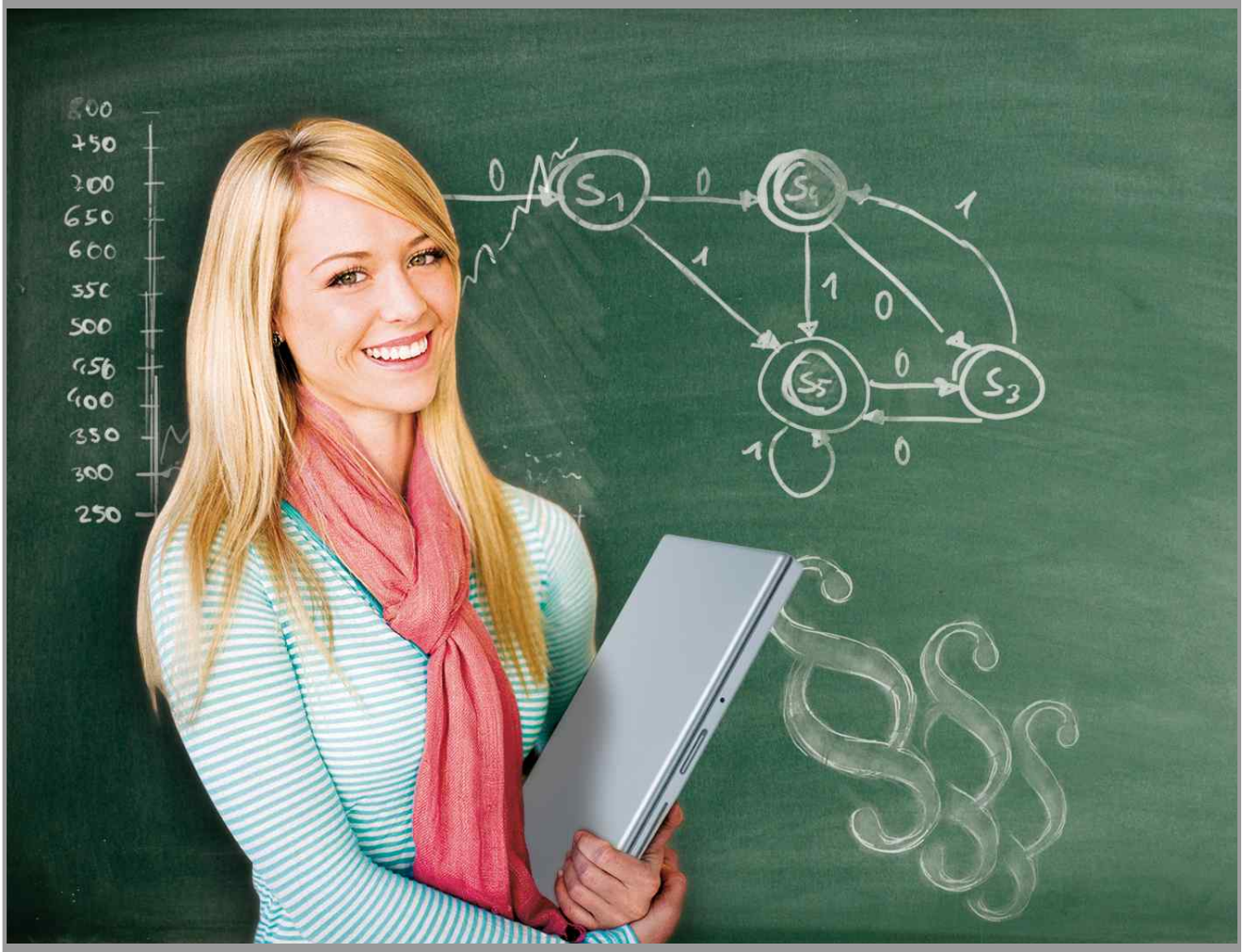
Faculty of Economics and Business Engineering
Fakultät für Informatik



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1 Structure of the Bachelor Programme in Information Engineering and Management

The Bachelor programme in *Information Engineering and Management* has 6 terms. The first four terms have a methodological orientation and provides the student with the foundations of informatics, business administration, economics and law. Terms 5 and 6 aim at the specialization and application of this knowledge. Figure 1 shows the structure of the subjects and the credits (CP) allocated to the subjects.
According to the European Credit Transfer System, one credit corresponds to a workload of 30 hours.

<table>
<tr><td colspan="9">Information Engineering and Management (B.Sc.)</td></tr>
<tr><td>Semester</td><td colspan="8">Core Programme</td></tr>
<tr><td>Subject</td><td colspan="2">INFO</td><td>BA</td><td>EC</td><td>OR</td><td>STAT</td><td>MATH</td><td>LAW</td></tr>
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<tr><td></td><td colspan="8">Internship
8 CP</td></tr>
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<table>
<tr><td>Semester</td><td colspan="7">Specialization Programme</td></tr>
<tr><td>Subject</td><td colspan="2">INFO</td><td colspan="3">BA/EC/OR</td><td colspan="2">LAW</td></tr>
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18 CP</td><td>Seminar*
3 CP</td><td>BA-Module
9 CP</td><td>Module
9 CP</td><td>Seminar*
3 CP</td><td>Module
6 CP</td><td>Seminar*
3 CP</td></tr>
<tr><td>6</td><td colspan="7">Bachelor Thesis
12 CP</td></tr>
<tr><td colspan="8">180 CP
(Core programme+ specialization programme + Bachelor thesis)</td></tr>
</table>

Seminar*: 2 out of 3 Seminars have to be chosen.

Figure 1: Structure of Bachelor Programme in Information Engineering and Management

Based on a solid mathematical education, the modules of the first four terms of the Bachelor programme in information engineering and management are allocated in the proportion 40/40/20 to informatics (informatics, applied informatics, and computer engineering), economic sciences (business administration, economics, operations research), and law. The internship prepares the student for his profession. Table 1 shows the allocation of courses to modules and the curriculum for the first four terms.

ModulID	Course	Hours per week	CP
1st Term			
IW1BWL1	Financial and Management Accounting	2/2	4.0
IW1VWL	Economics I	3/0/2	5.0
IW1MATH1	Mathematics I	4/2/2	8.0
IW1INF1	Basic Notions of Computer Science	2/1/2	5.0
IW1INF1	Programming	2/0/2	5.0
IW1JURA1	Civil Law for Beginners	4/0	4.0
			31.0
2nd Term			
IW1BWL1	Introduction to Information Engineering and Management	2/2	4.0
IW1STAT	Statistics I	4/0/2	5.0
IW1OR	Introduction to Operations Research I	2/2/2	4.5
IW1MATH2	Mathematics II	4/2/2	8.0
IW2INF2	Algorithms I	3/1/2	6.0
IW1JURA2	Advanced Civil Law	2/0	3.0
			30.5
3rd Term			
IW1BWL2	Business Administration and Management Science C	2/0/2	4.0
IW1STAT	Statistics II	4/0/2	5.0
IW1OR	Introduction to Operations Research II	2/2/2	4.5
IW2INF3	Theoretical Foundation of Computer Science	3/1	7.0
IW1INF5	Applied Informatics I	2/1	4.0
IW1JURA2	Commercial and Corporate Law	2/0	3.0
IW1JURA3	Public Law I	2/0	3.0
			30.5
4th Term			
IW1BWL2	Business Administration and Management Science B	2/0/2	4.0
IW1INF5	Applied Informatics II	2/2/2	4.0
IW2INF4	Computer Engineering	3/1/2	6.0
IW1JURA3	Public Law II	2/0	3.0
IW1JURA2	Exercises in Civil Law	2/0	3.0
IW1PRAK	Internship		8.0
			28.0
			120.0

Table 1: Curriculum in the terms 1-4

In the 3rd year (5th and 6th term) of the Bachelor programme the student must pass

1. module(s) with 18 credits in informatics
2. a module with 9 credits in the subject Business Administration
3. a module with 9 credits in the subject BA/OR/EC,
4. a module with 6 credits in law,
5. two out of the three seminar modules with 3 credits each,
6. and the bachelor thesis with 12 credits.

2 Module Handbook - a helpful guide throughout the studies

The programme exists of several **subjects** (e.g. business administration, economics, operations research). Every subject is split into **modules** and every module itself exists of one or more interrelated **courses**. The extent of every module is indicated by credit points (CP), which will be credited after the successful completion of the module. Some of the modules are **obligatory**. According to the interdisciplinary character of the programme, a great variety of **individual specialization and deepening possibilities** exists for a large number of modules. This enables the student to customize content and time schedule of the programme according to personal needs, interest and job perspective. The **module handbook** describes the modules belonging to the programme. It describes:

- the structure of the modules
- the extent (in CP),
- the dependencies of the modules,
- the learning outcomes,
- the assessment and examinations.

The module hanbook serves as a necessary orientation and as a helpful guide throughout the studies. The module handbook does not replace the **course catalogue**, which provides important information concerning each semester and variable course details (e.g. time and location of the course).

Begin and completion of a module

Every module and every course is allowed to be credited only once. The decision whether the course is assigned to one module or the other (e.g. if a course is selectable in two or more modules) is made by the student at the time of signing in for the corresponding exam. The module is **succeeded**, if the general exam of the module and/or if all of its relevant partial exams have been passed (grade min 4.0). In order to that the minimum requirement of credits of this module have been met.

General exams and partial exams

The module exam can be taken in a general exam or several partial exams. If the module exam is offered as a **general exam**, the entire content of the module will be reviewed in a single exam. If the module exam exists of **partial exams**, the content of each course will be reviewed in corresponding partial exams. The registration for the examinations takes place online via the self-service function for students. The following functions can be accessed on https://studium.kit.edu/meinsemester/Seiten/pruefungsanmeldung.aspx:

- Sign in and sign off exams
- Retrieve examination results
- Print transcript of records

For further and more detailed information also see https://zvwgate.zvw.uni-karlsruhe.de/download/leitfaden_studierende.pdf

Repeating exams

Principally, a failed exam can repeated only once. If the **repeat examination** (including an eventually provided verbal repeat examination) will be failed as well, the **examination claim** is lost. Requests for a second repetition of an exam require the approval of the examination committee. A request for a second repetition has to be made without delay after loosing the examination claim. A counseling interview is mandatory. For further information see http://www.wiwi.kit.edu/serviceHinweise.php.

Bonus accomplishments and additional accomplishments

Bonus accomplishments can be achieved on the basis of entire modules or within modules, if there are alternatives at choice. Bonus accomplishments can improve the module grade and overall grade by taking into account only the best possible combination of all courses when calculating the grades. The student has to declare a Bonus accomplishment as such at the time of registration for the exams. Exams, which have been registered as Bonus accomplishments, are subject to examination regulations. Therefore, a failed exam has to be repeated. Failing the repeat examination implies the loss of the examination claim.
Additional accomplishments are voluntarily taken exams, which have no impact on the overall grade of the student and can take place on the level of single courses or on entire modules. It is also mandatory to declare an additional accomplishment as such at the time of registration for an exam. Up to 2 modules with a minimum of 9 CP may appear additionally in the certificate. After the approval of the examination committee, it is also possible to include modules in the certificate, which are not defined in the module handbook. Single additional courses will be recorded in the transcript of records. Courses and modules, which have been declared as bonus accomplishments, can be changed to additional accomplishments.

Further information

More detailed information about the legal and general conditions of the programme can be found in the examination regulation of the programme (in the appendix).

Used abbreviations

LP/CP	Credit Points/ECTS	Leistungspunkte/ECTS
LV	course	Lehrveranstaltung
RÜ	computing lab	Rechnerübung
S	summer term	Sommersemester
Sem.	semester/term	Semester
ER/SPO	examination regulations	Studien- und Prüfungsordnung
KS/SQ	key skills	Schlüsselqualifikationen
SWS	contact hour	Semesterwochenstunde
Ü	excercise course	Übung
V	lecture	Vorlesung
W	winter term	Wintersemester

3 Actual Changes

Important changes are pointed out in this section in order to provide a better orientation. Although this process was done with great care, other/minor changes may exist. Please also check our updates on http://www.wiwi.kit.edu/lehreMHB.php#mhb_aktuell

IW3INGIS - Foundations of Information Systems (S. 57)

Anmerkungen

The courses in this module are offered irregularly, however, the exam can be taken anytime.
The lecture *Die digitale Bibliothek* is no longer offered. Examination is still possible in the summer term 2010.

IW3INALGTK - Algorithm Design (S. 63)

Bedingungen

Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1PRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.
Course Algorithmen II has to be passed.

4 Modules of term 1-4

4.1 Informatics

Module: Foundations in Informatics [IW1INF1]

Coordination: T. Schultz
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics

ECTS Credits	Cycle	Duration
10	Every 2nd term, Winter Term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24001	Basic Notions of Computer Science	2/1/2	W	5	T. Schultz
24004	Programming	2/0/2	W	5	A. Pretschner

Learning Control / Examinations
The assessment of this module consists of

1. Completion of *Basic Notions of Computer Science* [24001]
2. Completion of *Programming* [24004]

Assessment is described in the courses of this module. The overall grade is determined by weighting the grades from each course according to the number of credits.
Attention: This module is part of the so–called “orientation” examination according to §8 (1) of the examination regulation 2009. The examination for this module (including repetitions if necessary) must be passed until the end of the examination period of the third term in order not to be forced to drop out of the degree programme.

Conditions
None.

Learning Outcomes
Students should learn

- methods of defining properties and how to read and understand definitions.
- the difference between syntax and semantics
- basic concepts of discrete mathematics and informatics and the ability to apply them to problem descriptions and proofs.
- basic structures of the programming language Java and how to apply them (in particular control and simple data structures, object orientation and implementation of basic algorithms) as well as basics of programming methodology
- the ability to autonomously write executable small to medium sized executable Java programs

Content
This module and the associated courses cover an introduction to foundations in informatics as well as basic programming skills with Java. Topics in „Grundbegriffe der Informatik” are for example algorithms, formal languages, definitions, relations, functions, graphs and syntax and semantics. The discussed concepts will be exemplified by the associated exercies. Programming covers the concepts and methodology of programming using the programming language Java.
Both courses come along with exercies which apply the theoretical knowledge and reinforce them.

Module: Algorithms I [IW2INF2]

Coordination: P. Sanders, D. Wagner
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics

ECTS Credits	Cycle	Duration
6	Every 2nd term, Summer Term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24500	Algorithms I	3/1/2	S	6	M. Zitterbart

Learning Control / Examinations
The assessment of this module consists of a written exam (120 min) according to sec. 4 subsec. 2 no. 1 study and examination regulations.
The grade of the module corresponds to the grade of the written exam.

Conditions
None.

Learning Outcomes
The student is supposed to

- know and understand basic, frequently used algorithms, their conception, analysis of their efficiency, implementation, documentation and application
- be able to use their comprehension to work on new algorithmic problems
- apply the knowledge acquired in the module Grundlagen der Informatik (B.Sc. Information Engineering and Management) to non-trivial algorithms
- apply the knowledge acquired in the module “Grundbegriffe der Informatik” (Bachelor Informatics) or in “Grundlagen der Informatik” (B.Sc. Information Engineering and Management) and the mathematical methodologies learned in the mathematics lectures to solve problems, the focus being on mathematical efficiency analysis

Content
The module provides basic algorithms and data structures.
The following topics are covered in particular:

- basic terms of algorithm engineering
- asymptotic algorithm analysis (worst case, average case, probabilistic, amortised)
- data structures like arrays, heaps, queues and linked lists
- hash tables
- sorting: comparsion based algorithms (e.g. mergesort, quicksort), lower border, radix sort
- sorted sequences, search trees and selection
- graphs (representation, traversing: breadth search, deep search, shortest path, spanning trees)
- generic optimisation algorithms (greedy, dynamic programming, systematic search, local search)
- geometric algorithms

Remarks
Starting with the summer term of 2011, the certificate for the exercise is no longer required.

Module: Theoretical Informatics [IW2INF3]

Coordination: D. Wagner
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics

ECTS Credits	Cycle	Duration
7	Every 2nd term, Winter Term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24005	Theoretical Foundations of Computer Science	3/1	W	7	D. Wagner

Learning Control / Examinations
The assessment of the module consists of a written examination according to §4(2), 1 of the examination regulations. The grade of the module corresponds to the grade of the written examination. Further details see the german section.

Conditions
None.

Learning Outcomes
The student

- has a deeper insight into the fundamentals of theoretical computer science and knows the computation models and proof techniques,
- understands the limits and possibilities of computer science in relation to the solution of definable but only partially predictable problems
- knows basic aspects of computer science in contrast to specific circumstances, such as specific computers or programming languages and also can phrase general statements about the solvability of problems
- is able to apply the proof techniques learned for the specification of systems of computer science and for the systematic design of programs and algorithms

Content
There are important problems whose solutions can clearly be defined but one will never be able to calculate such a solution systematically. Other problems are “likely” to be solved only through trial and error. Other topics of the module provide the basis for circuit design, design of compilers, and many others. Most results are rigorously proved. The proof techniques learned by the way are important for the specification of systems of computer science and for the systematic design of programs and algorithms.

The module provides a deep insight into the principles and methods of theoretical computer science. In particular, this will be discussed on the basic properties of Formal Languages as foundations of programming languages and communication protocols (regular, context-free Chomsky hierarchy), machine models (finite automata, pushdown automata, Turing machines, non determinism, and relations to families of formal languages), equivalence of sufficiently powerful computation models (Church’s thesis), non computable important functions (halting problem,...), Gödel’s incompleteness theorem and introduction to complexity theory, NP-complete problems and polynomial reductions.

Module: Computer Engineering [IW2INF4]

Coordination: W. Karl
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics

ECTS Credits	Cycle	Duration
6	Every 2nd term, Summer Term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24502	Computer Organization	3/1/2	S	6	T. Asfour, R. Dillmann, J. Henkel, W. Karl

Learning Control / Examinations
The assessment consists of a written examination (60 minutes) according to sec. 4 subsec. 2, no. 1 study and examination regulations.

Conditions
None.

Learning Outcomes
The students are to be enabled to

- gain fundamental knowledge of computer organization, i.e. the architecture and the operation principle of computer systems,
- understand the relationship between hardware concepts and their effects on the software, in order to build efficient programs,
- comprehend the fundamental principles of the design process and being able to apply them, based on the understanding of the interdependencies of technology, computer concepts and applications,
- build up a computer from basic components.

Content
This course deals with the fundamentals of computer organisation; the instruction set architecture in conjunction with the discussion RISC – CISC; pipelining, pipeline constraints and methods for the resolution of pipeline conflicts; memory organization, cache memory; I/O system and interface modules; interrupt handling; bus systems; support of operating system functions: virtual memory management and protection mechanisms.

Module: Applied Informatics [IW1INF5]

Coordination: A. Oberweis, S. Tai
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics

ECTS Credits	Cycle	Duration
8	Every term	2

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2511030	Applied Informatics I - Modelling	2/1	W	4	A. Oberweis, R. Studer, S. Agarwal
2511032	Applied Informatics II - IT Systems for e-Commerce	2/1	S	4	S. Tai

Learning Control / Examinations
See german version.

Conditions
None.

Recommendations
Knowledge of the module *Foundations in Informatics* [IW1INF1] as well as *Algorithms I* [IW2INF2] is expected.

Learning Outcomes
The student should:

- Becomes familiar with relevant modelling languages for describing application domains and aspects of early software system design.
- Gains insight into methods and systems of computer science for the design and development of distributed information systems (supporting electronic business),
- is able to select, design, and apply these methods and systems in a way that is appropriate for the application context.

Content
The course *Applied Informatics I* [2511030] mainly adresses the early phases of the development of database-supported information systems, distributed systems for information services, intelligent systems and software systems in general. Main topics are modelling concepts and languages for describing application domains as well as static and dynamic aspects of early software system design. The course addresses in detail the following approaches: Entity-Relationship model, advanced aspects of UML, description logic, relational model, Petri nets, and event-driven process chains.
The consecutive course *Applied Informatics II* [2511032] covers various facets of electronic commerce which have to be supported by adequate and efficient distributed information and communication systems. After a brief introduction into e-commerce the following topics are covered: application architectures (incl. client server architectures), document description and exchange (incl. XML), enterprise middleware (incl. CORBA, Java EE), enterprise SOA (incl. Web services).

4.2 Business Administration

Module: Foundations in Business Administration [IW1BWL1]

Coordination: C. Weinhardt, M. Uhrig-Homburg
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Business Administration

ECTS Credits	Cycle	Duration
8	Every term	2

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2600002	Financial Accounting and Cost Accounting	2/2	W	4	T. Lüdecke
2540490	Introduction to Information Engineering and Management	2/2	S	4	C. Weinhardt, A. Geyer-Schulz

Learning Control / Examinations
The assessment is carried out as partial written exams (according to Section 4(2), 1 of the examination regulation) of the single courses of this module. The examinations take place at the beginning of the recess period. Re-examinations are offered at every ordinary examination date. The assessment procedures of each course of this module is defined for each course separately. The overall grade of the module is the average of the grades for each course weighted by the credits and truncated after the first decimal.

Conditions
None.

Learning Outcomes
The institutional framework and the modelling and formal description of a company's decisions play an essential role in this module. The basic idea and the foundations of static and dynamic investment rules are presented and applied to problems in procurement and materials management as well as in logistics. Modern production processes for goods and services are systematically presented. Marketing research and knowledge of the range of marketing instruments are fundamental for decisions in a competitive market environment. The foundations of corporate finance are treated with a strong emphasis of the links to the capital market. Investment rules and corporate finance are instrumental for answering questions of source and application of funds, comparable to the lending and deposit business in banking. The organisation of company and the problems of management and control constitute an other important aspect of business administration and management science. Finally, the process of value creation and distribution as well as the principles of the taxation of a company are treated with an emphasis on the analysis of the profit and loss statement.

Two case studies, namely the foundation of an innovative information service company and the process chain of a B2B direct marketing company from the customer to the producer, focus on the interdisciplinary links between legal framework, advanced information technology, and the resulting design options for business processes.

Content
The institutional framework and the modelling and formal description of a company's decisions play an essential role in this module. The basic idea and the foundations of static and dynamic investment rules are presented and applied to problems in procurement and materials management as well as in logistics. Modern production processes for goods and services are systematically presented. Marketing research and knowledge of the range of marketing instruments are fundamental for decisions in a competitive market environment. The foundations of corporate finance are treated with a strong emphasis of the links to the capital market. Investment rules and corporate finance are instrumental for answering questions of source and application of funds, comparable to the lending and deposit business in banking. The organisation of company and the problems of management and control constitute an other important aspect of business administration and management science. Finally, the process of value creation and distribution as well as the principles of the taxation of a company are treated with an emphasis on the analysis of the profit and loss statement.

Two case studies, namely the foundation of an innovative information service company and the process chain of a B2B direct marketing company from the customer to the producer, focus on the interdisciplinary links between legal framework, advanced information technology, and the resulting design options for business processes.

Module: Business Administration [IW1BWL2]

Coordination: C. Weinhardt, M. Uhrig-Homburg
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Business Administration

ECTS Credits	Cycle	Duration
8	Every term	2

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2600026	Business Administration and Management Science C	2/0/2	W	4	M. Ruckes, M. Uhrig-Homburg
2600024	Business Administration and Management Science B	2/0/2	S	4	M. Ruckes, W. Fichtner, M. Klarmann, Th. Lützkendorf, F. Schultmann

Learning Control / Examinations
The assessments of the courses *Business Administration and Management Science B* and *C* are written examinations (90 minutes each) according to §4(2), 1 of the examination regulation.
The overall grade of the module is the average of the grades for each course weighted by the credits and truncated after the first decimal.

Conditions
None.

Recommendations
It is highly recommended to fulfil this module only after completing the module *Foundations in Business Administration* [IW1BWL1].

Learning Outcomes
The student should be able to

- formulate, asses and chose strategies , and is in control of the terminology, the goals and the requirements of organisational management
- know three kinds of information asymmetry in organisations and their implications on the desing of contracts
- know the basics of the capital market theory and methods of business financing
- know the notions, functions, areas and tools of controlling
- describe the impacts and features of marketing instruments
- knows the problem formulation and theories of production management, including the areas of energy, construction, real-estate and ergonomics.
- evaluate information as a competitive factor and is in control of the terminology and the methods to asses information

Content
The institutional framework and the modelling and formal description of a company's decisions play an essential role in this module. This module contains problems in procurement and materials management as well as in logistics. Modern production processes for goods and services are systematically presented. Marketing research and knowledge of the range of marketing instruments are fundamental for decisions in a competitive market environment. The foundations of corporate finance are treated with a strong emphasis of the links to the capital market. Investment rules and corporate finance are instrumental for answering questions of source and application of funds, comparable to the lending and deposit business in banking. The organisation of company and the problems of management and control constitute an other important aspect of business administration and management science. Finally, the process of value creation and distribution as well as the principles of the taxation of a company are treated with an emphasis on the analysis of the profit and loss statement.

4.3 Economics

Module: Economics [IW1VWL]

Coordination: C. Puppe
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Economics

ECTS Credits	Cycle	Duration
5	Every 2nd term, Winter Term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2600012	Economics I: Microeconomics	3/0/2	W	5	G. Liedtke

Learning Control / Examinations
The assessment of the module is a written examination according to §4(2), 1 of the examination regulation.
The grade of the module corresponds to the grade of this examination.
Additionally, there **can** be a midterm written examen where students can improve their grades in the final examen.
Attention: This module is part of the Orientierungsprüfung according to §10 (1), SPO 2009 resp. §8 (1) SPO 2005. The examen needs to be passed until the end of the examination period of the second semester or in case of repetition until the the end of the examination period of the third semester.

Conditions
None.

Learning Outcomes
It is the main aim of this module to provide basic knowledge in economic modelling. Particularly, the student should be able to analyze market processes and the determinants of market results. Furthermore, she should be able to evaluate the effects of economic policy measures on market behavior and propose alternative but more effective policy measures.
In particular, the student should learn

- to apply simple microeconomic concepts,
- to analyze the structure of real world economic phenomena,
- to judge the possible effects of economic policy measures on the behavior of economic agents (in simple decision problems),
- to possibly suggest alternative policy measures,
- to analyze as a participant of a tutorial simple economic problems by solving written exercises and to present the results of the exercises on the blackboard,
- to become familiar with the basic literature on microeconomics.

The student should gain basic knowledge in order to help in practical problems

- to analyze the structure of microeconomics relationships and possibly to present own problem solutions,
- solve simple economic decision problems.

Content
In the two main parts of the course problems of microeconomic decision making (household behavior, firm behavior) and problems of commodity allocation on markets (market equilibria and efficiency of markets) as well are discussed. In the final part of the course basics of imperfect competition (oligopolistic markets) and of game theory are presented.

Remarks
When personal resources are available students' tutorials will be established.

4.4 Operations Research

Module: Introduction to Operations Research [IW1OR]

Coordination: S. Nickel, O. Stein, K. Waldmann
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Operations Research

ECTS Credits	Cycle	Duration
9	Every 2nd term, Summer Term	2

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2550040	Introduction to Operations Research I	2/2/2	S	4,5	S. Nickel, O. Stein, K. Waldmann
2530043	Introduction to Operations Research II	2/2/2	W	4,5	S. Nickel, O. Stein, K. Waldmann

Learning Control / Examinations
The assessment of the module is carried out by a written examination (120 minutes) according to Section 4(2), 1 of the examination regulation.
In each term (usually in March and July), one examination is held for both courses.
The overall grade of the module is the grade of the written examination.

Conditions
None.

Recommendations
Mathematics I und II. Programming knowledge for computing exercises.
It is strongly recommended to attend the course *Introduction to Operations Research I* [2550040] before attending the course *Introduction to Operations Research II* [2530043].

Learning Outcomes
The student

- names and describes basic notions of the essential topics in Operations Research (Linear programming, graphs and networks, integer and combinatorial optimization, nonlinear programming, dynamic programming and stochastic models),
- knows the indispensable methods and models for quantitative analysis,
- models and classifies optimization problems and chooses the appropriate solution methods to solve optimization problems independently,
- validates, illustrates and interprets the obtained solutions.

Content
This module treats the following topics: linear programming, network models, integer programming, nonlinear programming, dynamic programming, queuing theory, heuristic models.
This module forms the basis of a series of advanced lectures with a focus on both theoretical and practical aspects of Operations Research.

4.5 Statistics

Module: Statistics [IW1STAT]

Coordination: S. Höse
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Statistics

ECTS Credits	Cycle	Duration
10	Every term	2

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2600008	Statistics I	4/0/2	S	5	S. Höse
2600020	Statistics II	4/0/2	W	5	S. Höse

Learning Control / Examinations
The assessment of this module consists of two written examinations according to Section 4(2), 1 of the examination regulation (one for each of the courses Statistics I and II).
The overall grade of the module is the average of the grades of these two written examinations.

Conditions
None.

Recommendations
To some extend knowledge of the content of the module Mathematics is assumed. Therefore it is advisable to pass the course *Mathematik I für Informationswirtschaft* [01360] before attending the module *Statistics* [IW1STAT].
It ist recommended to attend the course *Statistics I* [25008/25009] before the course *Statistics II* [25020/25021].
Each course is complemented by an exercise, a tutorium and a computing laboratory. It highly recommended to attend these too.

Learning Outcomes

Content
The module contains the fundamental methods and scopes of Statistics.
A. Descriptive Statistics: univariate und bivariate analysis
B. Probability Theory: probability space, conditional and product probabilities, transformation of probabilities, parameters of location and dispersion, most importand discrete and continuous distributions, covariance and correlation, convolution and limit distributions
C. Theory of estimation and testing: suffiency of statistics, point estimation (optimality, ML-method), internal estimations, theory of tests (optimality, most important examples of tests)

4.6 Law

Module: Introduction to Civil Law [IW1JURA1]

Coordination: T. Dreier
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Law

ECTS Credits	Cycle	Duration
4	Every 2nd term, Winter Term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24012	Civil Law for Beginners	4/0	W	4	T. Dreier, P. Sester

Learning Control / Examinations
The assessment of this module consists of a written examination (90 min) according to § 4(2), 1 of the examination regulation. The grade of the module is the grade of the written examination.

Conditions
None.

Learning Outcomes
The student

Content
The module genrally introduces into law. What is law, why are legal rules valid, and what is the role of law in conjunction with social behaviour, technological and market developments? What is the relationship between law and justice? Moreover, the distinction between civil law, public law and criminal law will be highlighted. The basiscs of jurisdiction, international conflicts and alternative dispute settlement will be discussed. The main focus of the course is on the fundamental notions of civil law as defined and regulated in the German Civil Code (Bürgerliches Gesetzbuch, BGB), such as subjects and objects of law, legally binding declarations, agency, the formation of contracts, standard terms and conditions, consumer protection, performance of contractual promises. The course ends with an outlook to the law of contracts and property law.

Module: Commercial Law [IW1JURA2]

Coordination: P. Sester
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Law

ECTS Credits	Cycle	Duration
9	Every term	2

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24504	Advanced Civil Law	2/0	S	3	T. Dreier, P. Sester
24011	Commercial and Corporate Law	2/0	W	3	P. Sester
24017	Exercises in Civil Law	2/0	W/S	3	P. Sester, T. Dreier

Learning Control / Examinations
The assessment of this module consists of a written examination according to § 4(2), 1 of the examination regulation.
The grade of the module is the grade for the written examination.

Conditions
None.

Learning Outcomes
The student

- possesses in-depth knowledge of the general and specific law of obligations and of property law;
- is able to penetrate the interaction of the statutory provisions of the German Civil Code (different types of contracts and the respective rules on liability; performance; impairment of performance; the different ways by which property may be transferred and the *in rem* security rights) and of commercial and company law (especially in respect of the peculiarities of commercial transactions, commercial agency, the law of merchants as well as German law of business organizations);
- in the Private Law Exercises (”Privatrechtliche Übung”) gains the skill to solve legal problems using legal methods.

Content
The module is based on the module “Introduction in Civil Law”. The students get profound Knowledge in special contract types of the German Civil Law as well as in complex constructions in business law. In addition to that the module wants to impart the competence in solving legal problems with legal methods.

Module: Constitutional and Administrative Law [IW1JURA3]

Coordination: I. Spiecker genannt Döhmann
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Law

ECTS Credits	Cycle	Duration
6	Every 2nd term, Winter Term	2

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24016	Public Law I - Basic Principles	2/0	W	3	I. Spiecker genannt Döhmann
24520	Public Law II - Public Economic Law	2/0	S	3	I. Spiecker genannt Döhmann

Learning Control / Examinations
The assessment of this module consists of a written examination according to § 4(2), 1 of the examination regulation for each course.
The grade of the module is the average of the single grades weighted by the related credit points.

Conditions
None.

Recommendations

- Parallel to the lectures tutoria are offered in which legal thinking and argumentation is practised. Their attendance is strongly recommended.
- During the semester, test exams to each lecture are offered with extensive coaching. During the lecture-free time, a Q-and-A-lecture is offered.
- Details on the homepage of the ZAR (www.kit.edu/zar)
- The course *Public Law I* [24016] should be attend before the course *Public Law II* [24520].

Learning Outcomes
The lecture covers the core principles of public law. Students shall become acquainted with the basics of constitutional law, the fundamental rights which route governmental actions and the entire legal system, as well as possibilities of actions and instruments (especially law, administrative act, public-private contract) of the public authority. Furthermore the distinction between public and private law will be clarified. Moreover, possibilities of legal protection regarding administrative behavior will be addressed. Students shall learn to classify problems in public law and to solve (simple) administrative and constitutional cases.

Content
The course covers core material of constitutional and administrative law. It begins with the differentiation between public and private law. In the constitutional law part, the course will concentrate on the rule of law and individual rights, especially those protecting communication and entrepreneurship. The administrative law part will explain the different legal instruments of the administration how to act (rule, order, contract, etc.) and their propositions. Also, court proceedings to sue the administrative will be discussed. Students will learn the technique how to solve (simple) administrative and constitutional cases

4.7 Mathematics

Module: Mathematics I [IW1MATH1]

Coordination: C. Wieners
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Mathematics

ECTS Credits	Cycle	Duration
8	Every 2nd term, Winter Term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
01360	Mathematics I for Information Engineering and Management	4/2/2	W	8	A. Rieder, C. Wieners

Learning Control / Examinations
The assessment in this module consists of

1. a graded certificate of exercise following §4(2), 3 of the examination regulation from the exercises to mathematics I (1 credit) and
2. a written examination of 60 minutes on the lectures mathematics I following §4(2), 1 of the examination regulations (7 credits).

The grade of the module is computed as a weighted sum, where the grade of the written examiniation has a weight of 80% and the certificate a weight of 20%.

Conditions
None.

Learning Outcomes
Mathematical models are an important part in economical sciences. Therefore, the students need a basic knowledge in mathematics. The aim is the instruction in a comprehension of basic methods in analysis and linear algebra.
The students learn

- to use simple concepts and structures in mathematics;
- to recognize the mathematical structure of practical applications and to solve in simple cases mathematical problems;
- to comprehend the mathematical structure of more complex applications;
- to understand the mathematical basics to develop mathematical models for applications in cooperation with experts;
- to explain as a group member in the tutorial elementary mathematical structures and to stimulate in the discussion of examples the success of the group;
- to be in time for the tutorial group and for the preparation of homeworks;
- to work with basic mathematical literature.

The provides the foundations for

- comprehending the mathematical structure of more complex applications;
- developing mathematical models for applications in cooperation with experts;
- constructing algorithmical solutions of mathematical models for applications in cooperation with experts.

Content
The lectures mathematics I and II give an overview in basic mathematical knowledge which is required to understand modern computer science and economical sciences. Part I consist of linear algebra including the basic algebraic structures, vector spaces and linear mappings. Many algebraic concepts are important for computer science. Part II consists of analysis including an introduction into the calculus of functions of one or several variables.

Remarks
None.

Module: Mathematics II [IW1MATH2]

Coordination: C. Wieners
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Mathematics

ECTS Credits	Cycle	Duration
8	Every 2nd term, Summer Term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
01877	Mathematics II for Information Engineering and Management	4/2/2	S	8	A. Rieder, C. Wieners

Learning Control / Examinations
The assessment in this module consists of

1. a graded certificate of exercise following §4(2), 3 of the examination regulation from the exercises to mathematics II and
2. a written examination of 60 minutes on the lectures mathematics II following §4(2), 1 of the examination regulations.

The grade of the module is computed as a weighted sum, where the grade of the written examiniation has a weight of 80% and the certificate a weight of 20%.

Conditions
None.

Learning Outcomes
Mathematical models are an important part in economical sciences. Therefore, the students need a basic knowledge in mathematics. The aim is the instruction in a comprehension of basic methods in analysis and linear algebra.
The students learn

- to use simple concepts and structures in mathematics;
- to recognize the mathematical structure of practical applications and to solve in simple cases mathematical problems;
- to comprehend the mathematical structure of more complex applications;
- to understand the mathematical basics to develop mathematical models for applications in cooperation with experts;
- to explain as a group member in the tutorial elementary mathematical structures and to stimulate in the discussion of examples the success of the group;
- to be in time for the tutorial group and for the preparation of homeworks;
- to work with basic mathematical literature.

The provides the foundations for

- comprehending the mathematical structure of more complex applications;
- developing mathematical models for applications in cooperation with experts;
- constructing algorithmical solutions of mathematical models for applications in cooperation with experts.

Content
The lectures mathematics I and II give an overview in basic mathematical knowledge which is required to understand modern computer science and economical sciences. Part I consist of linear algebra including the basic algebraic structures, vector spaces and linear mappings. Many algebraic concepts are important for computer science. Part II consists of analysis including an introduction into the calculus of functions of one or several variables.

5 Modules of term 5-6

5.1 Law

Module: Intellectual Property and Data Protection [IW3JURA]

Coordination: T. Dreier
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Law (Specialization)

ECTS Credits	Cycle	Duration
6	Every 2nd term, Winter Term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24070	Industrial Property and Copyright Law	2/0	W	3	T. Dreier
24018	Data Protection Law	2/0	W	3	I. Spiecker genannt Döhmann

Learning Control / Examinations

Conditions
From the law modules in the core programme, *Introduction to Civil Law* [IW1INJURA1], *Commercial Law* [IW1INJURA2], and *Constitutional and Administrative Law* [IW1INJURA2], 2 out of 3 have to be completed successfully.

Learning Outcomes

Content
Building onto what the students have learned in law during the first two years of Bachelor studies, the module *Law* in the third Bachelor years has the purpose of both deepening and specialising the legal studies in areas of practical importance for information economics and management...

5.2 Business Administration

Module: eBusiness and Service Management [IW3BWLISM1]

Coordination: C. Weinhardt
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Business Administration (Specialization)

ECTS Credits	Cycle	Duration
9	Every term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2595466	eServices	2/1	S	5	C. Weinhardt, H. Fromm, J. Kunze von Bischhoffshausen
2590452	Management of Business Networks	2/1	W	4,5	C. Weinhardt, J. Kraemer
2540454	eFinance: Information Engineering and Management for Securities Trading	2/1	W	4,5	R. Riordan
2540478	Special Topics in Information Engineering & Management	3	W/S	4,5	C. Weinhardt

Learning Control / Examinations
The assessment is carried out as partial exams (according to Section 4 (2), 1-3 SPO) of the single courses of this module, whose sum of credits must meet the minimum requirement of credits of this module. The assessment procedures are described for each course of the module separately.
The overall grade of the module is the average of the grades for each course weighted by the credits and truncated after the first decimal.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.

Learning Outcomes
The students

- understand the strategic and operative design of information and information products,
- analyze the role of information on markets,
- evaluate case studies regarding information products,
- develop solutions in teams.

Content
This module gives an overview of the mutual dependencies of strategic management and information systems. The central role of information is exemplified by the structuring concept of the *information life cycle*. The single phases of this life cycle from generation over allocation until dissemination and use of the information are analyzed from a business and microeconomic perspective, applying classical and new theories. The state of the art of economic theory on aspects of the information life cycle are presented. The lecture is complemented by exercise courses.
The courses “Management of Business Networks”, “eFinance: Information engineering and management in finance” and “”eServices” constitute three different application domains in which the basic principles of the Internet Economy are deepened. In the course “Management of Business Networks” the focus is set on the strategic aspects of management and information systems. It is held in English and teaches parts of the syllabus with the support of a case study elaborated with Lecturers from Concordia University, Montreal, or if applicable, Rotterdam School of Management. Thus the matter of strategic enterprise networks, a.k.a. smart business networks is also analysed by employing an international perspective.
The course “eFinance: information engineering and management for securities tradingprovides theoretically profound and also practical-oriented background about the functioning of international financial markets. The focus is placed on the economic and technical design of markets as information processing systems.
In “eServices” the increasing impact of electronic services compared to the traditional services is outlined. The Information- und Communication Technologies enable the provision of services, which are mainly characterized by interactivity and individuality. This course provides basic knowledge about the development and management of ICT-based servies.

The theortic fundamentals of Information Engineering and Management can be enriched by a practical experience in Special Topics in Information Engineering and Management. Any practical Seminar at the IM can be chosen for the course Special Topics in Information Engineering and Management.

Remarks
All practical Seminars offered at the IM can be chosen for *Special Topics in Information Engineering & Management*. Please update yourself on www.iism.kit.edu/im/lehre

Module: Supply Chain Management [IW3BWLISM2]

Coordination: S. Nickel
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Business Administration (Specialization)

ECTS Credits	Cycle	Duration
9	Every term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2590452	Management of Business Networks	2/1	W	4,5	C. Weinhardt, J. Kraemer
2540496	Management of Business Networks (Introduction)	2	W	3	C. Weinhardt, J. Kraemer
2550486	Facility Location and Strategic Supply Chain Management	2/1	S	4,5	S. Nickel
2118078	Logistics - Organisation, Design, and Control of Logistic Systems	3/1	S	6	K. Furmans
2118090	Quantitative Methods for Supply Chain Risk Management	3/1	W	6	A. Cardeneo
2550488	Tactical and Operational Supply Chain Management	2/1	W	4,5	S. Nickel

Learning Control / Examinations
The assessment is carried out as partial exams (according to Section 4 (2), 1-3 SPO) of the single courses of this module, whose sum of credits must meet the minimum requirement of credits of this module. The assessment procedures are described for each course of the module separately.
The overall grade of the module is the average of the grades for each course weighted by the credits and truncated after the first decimal.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.

Recommendations
It is recommended that exactly one out of the lectures

- *Management of Business Networks*
- *Management of Business Networks (Introduction)*

is taken.

Learning Outcomes
The students

- are able to understand and evaluate the control of cross-company supply chains based on a strategic and operative view,
- are able to analyse the coordination problems within the supply chains,
- are able to identify and integrate adequate information system infrastructures to support the supply chains,
- are able to apply theoretical methods from the operations research and the information management,
- learn to elaborate solutions in a team

Content
The module “Supply Chain Management” gives an overview of the mutual dependencies of information systems and of supply chains spanning several enterprises. The specifics of supply chains and their information needs set new requirements for the operational information management. In the core lecture “Management of Business Networks” the focus is set on the strategic aspects of management and information systems. The course is held in English and teaches parts of the syllabus with the support of a case study elaborated with Prof Kersten from Concordia University, Montreal, Canada. The course MBN introduction is consisting out of the first part of the regular MBN lecture, but as it has less credits will not include the analysis of the case study.

The module is completed by an elective course addressing appropriate optimization methods for the Supply Chain Management and for modern logistic approaches.

Remarks
The planned lectures in the next terms can be found on the websites of the respective institutes IISM, IFL and IOR.

Module: eFinance [IW3BWLISM3]

Coordination: C. Weinhardt
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Business Administration (Specialization)

ECTS Credits	Cycle	Duration
9	Every term	2

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2540454	eFinance: Information Engineering and Management for Securities Trading	2/1	W	4,5	R. Riordan
2511402	Intelligent Systems in Finance	2/1	S	5	D. Seese
2530550	Derivatives	2/1	S	4,5	M. Uhrig-Homburg
2530296	Exchanges	1	S	1,5	J. Franke
2530570	International Finance	2	S	3	M. Uhrig-Homburg, Walter

Learning Control / Examinations
The assessment is carried out as partial exams (according to Section 4 (2), 1-3 SPO) of the core course and further single courses of this module, whose sum of credits must meet the minimum requirement of credits of this module. The assessment procedures are described for each course of the module separately.
The overall grade of the module is the average of the grades for each course weighted by the credits and truncated after the first decimal.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.

Learning Outcomes
The students

- are able to understand and analyse the value creation chain in stock broking,
- are able to adequatly identify, design and use methods and systems to solve problems in finance,
- are able to evaluate and criticize investment decisions by traders,
- are able to apply theoretical methods of econometrics,
- learn to elaborate solutions in a team.

Content
The module “eFinance: Information engineering and management in finance” addresses current problems in the finance sector. It is investigated the role of information and knowledge in the finance sector and how information systems can solve or extenuate them. Speakers from practice will contribute to lectures with their broad knowledge. Core courses of the module deal with the background of banks and insurance companies and the electronic commerce of stocks in global finance markets. In addtion the course Derivatives offers an insight into future and forward contracts as well as the assesment of options. Exchanges and International Finance are also alternatives which provide a suplementary understanding for capital markets.
Information management topics are in the focus of the lecture “eFinance: information engineering and management for securities trading”. For the functioning of the international finance markets, it is necessary that there is an efficient information flow. Also, the regulatory frameworks play an important role. In this context, the role and the functioning of (electronic) stock markets, online brokers and other finance intermediaries and their platforms are presented. Not only IT concepts of German finance intermediaries are presented, but also international system approaches will be compared. The lecture is supplemented by speakers from the practice (and excursions, if possible) coming from the Deutsche Börse and the Stuttgart Stock Exchange.

Remarks
The current seminar courses for this semester, which are complementary to this module, are listed on following webpage: the http://www.iism.kit.edu/im/lehre

Module: CRM and Service Management [IW3BWLISM4]

Coordination: A. Geyer-Schulz
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Business Administration (Specialization)

ECTS Credits	Cycle	Duration
9	Every term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2540508	Customer Relationship Management	2/1	W	4,5	A. Geyer-Schulz
2540522	Analytical CRM	2/1	S	4,5	A. Geyer-Schulz
2540520	Operative CRM	2/1	W	4,5	A. Geyer-Schulz

Learning Control / Examinations
The assessment is carried out as partial exams (according to Section 4(2) of the examination regulation) of the single courses of this module, whose sum of credits must meet the minimum requirement of credits of this module. Therby every leture is examined by a written exam (according to Section 4(2), 1 of the examination regulation) and by succcessful completion of exercises (according to Section 4 (2), 3 of the examination regulation).
The grades of the individual lectures consists of the grade of the written exam (approximately 90 percent resp. 100 of 112 points) and of the exercise performance (approximately 10 percent resp. 12 of 112 points). In the case of passing the written exam (50 points) the points of the exercise performance will be added to the points of the written exam. The assessment procedures are described for each course of the module seperately.
The overall grade of the module is the average of the grades for each course weighted by the credits and truncated after the first decimal.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.

Learning Outcomes
The student

- understands service management as the managerial foundation of customer relationship management and the resulting implications for strategic management, the organisational structure, and the functional areas of the comapany,
- develops and designs service concepts and service systems on a conceptual level,
- works in teams on case studies and respects project dates, integrates international literature of the discipline,
- knows the current developments in CRM in science as well as in industry,
- knows the scientific methods (from business administration, statistics, informatics) which are most relevant for analytic CRM and he autonomously applies these methods to standard cases,
- designs, implements, and analyzes operative CRM processes in concrete application domains (e.g. campaign management, call center management, . . .).

Content
In the module *CRM and Service Management* [IW3BWLISM4] we teach the principles of modern customer-oriented management and its support by system architectures and CRM software packages. Choosing customer relationship management as a company's strategy requires service management and a strict implmentation of service management in all parts of the company. For operative CRM we present the design of customer-oriented, IT-supported business processes based on business process modelling and we explain these processes in concrete application scenarios (e.g. marketing campaign management, call center management, sales force management, field services, . . .).
Analytic CRM is dedicated to improve the use of knowledge about customers in the broadest sense for decision-making (e.g. product-mix decisions, bonus programs based on customer loyality, . . .) and for the improvement of services. A requirement for this is the tight integration of operative systems with a data warehouse, the development of customer-oriented and flexible reporting systems, and – last but not least – the application of statistical methods (clustering, regression, stochastic models, . . .).

Remarks
The lecture *Customer Relationship Management* [2540508] is given in English.

Module: Specialization in Customer Relationship Management [IW3BWLISM5]

Coordination: A. Geyer-Schulz
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Business Administration (Specialization)

ECTS Credits	Cycle	Duration
9	Every term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2540522	Analytical CRM	2/1	S	4,5	A. Geyer-Schulz
2540520	Operative CRM	2/1	W	4,5	A. Geyer-Schulz
26240	Competition in Networks	2/1	W	4,5	K. Mitusch
2595466	eServices	2/1	S	5	C. Weinhardt, H. Fromm, J. Kunze von Bischhoffshausen

Learning Control / Examinations
The assessment is carried out as partial exams (according to Section 4(2), 1 and 3 of the examination regulation) of the single courses of this module, whose sum of credits must meet the minimum requirement of credits of this module. The assessment procedures are described for each course of the module seperately.
The overall grade of the module is the average of the grades for each course weighted by the credits and truncated after the first decimal.

Conditions

- Successful completion of the modules in semester 1–4 except for up to two modules is required. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.
- It is only possible to choose this module in combination with the module *CRM and Servicemanagement* [IW3BWLISM4]. The module is passed only after the final partial exam of *CRM and Servicemanagement* is additionally passed.
- At least, one of the courses *Analytic CRM* [2540522] and *Operative CRM* [2540520] has to be taken.

Learning Outcomes
The student

- knows the scientific methods (from business administration, statistics, informatics) which are most relevant for analytic CRM and he autonomously applies these methods to standard cases,
- gains an overview of the market for CRM software,
- designs, implements, and analyzes operative CRM processes in concrete application domains (e.g. campaign management, call center management, . . .),
- is aware of the problems of protecting the privacy of customers and the implications of privacy law.

Content
In this module, analsis methods and techniques for the management and improvement of customer relations are presented. Furthermore, modelling, implementation, introduction, change, analysis and valuation of operative CRM processes are treated. Regaring the first part, we teach analysis methods and techniques suitable for the management and improvement of customer relations. For this goal we treat the principles of customer- and service-oriented management as the foundation of successful customer relationship management. In addition, we show how knowledge of the customer can be used for decision-making at an aggregate level (e.g. planning of sortiments, analysis of customer loyality, . . .). A basic requirement for this is the integration and collection of data from operative processes in a suitably defined data-warehouse in which all relevant data is kept for future analysis. The process of transfering data from the operative systems into the data warehouse is known as the ETL process (Extraction / Translation / Loading). The process of modelling a data-warehouse as well as the so-called extraction, translation, and loading process for building and maintaining a data-warehouse are discussed in-depth. The data-warehouse serves as a base for flexible management reporting. In addition, various statistic methods (e.g. cluster analysis, regression analysis, stochastic models, . . .) are presented which help in computing suitable key performance indicators or which support decision-making.
Regaring the opervative part, we emphasize the design of operative CRM processes. This includes the modelling, implementation, introduction and change, as well as the analysis and evaluation of operative CRM processes. Petri nets and their extensions

are the scientific foundation of process modelling. The link of Petri nets to process models used in industry as e.g. UML activity diagrams is presented. In addition, a framework for process innovation which aims at a radical improvement of key business processes is introduced. The following application areas of operative CRM processes are presented and discussed:

- Strategic marketing processes
- Operative marketing processes (campaign managament, permission marketing, . . .)
- Customer service processes (sales force management, field services, call center management, . . .)

Module: Strategy and Organization [IW3BWLUO1]

Coordination: H. Lindstädt
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Business Administration (Specialization)

ECTS Credits	Cycle	Duration
9	Every term	2

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2577900	Management and Strategy	2/0	S	4	H. Lindstädt
2577902	Managing Organizations	2/0	W	4	H. Lindstädt
2577907	Special Topics in Management: Management and IT	1/0	W/S	2	H. Lindstädt

Learning Control / Examinations
The assessment is carried out as partial written exams (according to Section 4(2), 1 of the examination regulation) of the single courses of this module, whose sum of credits must meet the minimum requirement of credits of this module. The examinations are offered every semester. Re-examinations are offered at every ordinary examination date. The assessment procedures are described for each course of the module seperately.
The overall grade of the module is the average of the grades for each course weighted by the credits and truncated after the first decimal.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.

Learning Outcomes

Content

Module: Industrial Production I [IW3BWLIIP1]

Coordination: F. Schultmann
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Business Administration (Specialization)

ECTS Credits	Cycle	Duration
9	Every term	2

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2581950	Fundamentals of Production Management	2/2	S	5,5	F. Schultmann
2581960	Material Flows in Industrial Production	2/0	W	3,5	F. Schultmann, M. Fröhling
2581996	Logistics and Supply Chain Management	2/0	W	3,5	F. Schultmann

Learning Control / Examinations
The module contains “Fundamentals of Production Management” [2581950] and one optional course. The examination will be in form of individual written exams acc. to §4(2), 1 ER. Exams are offered in every semester and can be re-examined at every ordinary examination date.
The overall modular grade is calculated by weighing the individual grades with the according credit points. The grade will be truncated after the first decimal. Additional results may be considered on request.Assessment procedures are described separately for each course of the module.

Conditions
Specific precondition “Information Engineering and Management” (B.Sc.): Successful passing of all modules in semesters 1-4 (keys [IW1. . .]) with at maximum two modules left to complete, not considering the internship [IW1EXPRAK] and “Business and Public Law” [IW1INJURA] modules.
The course “Fundamentals of Production Management” [2581950] and one additional activity have to be chosen.

Recommendations
All courses are specifically designed to be taken independently.
Bearing in mind the master programme, we recommend combining this module with “Industrial Production II” [WW4BWLIIP2] and/or “Industrial Production III” [WW4BWLIIP6].

Learning Outcomes

- Students shall be aware of the important role of industrial production and logistics for production management.
- Students shall use relevant concepts of production management and logistics in an adequate manner.
- Students shall be able to reflect on decision principles in firms and their circumstances in the light of the production management aspects studied.
- Students shall be proficient in describing essential tasks, difficulties and solutions to problems in production management and logistics
- Students shall be able to describe relevant approaches of modeling production and logistic systems.
- Students shall be aware of the important role of material and energy-flows in production systems.
- Students shall be proficient in using exemplary methods for solving selected problems.

Content
This module is designed to introduce students into the wide area of industrial production and logistics management. It focuses on strategic production management under the aspect of sustainability. The courses use interdisciplinary approaches of systems, also theory to describe the central tasks of industrial production management and logistics. Herein, attention is drawn upon strategic corporate planning, research and development as well as site selection. Students will obtain knowledge in solving internal and external transport and storage problems with respect to supply chain management and disposal logistics.

Module: Energy Economics [IW3BWLIIP2]

Coordination: W. Fichtner
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Business Administration (Specialization)

ECTS Credits	Cycle	Duration
9	Every term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2581010	Introduction to Energy Economics	2/2	S	5,5	W. Fichtner
2581012	Renewable Energy Sources - Technologies and Potentials	2/0	W	3,5	R. McKenna
2581005	Corporate Governance in Energy Economics	2/0	S	3,5	H. Villis
2581959	Energy Policy	2/0	S	3,5	M. Wietschel

Learning Control / Examinations
The assessment is carried out as partial written exams (according to Section 4(2), 1 of the examination regulation) about the lecture *Introduction into Energy Economics* [2581010] and one optional lecture of the module. The examinations are offered every semester. Re-examinations are offered at every ordinary examination date. The assessment procedures are described for each course of the module seperately.
The overall grade of the module is the average of the grades for each course weighted by the credits and truncated after the first decimal.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.
The lecture *Introduction into Energy Economics* [2581010] has to be examined.

Learning Outcomes

Content
Introduction to Energy Economics
Renewable Energies
Corporate Governance in Energy Economics
Energy Policy

Remarks
Additional courses (e.g. from other universities) might be accredited upon request at the institute.

Module: Essentials of Finance [IW3BWLFBV1]

Coordination: M. Uhrig-Homburg, M. Ruckes
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Business Administration (Specialization)

ECTS Credits	Cycle	Duration
9	Every 2nd term, Summer Term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2530575	Investments	2/1	S	4,5	M. Uhrig-Homburg
2530216	Financial Management	2/1	S	4,5	M. Ruckes

Learning Control / Examinations
The assessment is carried out as partial written exams (according to Section 4(2), 1 of the examination regulation) of the single courses of this module, whose sum of credits must meet the minimum requirement of credits of this module. The examinations are offered every semester. Re-examinations are offered at every ordinary examination date. The assessment procedures are described for each course of the module seperately.
The overall grade of the module is the average of the grades for each course weighted by the credits and truncated after the first decimal.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.

Learning Outcomes
The student

- has fundamental skills in modern finance
- has fundamental skills to support investment decisions on stock, bond and derivative markets
- applies concrete models to assess investment decisions on financial markets as well as corporate investment and financing decisions.

Content
The module *Essentials of Finance* deals with fundamental issues in modern finance. The courses discuss fundamentals of the valuation of stocks. A further focus of this module is on modern portfolio theory and analytical methods of capital budgeting and corporate finance.

Module: Risk and Insurance Management [IW3BWLFBV3]

Coordination: U. Werner
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Business Administration (Specialization)

ECTS Credits	Cycle	Duration
9	Every term	2

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2550055	Principles of Insurance Management	3/0	S	4,5	U. Werner
2530326	Enterprise Risk Management	3/0	W	4,5	U. Werner

Learning Control / Examinations
The assessment is carried out as partial exams (according to Section 4 (2), 1-3 SPO) of the single courses of this module, whose sum of credits must meet the minimum requirement of credits of this module. The lectures are examined by oral presentations and related term papers in the context of the lectures. Furthermore, there is a final oral examination.

The grade of each examination consists of the oral presentation and the term paper (50 percent) and the oral examination (50 percent). The overall grade of the module is the average of the grades for each course weighted by the credits and truncated after the first decimal.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.

Learning Outcomes
See German version.

Content
See German version.

Module: Insurance Markets and Management [IW3BWLFBV4]

Coordination: U. Werner
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Business Administration (Specialization)

ECTS Credits	Cycle	Duration
9	Every term	2

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2550055	Principles of Insurance Management	3/0	S	4,5	U. Werner
2530323	Insurance Marketing	3/0	S	4,5	E. Schwake
2530050	Private and Social Insurance	2/0	W	2,5	W. Heilmann, K. Besserer
2530350	Current Issues in the Insurance Industry	2/0	S	2,5	W. Heilmann
2530353	International Risk Transfer	2/0	S	2,5	W. Schwehr
INSGAME	Insurance Management Game	0/2	W	3	U. Werner

Learning Control / Examinations
The assessment is carried out as partial exams (according to Section 4 (2), 1-3 SPO) of the core course and further single courses of this module, whose sum of credits must meet the minimum requirement of credits of this module. The assessment procedures are described for each course of the module separately.
The overall grade of the module is the average of the grades for each course weighted by the credits and truncated after the first decimal.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.

Learning Outcomes
See German version.

Content
See German version.

Remarks
This module is not offered anymore. Exams needed to complete this module are offered until end of WS 2012/13 /

Module: Topics in Finance I [IW3BWLFBV5]

Coordination: M. Uhrig-Homburg, M. Ruckes
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Business Administration (Specialization)

ECTS Credits	Cycle	Duration
9	Every term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2530210	Cost and Management Accounting	2/1	S	4,5	T. Lüdecke
2530232	Financial Intermediation	3	W	4,5	M. Ruckes
2530550	Derivatives	2/1	S	4,5	M. Uhrig-Homburg
2530296	Exchanges	1	S	1,5	J. Franke
2530299	Business Strategies of Banks	2	W	3	W. Müller
2530570	International Finance	2	S	3	M. Uhrig-Homburg, Walter
2540454	eFinance: Information Engineering and Management for Securities Trading	2/1	W	4,5	R. Riordan
2561129	Specific Aspects in Taxation	3	W	4,5	B. Wigger

Learning Control / Examinations
The assessment is carried out as partial exams (according to Section 4(2) of the examination regulation) of the single courses of this module, whose sum of credits must meet the minimum requirement of credits of this module. The examinations are offered every semester. Re-examinations are offered at every ordinary examination date. The assessment procedures are described for each course of the module seperately.
The overall grade of the module is the average of the grades for each course weighted by the credits and truncated after the first decimal.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.
It is only possible to choose this module in combination with the module *Essentials in Finance* [IW3BWLFBV1]. The module is passed only after the final partial exam of *Essentials in Finance* is additionally passed.

Learning Outcomes
The student

- has advanced skills in modern finance
- is able to apply these skills in practice in the fields of finance and accounting, financial markets and banking

Content
The module *Topics in Finance I* is based on the module *Essentials of Finance.* The courses deal with advanced issues concerning the fields of finance and accounting, financial markets and banking from a theoretical and practical point of view.

Module: Sustainable Construction [IW3BWLOOW1]

Coordination: T. Lützkendorf
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Business Administration (Specialization)

ECTS Credits	Cycle	Duration
9	Every 2nd term, Winter Term	2

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
26404w	Design, Construction and Assessment of Green Buildings I	2/1	W	4,5	T. Lützkendorf
2585404/2586404	Sustainability Assessment of Construction Works	2/1	S	4,5	T. Lützkendorf

Learning Control / Examinations
The assessment is carried out as partial exams (according to Section 4(2), 1 o. 2 of the examination regulation) of the single courses of this module, whose sum of credits must meet the minimum requirement of credits of this module. The assessment procedures are described for each course of the module seperately.
The final grade of the module is the average of the grades of each course weighted by the credits and truncated after the first decimal.
It is possible to include the grade of a seminar paper, dealing with a topic from the area of sustainable construction, into the final grade of the module (according to Section 4(2), 3 of the examination regulation). The seminar has a weight of 20 percent.

Conditions
Successful completion o the module *Business Administration* [WW1BWL].

Recommendations
The combination with the module *Real Estate Management* [IW3BWLOOW2] is recommended.
Furthermore a combination with courses in the area of

- Industrial production (energy flow in the economy, energy politics, emissions)
- Civil engineering and architecture (building physics, building construction)

is recommended.

Learning Outcomes
The student

- knows the basics of sustainable design, construction and operation of buildings with an emphasis on building ecology
- has knowledge of building ecology assessment procedures and tools for design and assessment
- is capable of applying this knowledge to assessing the ecological advantageousness of buildings as well as their contribution to a sustainable development.

Content
Sustainable design, construction and operation of buildings currently are predominant topics of the real estate sector, as well as “green buildings”. Not only designers and civil engineers, but also other actors who are concerned with project development, financing and insurance of buildings or portfolio management are interested in these topics.
On the one hand the courses included in this module cover the basics of energy-efficient, resource-saving and health-supporting design and construction of buildings. On the other hand fundamental assessment procedures for analysing and communicating the ecological advantageousness of technical solutions are discussed. With the basics of green building certification systems the lectures provide presently strongly demanded knowledge.
Additionally, videos and simulation tools are used for providing a better understanding of the content of teaching.

Module: Real Estate Management [IW3BWLOOW2]

Coordination: T. Lützkendorf
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Business Administration (Specialization)

ECTS Credits	Cycle	Duration
9	Every 2nd term, Winter Term	2

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
26400w	Real Estate Management I	2/2	W	4,5	T. Lützkendorf
2585400/2586400	Real Estate Management II	2/2	S	4,5	T. Lützkendorf

Learning Control / Examinations
The assessment is carried out as partial exams (according to Section 4(2), 1 o. 2 of the examination regulation) of the single courses of this module, whose sum of credits must meet the minimum requirement of credits of this module. The assessment procedures are described for each course of the module seperately.
The overall grade of the module is the average of the grades of each course weighted by the credits and truncated after the first decimal.
The examination for the courses generally consist of a 60 minute written exam. A 20 minute oral exam is only offered after the second failure of the written exam. The exams for the respective parts (REM I and REM II) happen in the same semester in which the lectures take place. Therefore, REM I exams currently only take place in the winter semester and REM II exams take place in the summer semester. In each semester there are two alternative dates for the exam and exams can be re-sat at any regular exam date.
It is possible to include the grade of a seminar paper, dealing with a topic from the area of sustainable construction, into the final grade of the module (according to Section 4(2), 3 of the examination regulation). The seminar has a weight of 20 percent.

Conditions
Successful completion of the module *Business Administration* [WW1BWL].

Recommendations
The combination with the module *Design Constructions and Assessment of Green Buildings* [IW3BWLOOW1] is recommended. Furthermore a combination with courses in the area of

- Finance
- Insurance
- Civil engineering and architecture (building physics, building construction, facility management)

is recommended.

Learning Outcomes
The student

- possesses an overview concerning the different facets and interrelationships within the real estate business, the important decision points in real estate lifecycle and the different views and interests of the actors concerned, and
- is capable of applying basic economic methods an procedures to problems within the real estate area.

Content
The real estate business offers graduates very interesting jobs and excellent work- and advancement possibilities. This module provides an insight into the macroeconomic importance of this industry, discusses problems concerned to the administration of real estate and housing companies and provides basic knowledge for making decisions both along the lifecycle of a single building and the management of real estate portfolios. Innovative operating and financing models are illustrated, as well as the current development when looking at real estate as an asset-class.
This module is also suitable for students who want to discuss macroeconomic, business-management or financial problems in a real estate context.

5.3 Economics

Module: Microeconomic Theory [IW3VWL6]

Coordination: C. Puppe
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Economics (Specialization)

ECTS Credits	Cycle	Duration
9	Every 2nd term, Summer Term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2520527	Advanced Topics in Economic Theory	2/1	S	4,5	C. Puppe, M. Hillebrand, K. Mitusch
2520517	Welfare Economics	2/1	S	4,5	C. Puppe
2520525	Game Theory I	2/2	S	4,5	N.N.
26240	Competition in Networks	2/1	W	4,5	K. Mitusch

Learning Control / Examinations
The assessment is carried out as partial exams (according to Section 4(2), 1 or 2 of the examination regulation) of the single courses of this module, whose sum of credits must meet the minimum requirement of credits of this module. The assessment procedures are described for each course of the module seperately.
The overall grade of the the module is the average of the grades for each course weighted by the credits and truncated after the first decimal.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.

Learning Outcomes

Content

Module: Macroeconomic Theory [IW3VWL8]

Coordination: M. Hillebrand
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Economics (Specialization)

ECTS Credits	Cycle	Duration
9	Every term	2

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2520543	Theory of Economic Growth	2/1	S	4,5	M. Hillebrand
25549	Theory of Business Cycles	2/1	W	4,5	M. Hillebrand

Learning Control / Examinations
The assessment is carried out as partial exams (according to Section 4(2), 1 or 2 of the examination regulation) of the single courses of this module, whose sum of credits must meet the minimum requirement of credits of this module. The assessment procedures are described for each course of the module seperately.
The overall grade of the the module is the average of the grades for each course weighted by the credits and truncated after the first decimal.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.

Recommendations
Grundlegende mikro- und makroökonomische Kenntnisse, wie sie beispielsweise in den Veranstaltungen *Volkswirtschaftslehre I (Mikroökonomie)* [2600012] und *Volkswirtschaftslehre II (Makroökonomie)* [2600014] vermittelt werden, werden vorausgesetzt. Aufgrund der inhaltlichen Ausrichtung der Veranstaltung wird ein Interesse an quantitativ-mathematischer Modellierung vorausgesetzt.

Learning Outcomes

Content

5.4 Statistics

Module: Statistical Applications of Financial Risk Management [IW3VWL]

Coordination: M. Höchstötter
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Economics (Specialization)

ECTS Credits	Cycle	Duration
9	Every term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2521325	Statistics and Econometrics in Business and Economics	2/2	W	4,5	W. Heller
2520016	Economics III: Introduction in Econometrics	2/2	S	5	M. Höchstötter
2520375	Data Mining	2	W	5	G. Nakhaeizadeh

Learning Control / Examinations
The assessment is carried out as partial exams of the single courses of this module, whose sum of credits must meet the minimum requirement of credits of this module. The assessment procedures are described for each course of the module seperately.
The overall grade of the module is the average of the grades for each course weighted by the credits and truncated after the first decimal.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.
The lecture *Statistics and Econometrics in Business and Economics* has to be taken.

Learning Outcomes

Content

Remarks
The course Economics III: Introduction in Econometrics [2520016] will not be offered any more from summer term 2013 on. The examination will be offered latest until summer term 2012.

5.5 Operations Research

Module: Applications of Operations Research [IW3OR5]

Coordination: S. Nickel
Degree programme: Informationswirtschaft (B.Sc.)
Subject: OR (Specialization)

ECTS Credits	Cycle	Duration
9	Every term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2550486	Facility Location and Strategic Supply Chain Management	2/1	S	4,5	S. Nickel
2550488	Tactical and Operational Supply Chain Management	2/1	W	4,5	S. Nickel
2550490	Software Laboratory: OR Models I	1/2	S	4,5	S. Nickel
2550134	Global Optimization I	2/1	W	4,5	O. Stein
2550662	Simulation I	2/1/2	W	4,5	K. Waldmann

Learning Control / Examinations
The assessment is carried out as partial exams (according to § 4(2), 1 of the examination regulation) of the single courses of this module, whose sum of credits must meet the minimum requirement of credits of this module.
The assessment procedures are described for each course of the module seperately.
The overall grade of the module is the average of the grades for each course weighted by the credits and truncated after the first decimal.

Conditions
Successful completion of the modules from terms 1-4 except for at most two modules. The module *internship* [IW1EXPRAK] as well as modules of *Law* [IW1JURA1,2,3] are not considered.
At least one of the courses *Facility Location and strategic Supply Chain Management* [2550486] and *Tactical and operational Supply Chain Management* [2550488] has to be taken.

Learning Outcomes
The student

- is familiar with basic concepts and terms of Supply Chain Management,
- knows the different areas of Supply Chain Management and their respective optimization problems,
- is acquainted with classical location problem models (in the plane, on networks and discrete) as well as fundamental methods for distribution and transport planning, inventory planning and management,
- is able to model practical problems mathematically and estimate their complexity as well as choose and adapt appropriate solution methods.

Content
Supply Chain Management is concerned with the planning and optimization of the entire, inter-company procurement, production and distribution process for several products taking place between different business partners (suppliers, logistics service providers, dealers). The main goal is to minimize the overall costs while taking into account several constraints including the satisfaction of customer demands.
This module considers several areas of Supply Chain Management. On the one hand, the determination of optimal locations within a supply chain is addressed. Strategic decisions concerning the location of facilities like production plants, distribution centers or warehouses are of high importance for the rentability of supply chains. Thoroughly carried out, location planning tasks allow an efficient flow of materials and lead to lower costs and increased customer service. On the other hand, the planning of material transport in the context of Supply Chain Management represents another focus of this module. By linking transport connections and different facilities, the material source (production plant) is connected with the material sink (customer). For given material flows or shipments, it is considered how to choose the optimal (in terms of minimal costs) distribution and transportation chain from the set of possible logistics chains, which asserts the compliance of delivery times and further constraints.

Furthermore, this module offers the possibility to learn about different aspects of the tactical and operational planning level in Suppy Chain Management, including methods of scheduling as well as different approaches in procurement and distribution logistics. Finally, issues of warehousing and inventory management will be discussed.

Remarks
The planned lectures and courses for the next three years are announced online.

Module: Methodical Foundations of OR [IW3OR6]

Coordination: O. Stein
Degree programme: Informationswirtschaft (B.Sc.)
Subject: OR (Specialization)

ECTS Credits	Cycle	Duration
9	Every term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2550111	Nonlinear Optimization I	2/1	S	4,5	O. Stein
2550113	Nonlinear Optimization II	2/1	S	4,5	O. Stein
2550134	Global Optimization I	2/1	W	4,5	O. Stein
2550136	Global Optimization II	2/1	W	4,5	O. Stein
2550486	Facility Location and Strategic Supply Chain Management	2/1	S	4,5	S. Nickel
2550679	Markov Decision Models I	2/1/2	W	5	K. Waldmann

Learning Control / Examinations
The assessment is carried out as partial written exams (according to Section 4(2), 1 of the examination regulation) of the single courses of this module, whose sum of credits must meet the minimum requirement of credits of this module. The assessment procedures are described for each course of the module seperately.
The overall grade of the module is the average of the grades for each course weighted by the credits and truncated after the first decimal.

Conditions
At least one of the lectures *Nonlinear Optimization I* [2550111] and *Global Optimization I* [2550134] has to be examined.
The lecture *Stochastische Entscheidungsmodelle I* [2550679] cannot be examined.

Learning Outcomes
The student

- names and describes basic notions for optimization methods, in particular from nonlinear and from global optimization,
- knows the indispensable methods and models for quantitative analysis,
- models and classifies optimization problems and chooses the appropriate solution methods to solve also challenging optimization problems independently and, if necessary, with the aid of a computer,
- validates, illustrates and interprets the obtained solutions.

Content
The modul focuses on theoretical foundations as well as solution algorithms for optimization problems with continuous decision variables. The lectures on nonlinear programming deal with local solution concepts, whereas the lectures on global optimization treat approaches for global solutions.

Remarks
The planned lectures and courses for the next three years are announced online (http://www.ior.kit.edu).
For the lectures of Prof. Stein a grade of 30 % of the exercise course has to be fulfilled. The description of the particular lectures is more detailed.

Module: Stochastic Methods and Simulation [IW3OR7]

Coordination: K. Waldmann
Degree programme: Informationswirtschaft (B.Sc.)
Subject: OR (Specialization)

ECTS Credits	Cycle	Duration
9	Every term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2550679	Markov Decision Models I	2/1/2	W	5	K. Waldmann
2550682	Markov Decision Models II	2/1/2	S	4,5	K. Waldmann
2550662	Simulation I	2/1/2	W	4,5	K. Waldmann
2550665	Simulation II	2/1/2	S	4,5	K. Waldmann
2550111	Nonlinear Optimization I	2/1	S	4,5	O. Stein
2550488	Tactical and Operational Supply Chain Management	2/1	W	4,5	S. Nickel

Learning Control / Examinations
The assessment is carried out as partial written exams (according to Section 4(2), 1 of the examination regulation) of the single courses of this module, whose sum of credits must meet the minimum requirement of credits of this module. The assessment procedures are described for each course of the module seperately.
The overall grade of the module is the average of the grades for each course weighted by the credits and truncated after the first decimal.

Conditions
None.

Learning Outcomes
The student knows and understands stochastic relationships and has a competent knowledge in modelling, analyzing and optimizing stochastic systems in economics and engineering.

Content
Topics overview:
Stochastic Decision Models I: Markov Chains, Poisson Processes.
Simulation I: Generation of random numbers, Monte Carlo integration, Discrete event simulation, Discrete and continuous random variables, Statistical analysis of simulated data.
Simulation II: Variance reduction techniques, Simulation of stochastic processes, Case studies.

Remarks
The planned lectures and courses for the next three years are announced online (http://www.ior.kit.edu/)

5.6 Informatics

Module: Web Information Systems [IW3INAIFB1]

Coordination: S. Tai
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
10	Every 2nd term, Winter Term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2511500	Service Oriented Computing 1	2/1	W	5	S. Tai
2511504	Cloud Computing	2/1	W	5	S. Tai, Kunze

Learning Control / Examinations
The assessment mix of each course of this module is defined for each course separately.
The overall grade of the module is the average of the grades for each course weighted by the credits and truncated after the first decimal.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.

Learning Outcomes
The student ackquires up-to-date knowledge about the design, development, and evaluation of modern, service-oriented Web information systems.

Content
Fundamentals (basic concepts, methods, technologies, and techniques) of service-oriented computing and cloud computing.

Remarks
This module is not offered any more. Please see German version for details.

Module: Semantic Knowledge Management [IW3INAIFB2]

Coordination: R. Studer
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
10	Every 2nd term, Winter Term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2511300	Knowledge Management	2/1	W	5	R. Studer
25860sem	Special Topics of Knowledge Management	2/1	W/S	5	R. Studer
2511210	Business Process Modelling	2/1	W	5	A. Oberweis
2511304	Semantic Web Technologies I	2/1	W	5	R. Studer, S. Rudolph, E. Simperl

Learning Control / Examinations
The assessment mix of each course of this module is defined for each course separately. The final mark for the module is the average of the marks for each course weighted by the credits and truncated after the first decimal.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.
Lecture *Semantic Web Technologies I* [2511304] is mandatory.

Learning Outcomes
Students

- know the motives for the application of knowledge management in organizations
- know the basic design dimensions of holistic knowledge management (organization, human, information technology, corporate culture)
- know the main group of IT systems for knowledge management and are able to describe the relevant application scenarios and basic operating modes of these systems
- know how to use the different IT systems for knowledge management in practice
- know the basic standards for the modeling of information and processes and are able to describe their formal structures
- know how to apply the different modeling languages
- know criteria to evaluate the success of knowledge management systems and are able to apply them to assess defined knowledge management scenarios

Content
In modern companies the availability and usability of knowledge is an essential factor of success for central managerial tasks and duties such as the improvement of business processes, product innovation and the amelioration of customer satisfaction. This module illustrates the typical problems of knowledge management in organizations and presents IT methods to approach these questions. The relevant groups of knowledge management systems are analyzed and expanded in the subject areas knowledge representation/semantic modeling and document management/groupware systems.

Module: Semantic Web and Applications [IW3INAIFB3]

Coordination: R. Studer
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
8	Every term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2511304	Semantic Web Technologies I	2/1	W	5	R. Studer, S. Rudolph, E. Simperl
25070s	Seminar in Applied Informatics	2	W/S	3	A. Oberweis, H. Schmeck, D. Seese, R. Studer, S. Tai

Learning Control / Examinations
The assessment mix of each course of this module is defined for each course separately. The final mark for the module is the average of the marks for each course weighted by the credits and truncated after the first decimal.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.

Learning Outcomes

Content

Module: Information Services in Networks [IW3INAIFB4]

Coordination: H. Schmeck
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
9	Every term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2511102	Algorithms for Internet Applications	2/1	W	5	H. Schmeck
VITI	Networked IT-Infrastructures	2/1	W	5	B. Neumair
24124	Web Engineering	2/0	W	4	H. Hartenstein, M. Nußbaumer
2511304	Semantic Web Technologies I	2/1	W	5	R. Studer, S. Rudolph, E. Simperl
xIDLp	Practical Course Internet Services	4	W/S	4	H. Schmeck, S. Tai, W. Tichy, R. Studer, H. Hartenstein
24074	Data and Storage Management	2	W	4	B. Neumair

Learning Control / Examinations
The assessment mix of each course of this module is defined for each course separately. The final mark for the module is the average of the marks for each course weighted by the credits and truncated after the first decimal.

Conditions
None.

Learning Outcomes

Content

Remarks
The lecture *Cloud Computing* [2511504] is not part of this module any more.

Module: Algorithms and Applications [IW3INAIFB5]

Coordination: H. Schmeck
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
9	Every term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2511100	Efficient Algorithms	2/1	S	5	H. Schmeck
2511102	Algorithms for Internet Applications	2/1	W	5	H. Schmeck
2590458	Computational Economics	2/1	W	4,5	P. Shukla, S. Caton
2511106	Nature-inspired Optimisation Methods	2/1	W	5	S. Mostaghim, P. Shukla
2511104	Organic Computing	2/1	S	5	H. Schmeck, S. Mostaghim
25700sp	Special Topics of Efficient Algorithms	2/1	W/S	5	H. Schmeck

Learning Control / Examinations
The assessment mix of each course of this module is defined for each course separately. The final mark for the module is the average of the marks for each course weighted by the credits and truncated after the first decimal.

Conditions
None.

Learning Outcomes

Content

Module: Business Processes and Information Systems [IW3INAIFB8]

Coordination: A. Oberweis
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
9	Every term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2511204	Workflow-Management	2/1	S	5	A. Oberweis
2511210	Business Process Modelling	2/1	W	5	A. Oberweis
2511600	Enterprise Architecture Management	2/1	W	5	T. Wolf
2511500	Service Oriented Computing 1	2/1	W	5	S. Tai
2511216	Capability maturity models for software and systems engineering	2	S	4	R. Kneuper
PraBI	Computing Lab Information Systems	2	W/S	5	A. Oberweis, D. Seese, R. Studer
SBI	Special Topics of Enterprise Information Systems	2/1	W/S	5	A. Oberweis
2511208	Software Technology: Quality Management	2/1	S	5	A. Oberweis

Learning Control / Examinations
The assessment mix of each course of this module is defined for each course separately. The final mark for the module is the average of the marks for each course weighted by the credits and truncated after the first decimal.

Conditions
At least one of the courses Workflowmangement [2511204], *Modellierung von Geschäftsprozessen* [2511210] or *Enterprise Architecture Management* [2511600] has to be attended.

Learning Outcomes
Students

- are able to discuss about basic terms and principles of process modeling languages and methods, software quality and its management,
- can choose the appropriate modeling language and model and analyze business processes,
- analyze and evaluate quality aspects of process models,
- know methods and models for software quality certification and can apply software testing and measurement methods.

Content
Modeling the relevant aspects of a business process is the basis for efficient and effective support of this process in an enterprise information system.Detailed knowledge of languages, methods and software tools for supporting business process modeling is taught in this module.
Additionally fundamentals of software quality management are considered in this module. Maturity models like CMMI or SPICE for evaluation and improvement of a software development process are introduced.

Module: Foundations of Information Systems [IW3INGIS]

Coordination: K. Böhm
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
10	Every term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24114	Data Warehousing and Mining	2/1	W	5	K. Böhm
dbe	Deployment of Database Systems	2/1	S	5	K. Böhm
24605	Data Privacy Protection in Interconnected Information Systems	2	S	3	K. Böhm, Buchmann
PLV	Selling IT-Solutions Professionally	2	S	1	K. Böhm, Hellriegel
PUB	Consulting in Practice	2	W/S	1	K. Böhm, Dürr
24147	Project Management in Practice	2	S	1	K. Böhm, W. Schnober
24522		0/1	S	1	K. Böhm
24111	Mechanisms and Applications of Workflow Systems	3	W	5	J. Mülle, Silvia von Stackelberg
24317		2	W	4	K. Böhm, Clemens Heidinger

Learning Control / Examinations

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.
At least one of the lectures *Data Warehousing and Mining*, *Deployment of Database Systems*, *Mechanisms and Applications of Workflow Systems* has to be taken.

Recommendations
It is recommended to take this module after completition of the module *Communication and Database Systems* [IW3INKD].

Learning Outcomes
The students

- see the necessity of specialised systems for information management and are able to define and deploy decision criteria for purchasing such software,
- are aware of the fundamental approaches in information systems and are able to judge their potential applications,
- understand database applications and develop simple database applications on their own,
- are able to communicate at a professional level about technical aspects of information and knowledge management.

Content
This module aims at exposing students to modern information systems. Beyond fundamental theory and concepts, this module covers the deployment of such technology.

Remarks
The courses in this module are offered irregularly, however, the exam can be taken anytime.
The lecture *Die digitale Bibliothek* is no longer offered. Examination is still possible in the summer term 2010.

Module: Communication and Database Systems [IW3INKD]

Coordination: K. Böhm, M. Zitterbart
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
8	Every 2nd term, Summer Term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24516	Database Systems	2/1	S	4	K. Böhm
24519	Introduction in Computer Networks	2/1	S	4	M. Zitterbart

Learning Control / Examinations
The assessment of the lecture ***Introduction in Computer Networks*** consists of a written exam according to section 4 subsection 2 no. 1 study and examination regulations.
The assessment of the lecture ***Database Systems*** consists of exercise sheets during the semester accoring to sec. 4 subsec. 2 no. 3 study and examination regulations. The solutions of the exercise sheets will be graded. A graded, written "Präsenzübung" will take place at the end of the semester.
The grade of the module is the average of the single grades weighted with the related credit points and cut off after the first decimal place.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.

Recommendations
Knowledge of the lecture *Software Engineering I* is recommended.

Learning Outcomes
The students will

- have learned fundamentals of data communication as well as the design of communication systems,
- be familiar with the composition of the different protocols and their mechanisms and be able to design simple protocols on their own,
- have understood the relationships between the different communication layers,
- be able to explain the benefits of database technology at the end of the course,
- have understood the development of database applications and be able to set up and access simple databases,
- be familiar with the terminology and the underlying database theory.

Content
Distributed information systems are worldwide information repositories which are accessible by everybody at any place of the world at any time. The physical distance is bridged by telecommunication systems, while database management technology manages and coordinates data for arbitrary periods of time. In order to understand globally running processes, one has to understand both data transmission techniques and database technology. Besides the telecommunication and database technologies on their own, an understanding of their cooperation is required, too.

Module: Information and Database Systems [IW3INIDS]

Coordination: K. Böhm
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
9	Every term	2

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24111	Mechanisms and Applications of Workflow Systems	3	W	5	J. Mülle, Silvia von Stackelberg
24317		2	W	4	K. Böhm, Clemens Heidinger
24605	Data Privacy Protection in Interconnected Information Systems	2	S	3	K. Böhm, Buchmann
PUB	Consulting in Practice	2	W/S	1	K. Böhm, Dürr
PLV	Selling IT-Solutions Professionally	2	S	1	K. Böhm, Hellriegel
24147	Project Management in Practice	2	S	1	K. Böhm, W. Schnober
24519	Introduction in Computer Networks	2/1	S	4	M. Zitterbart

Learning Control / Examinations

Conditions
None.

Learning Outcomes
The students

- see the necessity of specialised systems for information management and are able to define and deploy decision criteria for purchasing such software,
- are aware of the fundamental approaches in information systems and are able to judge their potential applications,
- understand database applications and develop simple database applications on their own,
- are able to communicate at a professional level about technical aspects of information and knowledge management.

Content
This module aims at exposing students to modern information systems. Beyond fundamental theory and concepts, this module covers the deployment of such technology.

Module: Database Systems in Theory and Practice [IW3INDBSTP]

Coordination: K. Böhm, Clemens Heidinger
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
9	Every term	2

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
dbe	Deployment of Database Systems	2/1	S	5	K. Böhm
24317		2	W	4	K. Böhm, Clemens Heidinger

Learning Control / Examinations
It will be announced at least 6 weeks in advance if the assessment consists of an written exam (usually 1h) according to sec. 4 subsec. 2 no. 1 study and examination regulations or of an oral exam (usually 20min) according to sec. 4 subsec. 2 no. 2 study and examination regulations.
The practical course has to be passed in order to successfully complete the module.

Conditions
None.

Learning Outcomes

Content

Module: Telematics [IW3INTM]

Coordination: M. Zitterbart
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
10	Every term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24519	Introduction in Computer Networks	2/1	S	4	M. Zitterbart
24128	Telematics	2	W	4	M. Zitterbart
24316	Applied Telematics	1	W	2	M. Zitterbart

Learning Control / Examinations

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.

Recommendations
The lecture *Telematics* [24128] builds on the content of the lecture *Introduction in Computer Networks* [24519] and should therefore only be taken after successful completion of the lecture *Introduction in Computer Networks* [24519].

Learning Outcomes
The students will broaden their knowledge of computer networks initially learnt in the module Telematics [IW3INTM].
They learn about problems and solutions in the domains of wireless, multimedia, or secure communications and they will be able to analyse and evaluate specific solutions in those domains.

Content
Selected protocols, architectures, mechanisms, and algorithms in the chosen domains will be analysed in detail. The student hereby may choose among mobile and wireless communications, principles of the design of secure communication protocols, and protocols and techniques for multimedia communication.

Module: Telematics II [IW3INTM2]

Coordination: M. Zitterbart
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
8	Every term	2

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24643	Mobile Communications	2/0	S	4	O. Waldhorst
24132	Multimedia Communications	2/0	W	4	R. Bless
24601	Network Security: Architectures and Protocols	2/0	S	4	M. Schöller
24149	IT-Security Management for Networked Systems	2/1	W	5	H. Hartenstein

Learning Control / Examinations

Conditions
The module *Telematics* [IW3INTM] has to be taken.

Recommendations
The material covered in the courses of the module *Telematics* [IW3INTM] constitutes the basis for the lectures of this module and therefore should be known in advance.

Learning Outcomes
The students will broaden their knowledge of computer networks initially learnt in the module Telematics [IW3INTM].
They learn about problems and solutions in the domains of wireless, multimedia, or secure communications and they will be able to analyse and evaluate specific solutions in those domains.

Content
Selected protocols, architectures, mechanisms, and algorithms in the chosen domains will be analysed in detail. The student hereby may choose among mobile and wireless communications, principles of the design of secure communication protocols, and protocols and techniques for multimedia communication.

Module: Algorithm Design [IW3INALGTK]

Coordination: D. Wagner
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
11	Every 2nd term, Winter Term	2

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24614	Algorithms for Planar Graphs	2/1	W/S	5	D. Wagner
AlgoMO	Algorithmic Methods for Hard Optimization Problems	2/1	W/S	5	D. Wagner, P. Sanders
24079	Algorithms II	3/1	W	6	P. Sanders

Learning Control / Examinations
The assessment consists of an oral overall exam (approx. 45 minutes) according to sec. 4 subsec. 2 no. 2 study and examination regulations.
The grade of the module corresponds to the grade of the oral exam.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.
Course Algorithmen II has to be passed.

Learning Outcomes
The student

- identifies algorithmic problems from different areas and can formulate these formally,
- judges the computational complexity of algorithmic problems and recognizes suitable algorithmic techniques for solving these problems,
- knows the crucial methodical approaches for the design and analysis of algorithms,
- designs algorithms for specific applications,
- comments on methodical aspects of algorithmics in a qualified and well-structured manner.

Content
This module conveys profound knowledge concerning theoretical and practical aspects of algorithmics. Its theoretical focus is on algorithms for graphs and common algorithmical methods, particularly, on algorithmic methods concerning randomized algorithms, parallel algorithms and algorithms for NP-hard problems. Practical aspects involve methods from the field of algorithm engineering.

Module: Algorithm Design [IW3INALGT]

Coordination: D. Wagner
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
6	Every term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24614	Algorithms for Planar Graphs	2/1	W/S	5	D. Wagner
24171	Randomized Algorithms	2/1	W	5	T. Worsch
24123	Algorithm Engineering	2/1	W	5	P. Sanders, D. Wagner
24602	Parallel Algorithms	2/1	S	5	P. Sanders
AlgoMO	Algorithmic Methods for Hard Optimization Problems	2/1	W/S	5	D. Wagner, P. Sanders
24118	Algorithms for Visualization of Graphs	2/1	W/S	5	D. Wagner, R. Görke

Learning Control / Examinations
The assessment consists of an oral overall exam (approx. 45 minutes) according to sec. 4 subsec. 2 no. 2 study and examination regulations.
The grade of the module corresponds to the grade of the oral exam.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.

Learning Outcomes
The student

- identifies algorithmic problems from different areas and can formulate these formally,
- judges the computational complexity of algorithmic problems and recognizes suitable algorithmic techniques for solving these problems,
- knows the crucial methodical approaches for the design and analysis of algorithms,
- designs algorithms for specific applications,
- comments on methodical aspects of algorithmics in a qualified and well-structured manner.

Content
This module conveys profound knowledge concerning theoretical and practical aspects of algorithmics. Its theoretical focus is on algorithms for graphs and common algorithmical methods, particularly, on algorithmic methods concerning randomized algorithms, parallel algorithms and algorithms for NP-hard problems. Practical aspects involve methods from the field of algorithm engineering.

Module: Algorithm Design [IW3INALGTN]

Coordination: D. Wagner
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
10	Every term	2

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24614	Algorithms for Planar Graphs	2/1	W/S	5	D. Wagner
24171	Randomized Algorithms	2/1	W	5	T. Worsch
24123	Algorithm Engineering	2/1	W	5	P. Sanders, D. Wagner
24602	Parallel Algorithms	2/1	S	5	P. Sanders
24118	Algorithms for Visualization of Graphs	2/1	W/S	5	D. Wagner, R. Görke

Learning Control / Examinations
The assessment consists of an oral overall exam (approx. 45 minutes) according to sec. 4 subsec. 2 no. 2 study and examination regulations.
The grade of the module corresponds to the grade of the oral exam.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module Internship [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.

Learning Outcomes
The student

- identifies algorithmic problems from different areas and can formulate these formally,
- judges the computational complexity of algorithmic problems and recognizes suitable algorithmic techniques for solving these problems,
- knows the crucial methodical approaches for the design and analysis of algorithms,
- designs algorithms for specific applications,
- comments on methodical aspects of algorithmics in a qualified and well-structured manner

Content
This module conveys profound knowledge concerning theoretical and practical aspects of algorithmics. Its theoretical focus is on algorithms for graphs and common algorithmical methods, particularly, on algorithmic methods concerning randomized algorithms, parallel algorithms and algorithms for NP-hard problems. Practical aspects involve methods from the field of algorithm engineering

Module: Practical Course Algorithm Engineering [IW3INALGOP]

Coordination: D. Wagner, P. Sanders
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
6	Every term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24079p	Practical Course in Algorithm Design	4	W/S	6	P. Sanders, D. Wagner, M. Krug

Learning Control / Examinations
The assessment consists of an oral exam according to section 4 subsection 2 no. 2 study and examination regulations. In addition there will be multiple projects and a final presentation.
The grade of the module is the grade of the oral exam.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.

Recommendations
The modules *Algorithms II* [IW3INALG2] and *Algorithm Design* [IW3INALGT] are recommended.

Learning Outcomes
Students practically apply the knowledge they acquired in the algorithm engineering lectures by implementing algorithms for a given topic. The topics include, but are not limited to, flow computations, shortest path computations and clustering. Algorithmic problems are solved in small groups and thus students are prepared to autonomously assess new problems as well as to working in teams towards a given goal. The students learn to reflect and judge their actions critically and increase their ability to communicate with others in an output-driven environment.

Content
The practical course Algorithm Engineering is motivated by the need to practically apply the theoretical knowledge acquired in lectures. Alternating algorithmic problems are assessed in small groups. The scope of these problems include, but is not limited to, flow computations, shortest path computations and clustering. Solutions should be implemented using object-oriented programming with Java and C++ as well as linear programming techniques.

Module: Algorithms II [IW3INALG2]

Coordination: D. Wagner, P. Sanders
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
6	Every 2nd term, Winter Term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24079	Algorithms II	3/1	W	6	P. Sanders

Learning Control / Examinations
The assessment consists of a written exam (approx. 120 minutes) according to section 4 subsection 2 no. 1 study and examination regulations.
The grade of the module corresponds to the grade of the written exam.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.

Learning Outcomes
The student

- gains profound insight into the most important aspects of algorithmics
- identifies algorithmic problems in different areas of application and can formulate these in a formal manner
- comprehends and determines the running times of algorithms
- knows fundamental algorithms and data structures and can apply this knowledge to new problems.

Content
This module conveys knowledge of basic theoretical and practical aspects of algorithmics. It covers common methods for the design and analysis of basic algorithmic problems as well as the fundamentals of common algorithmic methods such as approximations algorithms, linear programming, randomized algorithms, parallel algorithms and parameterized algorithms.

Module: Security [IW3INSICH]

Coordination: J. Müller-Quade
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
6	Every 2nd term, Summer Term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24941	Security	3/1	S	6	J. Müller-Quade

Learning Control / Examinations
The assessment consists of a written exam (approx. 60 minutes) according to sec. 4 subsec. 2 no. 1 study and examination regulations.

The grade of the module corresponds to the grade of the written exam.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.

Learning Outcomes
The student

- knows the theoretic background and the basic mechanisms of computer security and cryptography
- understands the mechanisms of computer security and can explain them,
- can read and understand the current scientific papers,
- can evaluate the safety procedures and can recognize hazards,
- can adapt mechanisms of computer security to new environment.

Content

- Theoretical and practical aspects of computer security
- Development of safety goals and classification of threats
- Presentation and comparison of different formal access control models
- Formal description of authentication systems, presentation and comparison of different authentication methods (passwords, biometrics, challenge-response protocols)
- Analysis of typical vulnerabilities in programs and web applications and development of appropriate protective protection methods / avoidance strategies
- Introduction to key management and Public Key Infrastructure
- Presentation and comparison of current safety certifications
- Block ciphers, hash functions, digital signature, public key encryption and digital signatures (RSA, ElGamal), and various methods of key exchange (e.g., Diffie-Hellman)
- Furthermore, an introduction to provable security is provided, which presents some of the key security concepts (e.g. IND-CCA).
- Presentation of combinations of cryptographic modules using currently used protocols such as Secure Shell (SSH) and Transport Layer Security (TLS).

Module: Public Key Cryptography [IW3INPKK]

Coordination: J. Müller-Quade
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
6	Every 2nd term, Winter Term	1

Learning Control / Examinations

Conditions
None.

Learning Outcomes

- The student will learn the methods and mechanisms of cryptography in practice as well as the theoretical foundations of cryptography.
- The student should be able to critically assess algorithms and protocols and to identify vulnerabilities / threats.

Content

- This module will show the students the theoretical and practical aspects of Pubic Key Cryptography.
- The most important primitives of cryptography will be covered: one-way function, hash function, digital signature, public key encryption and digital signatures (RSA, ElGamal), and various methods of key exchange (eg, Diffie-Hellman) with their strengths and weaknesses.
- In addition to public-key systems, the module provides knowledge about number-theoretic algorithms for solving problems such as primality testing, factoring large numbers and computing discrete logarithms in finite groups. Thus the choice of parameters and the related level of security of a cryptographic system can be estimated.
- Furthermore, an introduction to provable security is provided, which presents some of the key security concepts (eg, IND-CCA).
- The combination of cryptographic modules will be treated using the example of currently used protocols such as Secure Shell (SSH), Transport Layer Security (TLS) and anonymous digital money.

Module: Software Engineering I [IW3INSWT1]

Coordination: W. Tichy, R. Reussner
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
6	Every 2nd term, Summer Term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24518	Software Engineering I	3/1/2	S	6	W. Tichy, Korbinian Molitorisz

Learning Control / Examinations
The assessment consists of a written exam (approx. 60 minutes) according to section 4 subsection 2 no. 1 study and examination regulations.
The grade of this module corresponds to the grade of the written exam.
In addition the student needs to submit a certificate for the exercise (not graded) as an assessment according to section 4 subsection 2 no. 3 study and examination regulations.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.
The successful completion of the module *Foundations in Informatic*s [IW1INF1] is required.

Learning Outcomes
The students acquire basic knowledge about the principles, methods and tools of software engineering. They learn how to build and to maintain complex software systems in a systematic way.

Content
The content of the lecture is the entire lifecycle of software, spanning project planning, system analysis, cost estimation, design, implementation, validation, verification, and finally the maintaining of software. The covered topics include UML, design patterns, software tools, programming environments and configuration control/versioning systems.

Module: Software Engineering II [IW3INSWT2]

Coordination: R. Reussner, W. Tichy
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
6	Every 2nd term, Winter Term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24076	Software Engineering II	3/1	W	6	R. Reussner, W. Tichy

Learning Control / Examinations
The assessment consists of a written exam (approx. 60 minutes) according to section 4 subsection 2 no. 1 study and examination regulations.

The grade of the module corresponds to the grade of the written exam.

Conditions
None.

Recommendations
The lecture *Software engineering I* should have been attended before.

Learning Outcomes
The students learn approaches and techniques for systematic software engineering. The lecture covers advanced topics.

Content
Requirements engineering, software development processes, software quality, software architectures, MDD, Enterprise Software Patterns software maintainability, software security, dependability, embedded software, middleware, statistic testing

Module: Programming Paradigms [IW3IWPROGP]

Coordination: G. Snelting
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
6	Every 2nd term, Winter Term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24030	Programming Paradigms	3/1	W	6	G. Snelting, R. Reussner

Learning Control / Examinations
The assessment consists of a written exam (approx. 120 minutes) according to sec. 4 subsec. 2 no. 1 study and examination regulations.
The grade of the module is the grade of the written exam.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module Internship [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.
Successful completion of the module *Software Engineering I* [IW3INSWT1].

Learning Outcomes

Content

Module: Advanced object orientation [IW4INFON]

Coordination: G. Snelting
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
5	Every 2nd term, Summer Term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24665	Advanced object orientation	2/2	S	5	G. Snelting

Learning Control / Examinations
The assessment consists of an oral exam (approx. 15 minutes) according to sec. 4 subsec. 2 no. 2 study and examination regulations.
The grade of the module corresponds to the grade of the oral exam.

Conditions
None.

Recommendations
Good knowledge of Java

Learning Outcomes
Participants in this course know the basics of different object oriented programming languages (e.g. Java, C#, Smalltalk, Scala). They know how inheritance and dynamic dispatch work, behave and are implemented, and how these are used in software engineering. They know innovative language constructs in objects oriented languages like generics, aspects and traits. The participants know the theoretic foundations of (e.g. type systems), software engineering tools for (e.g. refactoring) and techniques (e.g. points-to analysis) for analysing object oriented programs. They know current trends in research on object oriented programming

Content

- Behaviour and semantics of dynamic dispatch
- Implementation of single and multiple inheritance
- Genericity, refactoring
- Traits and mixins, virtual classes
- Cardelli's type system
- Palsberg-Schwartzbach type inference
- Analyses on the call graph, points-to analyses
- operational semantics, type safety
- bytecode JVM, bytecode verifier, dynamic compilation

Remarks
This is not a lecture on object-oriented software development! Rather, knowledge of object-oriented software engineering (e.g. Java, UML, Design Patterns) is required.

Module: Advanced object orientation [IW3INFOO]

Coordination: G. Snelting
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
6	Every 2nd term, Summer Term	1

Learning Control / Examinations
The assessment consists of an oral exam (approx. 20 minutes) according to sec. 4 subsec. 2 no. 2 study and examination regulations.
The grade of the module corresponds to the grade of the oral exam.

Conditions
This is not a lecture on object-oriented software development! Rather, knowledge of object-oriented software engineering (e.g. Java, UML, Design Patterns) is required.

Recommendations
Good knowledge of Java

Learning Outcomes
Participants in this course know the basics of different object oriented programming languages (e.g. Java, C#, Smalltalk, Scala). They know how inheritance and dynamic dispatch work, behave and are implemented, and how these are used in software engineering. They know innovative language constructs in objects oriented languages like generics, aspects and traits. The participants know the theoretic foundations of (e.g. type systems), software engineering tools for (e.g. refactoring) and techniques (e.g. points-to analysis) for analysing object oriented programs. They know current trends in research on object oriented programming

Content

- Behaviour and semantics of dynamic dispatch
- Implementation of single and multiple inheritance
- Genericity, refactoring
- Aspect oriented programming
- Traits and mixins, virtual classes
- Cardelli's type system
- Palsberg-Schwartzbach type inference
- Analyses on the call graph, points-to analyses
- operational semantics, type safety
- bytecode JVM, bytecode verifier, dynamic compilation

Module: Computer Architecture [IW3INRS]

Coordination: W. Karl
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
6	Every 2nd term, Summer Term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24570	Computer Architecture	3/1	S	6	J. Henkel, W. Karl

Learning Control / Examinations
The assessment consists of a written exam (approx. 60 minutes) according to section 4 subsection 2 no. 1 study and examination regulations.
The grade of the module corresponds to the grade of the written exam.

Conditions
None.

Learning Outcomes

Content

Module: Energy-conscious Systems [IW3INEBS]

Coordination: F. Bellosa, J. Henkel
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
6	Every term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24127	Power Management	2	W	3	F. Bellosa
24181	Power Management Lab	2	W	3	F. Bellosa, Merkel
24672	Low Power Design	2	S	3	J. Henkel
LPD	Lab: Low power design	2	S	3	J. Henkel

Learning Control / Examinations
The assessment consists of an oral exam on the taken lectures and practical courses (approx. 30 minutes) according to section 4 subsection 2 no. 2 study and examination regulations.
Practical course: In addition the student needs to submit a certificate (not graded) of the practical course as an assessment according to sec. 4 subsec. 2 no. 3 study and examination regulations.
The grade of the module corresponds to the grade of the oral exam.

Conditions
The following combinations can be taken:
- lecture *Low Power Design* and *Power Managemen*t
- lecture *Low Power Design* and *Lab: Low Power Design*
- lecture *Power Management* and *Power Management Lab*

Learning Outcomes
The students are familiar with the design, implementation and evaluation of energy critical systems. The trade-off between low power and performance is common.

Content
Syllabus:

- Design of low-power systems
- Synthesis of low-power systems
- Energy estimation
- Operating system policies

5.7 General Modules

Module: Seminar Module Economic Sciences [IW3SEMWIWI]

Coordination: Studiendekan (Fak. f. Wirtschaftswissenschaften)
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Economics (Specialization), Business Administration (Specialization), OR (Specialization)

ECTS Credits	Cycle	Duration
3	Every term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
2540524	Bachelor Seminar in Information Engineering and Management	2	W/S	3	A. Geyer-Schulz
SemIW	Seminar Information Engineering and Management	2	W/S	3	C. Weinhardt
SemIIP2	Seminar in Industrial Production	2	W/S	3	F. Schultmann, M. Fröhling, T. Comes
SemEW	Seminar Energy Economics	2	W/S	3	W. Fichtner, P. Jochem, A. Eßer-Frey, M. Genoese
2577915	Seminar: Management and Organization	2	W/S	3	H. Lindstädt
2577916	Seminar Management accounting for industrial engineers	2	W/S	3	M. Wouters
2530293	Seminar in Finance	2	W/S	3	M. Uhrig-Homburg, M. Ruckes
SemFBV1	Seminar in Insurance Management	2	W/S	3	U. Werner
SemFBV2	Seminar in Operational Risk Management	2	W/S	3	U. Werner
2585420/2586420	Topics of Sustainable Management of Housing and Real Estate	2	W/S	3	T. Lützkendorf
SemWIOR1	Seminar Stochastic Models	2	W/S	3	K. Waldmann
SemWIOR2	Seminar Economic Theory	2	W/S	3	C. Puppe
SemWIOR3	Seminar in Experimental Economics	2	W/S	3	C. Puppe
2550131	Seminar in Continous Optimization	2	W/S	3	O. Stein
2550491	Seminar in Discrete Optimization	2	W/S	3	S. Nickel
2572197	Seminar in strategic and behavioral marketing	2	W	3	B. Neibecker
SemSTAT		2		3	N.N.

Learning Control / Examinations
The assessment is done by a seminar with at least 3 CP.
The assessment of the seminar (following §4(2), 3 ER) is described at the course description.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.

Learning Outcomes

Content
The module consists of a seminar, that is related to the research field of economic sciences. A complete list of available seminars is published in the internet.

Remarks
The mentioned seminars in this module handbook are place holders. For each semester, a complete list of seminars are published in the Vorlesungsverzeichnis or at the web pages of the participating institutes. Often, the seminar topics for a given semester are publishedat the end of the preceding semester. Some seminars require an early sign-in deadline at the end of the of the preceding semester.

Module: Seminar Module Informatics [IW3SEMINFO]

Coordination: M. Zitterbart
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Informatics (Specialization)

ECTS Credits	Cycle	Duration
3	Every term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
24074s	Seminar in Telematics	2	W/S	4	M. Zitterbart, H. Hartenstein
SemAIFB1	Seminar in Enterprise Information Systems	2	W/S	3	R. Studer, A. Oberweis, T. Wolf, R. Kneuper
xIDLs	Seminar Internet Services	2	W/S	3	H. Schmeck, S. Tai, R. Studer, H. Hartenstein, W. Tichy
SemAIFB4	Seminar Knowledge Management	2	W	3	R. Studer
SWSSem	Seminar Software Systems	2	W/S	3	R. Reussner
SWTSem	Seminar Software Engineering	2	W/S	3	W. Tichy, R. Reussner, G. Snelting
SemSich	Seminar in Security	2	W/S	3	J. Müller-Quade, M. Zitterbart
SemiKryp3	Seminar in Cryptography	2	W/S	3	J. Müller-Quade
SemInfo	Informatics Seminar	2	W/S	3	M. Zitterbart
prosemis	Undergraduate Seminar Information Systems	2	S	3	K. Böhm
24530	Seminar: Cellular automata and discrete complex systems	2	S	3	R. Vollmar, T. Worsch

Learning Control / Examinations
The assessment is done by a seminar with at least 3 CP.
The assessment of the seminar (following §4(2), 3 ER) is described at the course description.

Conditions
Successful completion of the modules in semester 1–4 except for up to two modules. The module *Internship* [IW1EXPRAK] and the law modules [IW1JURA1,2,3] are not relevant in this calculation.
see german version

Learning Outcomes
The student

- deals with a well-defined problem in the Informatics domain in detail,
- analyses and discusses the given problems as part of the courses and in the final seminar papers,
- discusses, presents, and defends technical arguments within the given task specifications,
- organises the drafting of the final seminar paper mostly independently.

The competences gained as part of this seminar module serve as a preparation for the Bachelor thesis. Guided by the respective examiner, the student exercises independent scientific work in drafting and presenting the final seminar paper.

Content
The module consists of a seminar, that is related to the research field of informatics. A complete list of available seminars is published in the internet.

Remarks
The mentioned seminars in this module handbook are place holders. For each semester, a complete list of seminars are published in the Vorlesungsverzeichnis or at the web pages of the participating institutes. Often, the seminar topics for a given semester are published at the end of the preceding semester. Some seminars require an early sign-in deadline at the end of the of the preceding semester.

Module: Seminar Module Law [IW3SEMJURA]

Coordination: T. Dreier
Degree programme: Informationswirtschaft (B.Sc.)
Subject: Law (Specialization)

ECTS Credits	Cycle	Duration
3	Every term	1

Courses in module

ID	Course	Hours per week C/E/T	Term	CP	Responsible Lecturer(s)
rechtsem	Seminar in Law	2	W/S	3	T. Dreier, P. Sester, I. Spiecker genannt Döhmann
24356	Seminar: Recent Developments in Data Protection Law	2	S	3	I. Spiecker genannt Döhmann

Learning Control / Examinations
The assessment is done by a seminar with at least 3 CP.
The assessment of the seminar (following §4(2), 3 ER) is described at the course description.

Conditions
From the law modules in the core programme, *Introduction to Civil Law* [IW1INJURA1], *Commercial Law* [IW1INJURA2], and *Constitutional and Administrative Law* [IW1INJURA2], 2 out of 3 have to be completed successfully.

Learning Outcomes

Content
The module consists of a seminar, that is related to the research field of law. A complete list of available seminars is published in the internet.

Remarks
The mentioned seminars in this module handbook are place holders. For each semester, a complete list of seminars are published in the Vorlesungsverzeichnis or at the web pages of the participating institutes. Often, the seminar topics for a given semester are published at the end of the preceding semester. Some seminars require an early sign-in deadline at the end of the of the preceding semester.

Module: Internship [IW1EXPRAK]

Coordination: Studiendekan (Fak. f. Wirtschaftswissenschaften), Studiendekan/in Studiengang Informationswirtschaft
Degree programme: Informationswirtschaft (B.Sc.)
Subject:

ECTS Credits	Cycle	Duration
8		

Learning Control / Examinations
The assessment is in the form of a certificate of employment about at least 6 weeks, a written report (typewritten, not handwritten) and a short presentation.

Conditions
The internship is regulated in §12 of the examination regulation.
Examiners are all lecturers of the degree programme.
The choice of the examiner has to be **prior** to the start of the internship (cf. content description).

Recommendations
It is recommended that the internship is taken between the 4th and the 5th term of the Bachelor programme Information Engineering and Management.

Learning Outcomes
This module serves to impart interdisciplinary key qualifications:

The student

- carries out professional tasks in the context of Information Engineering and Management to learn about the requirements on the engineer,
- describes in a short report the executed activities precisely and coherent, and judges about them critically,
- presents effectively is experiences gained during the internship using appropriate media support and gets involved professionally in the subsequent discussion, and
- trains via concrete and constructive criticism his/her competence for problem solving.

The presentation primarily serves for the communication between student, company, and examiner with the goal of initiating further cooperation in the context of the Bachelor thesis and/or a project

Content
It is the responsibility of the students to apply for an internship in a suitable company or public organization at which the internship can be fulfilled.
The process for the internship has the following (sequential) steps:

1. **Choice of the examiner and of the company or organization by the student.**
   During the internship each student is attended by an examiner of the degree programme and by an advisor of the company. In case a student does not succeed in finding an examiner for the internship, he can request the assignment of an examiner from the examination board of the Bachelor programme in Information Engineering and Management. When enrolling for the internship, the student fills the form for the internship and he hands the form over to the examiner and the students' secretary. If required, the students' secretary certifies the compulsory character of the internship as part of the Bachelor programme in Information Engineering and Management.
2. **Internship**
   The student passes the internship in the chosen company or organization.
3. **Preparation of a short report and presentation:**
   At the end of the internship, the employment is proven by a certificate of employment. The examiner receives a report (maximal 2 A4 pages) and the student gives feedback on the internship with a short presentation (approx. 15 minutes) followed by a short discussion (approx. 5 minutes).
4. **Presentation and proof of performance.**
   The short presentation may by given in the form of a talk with the examiner, in a colloquium or in a seminar. The form is fixed at the registration of the internship with the examiner. The certificate of employment of the company and the short report must be delivered at the examiner *before* the presentation. Based on these, a certificate of performance if produced and transferred to the office of study ("Studienbüro").

Remarks
The form for the internship is available at the examination offices of the two faculties participating in the programme.

Module: Bachelor Thesis [IW3THESIS]

Coordination: Studiendekan (Fak. f. Wirtschaftswissenschaften), Studiendekan/in Studiengang Informationswirtschaft, Der Vorsitzende des Prüfungsausschusses
Degree programme: Informationswirtschaft (B.Sc.)
Subject:

ECTS Credits	Cycle	Duration
12		

Learning Control / Examinations
The Bachelor thesis is examined by an examiner following the examination regulation. The examiner has to be involved in the degree programme. Involved in the degree programme are the persons that coordinate a module or a lecture of the degree programme.

Conditions
The regulations for the Bachelor thesis can be found in §11 of the examination regulation.

Learning Outcomes
The student

- investigates a problem in information engineering and management autonomously and scientifically,
- searches for scientific literature for his problem,
- chooses and applies suitable scientific methods or develops and improves such methods,
- critically compare and evaluate his findings with the state of the art,
- communicates his results clearly and in a scientific form in his bachelor thesis.

Content
The Bachelor thesis is a written report which shows that the student can autonomously investigate a scientific problem in Information Engineering and Management. The work load for the Bachelor thesis should be 360h. The recommended project time is 6 months, the maximal project time is 9 months. The Bachelor thesis may also be written in English.

Remarks
None.

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Studien- und Prüfungsordnung der Universität Karlsruhe (TH) für den Bachelorstudiengang Informationswirtschaft

vom 15. April 2009

Aufgrund von § 34 Abs. 1 Satz 1 des Landeshochschulgesetzes (LHG) vom 1. Januar 2005 hat die beschließende Senatskommission für Prüfungsordnungen der Universität Karlsruhe (TH) am 13. Februar 2009 die folgende Studien- und Prüfungsordnung für den Bachelorstudiengang Informationswirtschaft beschlossen.

Der Rektor hat seine Zustimmung am 15. April 2009 erteilt.

Inhaltsverzeichnis

Die Universität Karlsruhe (TH) hat sich im Rahmen der Umsetzung des Bolognaprozesses zum Aufbau eines Europäischen Hochschulraumes zum Ziel gesetzt, dass am Abschluss der Studierendenausbildung an der Universität Karlsruhe (TH) der Mastergrad stehen soll. Die Universität Karlsruhe (TH) sieht daher die an der Universität Karlsruhe (TH) angebotenen konsekutiven Bachelor- und Masterstudiengänge als Gesamtkonzept mit konsekutivem Curriculum.

Aus Gründen der Lesbarkeit ist in dieser Satzung nur die männliche Sprachform gewählt worden. Alle personenbezogenen Aussagen gelten jedoch stets für Frauen und Männer gleichermaßen.

I. Allgemeine Bestimmungen

§ 1 Geltungsbereich, Zweck der Prüfung

(1) Diese Bachelorprüfungsordnung regelt Studienablauf, Prüfungen und den Abschluss des Studiums im Bachelorstudiengang Informationswirtschaft an der Universität Karlsruhe (TH).

(2) Die Bachelorprüfung (§ 17 – 20) bildet den berufsbefähigenden Abschluss dieses Studiengangs, der gemeinsam von der Fakultät für Informatik und der Fakultät für Wirtschaftswissenschaften an der Universität Karlsruhe (TH) angeboten wird. Durch die Bachelorprüfung soll festgestellt werden, ob der Studierende die für den Übergang in die Berufspraxis grundlegenden wissenschaftlichen Fachkenntnisse besitzt und die Zusammenhänge des Faches Informationswirtschaft überblickt.

§ 2 Akademischer Grad

Aufgrund der bestandenen Bachelorprüfung wird der akademische Grad „Bachelor of Science“ (abgekürzt: „B.Sc.“) für den Studiengang Informationswirtschaft (englischsprachig: Information Engineering and Management) verliehen.

§ 3 Regelstudienzeit, Studienaufbau, Leistungspunkte

(1) Die Regelstudienzeit beträgt sechs Semester. Sie umfasst neben den Lehrveranstaltungen ein Berufspraktikum, Prüfungen und die Bachelorarbeit.

(2) Die im Studium zu absolvierenden Lehrinhalte sind in Module gegliedert, die jeweils aus einer Lehrveranstaltung oder mehreren, thematisch und zeitlich aufeinander bezogenen Lehrveranstaltungen bestehen. Der Studienplan beschreibt Art, Umfang und Zuordnung der Module zu einem Fach sowie die Möglichkeiten, Module untereinander zu kombinieren. Die Fächer und ihr Umfang werden in § 17 definiert.

(3) Der für das Absolvieren von Lehrveranstaltungen und Modulen vorgesehene Arbeitsaufwand wird in Leistungspunkten (Credits) ausgewiesen. Die Maßstäbe für die Zuordnung von Leistungspunkten entsprechen dem ECTS (European Credit Transfer System). Ein Leistungspunkt entspricht einem Arbeitsaufwand von etwa 30 Stunden.

(4) Der Umfang der für den erfolgreichen Abschluss des Studiums erforderlichen Studienleistungen wird in Leistungspunkten gemessen und beträgt insgesamt 180 Leistungspunkte.

(5) Die Verteilung der Leistungspunkte im Studienplan auf die Semester hat in der Regel gleichmäßig zu erfolgen.

(6) Lehrveranstaltungen können in englischer Sprache angeboten werden.

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(7) Profilmodule dienen der Profilbildung im Studiengang und der transparenten Darstellung der Lehrziele des Studiengangs durch eine Lehrzielhierarchie. Profilmodule werden durch die Module nach § 17 Abs. 3 und Abs. 4 gebildet. Jeweils beim Abschluss eines Moduls des Profilmoduls werden die Leistungspunkte dem Profilmodul angerechnet. Die Zuordnung der Module und Seminare zu Profilmodulen beschreibt der Studienplan.

§ 4 Aufbau der Prüfungen

(1) Die Bachelorprüfung besteht aus einer Bachelorarbeit und Fachprüfungen, jede Fachprüfung aus einer oder mehreren Modulprüfungen, jede Modulprüfung aus einer oder mehreren Modulteilprüfungen. Eine Modulteilprüfung besteht aus mindestens einer Erfolgskontrolle.

(2) Erfolgskontrollen sind:

1. schriftliche Prüfungen,
2. mündliche Prüfungen oder
3. Erfolgskontrollen anderer Art.

Erfolgskontrollen anderer Art sind z.B. Vorträge, Marktstudien, Projekte, Fallstudien, Experimente, schriftliche Arbeiten, Berichte, Seminararbeiten und Klausuren, sofern sie nicht als schriftliche oder mündliche Prüfung in der Modul- oder Lehrveranstaltungsbeschreibung im Studienplan ausgewiesen sind.

(3) Mindestens 50 % einer Modulprüfung sind in Form von schriftlichen oder mündlichen Prüfungen (§ 4 Abs. 2, Nr. 1 und 2) abzulegen, die restlichen Prüfungen erfolgen durch Erfolgskontrollen anderer Art (§ 4 Abs. 2, Nr. 3). Ausgenommen hiervon sind die Prüfungen nach § 17 Abs. 4.

§ 5 Anmeldung und Zulassung zu den Prüfungen

(1) Um an schriftlichen und/oder mündlichen Prüfungen (§ 4 Abs. 2, Nr. 1 und 2) teilnehmen zu können, muss sich der Studierende schriftlich oder per Online-Anmeldung beim Studienbüro anmelden. Hierbei sind die gemäß dem Studienplan für die jeweilige Modulprüfung notwendigen Studienleistungen nachzuweisen. Dies gilt auch für die Anmeldung zur Bachelorarbeit.

(2) Um zu schriftlichen und/oder mündlichen Prüfungen (§ 4 Abs. 2, Nr. 1 und 2) in einem bestimmten Modul zugelassen zu werden, muss der Studierende vor der ersten schriftlichen oder mündlichen Prüfung in diesem Modul beim Studienbüro eine bindende Erklärung über die Wahl des betreffenden Moduls und dessen Zuordnung zu einem Fach, wenn diese Wahlmöglichkeit besteht, abgeben.

(3) Die Zulassung darf nur abgelehnt werden, wenn

1. der Studierende in einem mit der Informationswirtschaft vergleichbaren oder einem verwandten Studiengang bereits eine Diplomvorprüfung, Diplomprüfung, Bachelor- oder Masterprüfung endgültig nicht bestanden hat, sich in einem Prüfungsverfahren befindet oder den Prüfungsanspruch in einem solchen Studiengang verloren hat oder
2. die in § 18 genannte Voraussetzung nicht erfüllt ist.

In Zweifelsfällen entscheidet der Prüfungsausschuss.

§ 6 Durchführung von Prüfungen und Erfolgskontrollen

(1) Erfolgskontrollen werden studienbegleitend, in der Regel im Verlauf der Vermittlung der Lehrinhalte der einzelnen Module oder zeitnah danach durchgeführt.

(2) Die Art der Erfolgskontrolle (§ 4 Abs. 2, Nr. 1 - 3) der einzelnen Lehrveranstaltungen wird vom Prüfer der betreffenden Lehrveranstaltung in Bezug auf die Lehrinhalte der Lehrveranstaltung und die Lehrziele des Moduls festgelegt. Die Art der Erfolgskontrollen, ihre Häufigkeit, Reihenfolge und Gewichtung, die Bildung der Lehrveranstaltungsnote und der Modulnote sowie

Prüfer müssen mindestens sechs Wochen vor Semesterbeginn bekannt gegeben werden. Im Einvernehmen von Prüfer und Studierendem kann in begründeten Ausnahmefällen die Art der Erfolgskontrolle auch nachträglich geändert werden. Dabei ist jedoch § 4 Abs. 3 zu berücksichtigen. Hierüber entscheidet der Prüfungsausschuss auf Antrag.

(3) Bei unvertretbar hohem Prüfungsaufwand kann eine schriftlich durchzuführende Prüfung auch mündlich oder eine mündlich durchzuführende Prüfung auch schriftlich abgenommen werden. Diese Änderung muss mindestens sechs Wochen vor der Prüfung bekannt gegeben werden.

(4) Weist ein Studierender nach, dass er wegen länger andauernder oder ständiger körperlicher Behinderung nicht in der Lage ist, die Erfolgskontrollen ganz oder teilweise in der vorgeschriebenen Form abzulegen, kann der zuständige Prüfungsausschuss – in dringenden Angelegenheiten, deren Erledigung nicht bis zu einer Sitzung des Ausschusses aufgeschoben werden kann, dessen Vorsitzender – gestatten, Erfolgskontrollen in einer anderen Form zu erbringen.

(5) Bei Lehrveranstaltungen in englischer Sprache können mit Zustimmung des Studierenden die entsprechenden Erfolgskontrollen in englischer Sprache abgenommen werden.

(6) Schriftliche Prüfungen (§ 4 Abs. 2, Nr. 1) sind in der Regel von zwei Prüfern nach § 15 Abs. 2 oder 3 zu bewerten. Die Note ergibt sich aus dem arithmetischen Mittel der Einzelbewertungen. Entspricht das arithmetische Mittel keiner der in § 7 Abs. 2 Satz 2 definierten Notenstufen, so ist auf die nächstliegende Notenstufe zu runden. Bei gleichem Abstand ist auf die nächstbessere Notenstufe zu runden. Das Bewertungsverfahren soll sechs Wochen nicht überschreiten. Schriftliche Einzelprüfungen dauern mindestens 60 und höchstens 240 Minuten.

(7) Mündliche Prüfungen (§ 4 Abs. 2, Nr. 2) sind von mehreren Prüfern (Kollegialprüfung) oder von einem Prüfer in Gegenwart eines Beisitzenden als Gruppen- oder Einzelprüfungen abzunehmen und zu bewerten. Vor der Festsetzung der Note hört der Prüfer die anderen an der Kollegialprüfung mitwirkenden Prüfer an. Mündliche Prüfungen dauern in der Regel mindestens 15 Minuten und maximal 45 Minuten pro Studierenden. Dies gilt auch für die mündliche Nachprüfung gemäß § 8 Abs. 3.

(8) Die wesentlichen Gegenstände und Ergebnisse der mündlichen Prüfung in den einzelnen Fächern sind in einem Protokoll festzuhalten. Das Ergebnis der Prüfung ist dem Studierenden im Anschluss an die mündliche Prüfung bekannt zu geben.

(9) Studierende, die sich in einem späteren Prüfungszeitraum der gleichen Prüfung unterziehen wollen, werden entsprechend den räumlichen Verhältnissen als Zuhörer bei mündlichen Prüfungen zugelassen. Die Zulassung erstreckt sich nicht auf die Beratung und Bekanntgabe der Prüfungsergebnisse. Aus wichtigen Gründen oder auf Antrag des zu prüfenden Studierenden ist die Zulassung zu versagen.

(10) Für Erfolgskontrollen anderer Art sind angemessene Bearbeitungsfristen einzuräumen und Abgabetermine festzulegen. Dabei ist durch die Art der Aufgabenstellung und durch entsprechende Dokumentation sicherzustellen, dass die erbrachte Studienleistung dem Studierenden zurechenbar ist. Die wesentlichen Gegenstände und Ergebnisse einer solchen Erfolgskontrolle sind in einem Protokoll festzuhalten.

(11) Schriftliche Arbeiten im Rahmen einer Erfolgskontrolle anderer Art haben dabei die folgende Erklärung zu tragen: „Ich versichere wahrheitsgemäß, die Arbeit selbstständig angefertigt, alle benutzten Hilfsmittel vollständig und genau angegeben und alles kenntlich gemacht zu haben, was aus Arbeiten anderer unverändert oder mit Abänderungen entnommen wurde.“ Trägt die Arbeit diese Erklärung nicht, wird diese Arbeit nicht angenommen. Die wesentlichen Gegenstände und Ergebnisse einer solchen Erfolgskontrolle sind in einem Protokoll festzuhalten.

(12) Bei mündlich durchgeführten Erfolgskontrollen anderer Art muss neben dem Prüfer ein Beisitzer anwesend sein, der zusätzlich zum Prüfer die Protokolle zeichnet.

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§ 7 Bewertung von Prüfungen und Erfolgskontrollen

(1) Das Ergebnis einer Erfolgskontrolle wird von den jeweiligen Prüfern in Form einer Note festgesetzt.

(2) Im Bachelorzeugnis dürfen nur folgende Noten verwendet werden:

1	:	sehr gut (very good)	:	hervorragende Leistung,
2	:	gut (good)	:	eine Leistung, die erheblich über den durchschnittlichen Anforderungen liegt,
3	:	befriedigend (satisfactory)	:	eine Leistung, die durchschnittlichen Anforderungen entspricht,
4	:	ausreichend (sufficient)	:	eine Leistung, die trotz ihrer Mängel noch den Anforderungen genügt,
5	:	nicht ausreichend (failed)	:	eine Leistung, die wegen erheblicher Mängel nicht den Anforderungen genügt.

Für die Bachelorarbeit, Modulprüfungen, Modulteilprüfungen und Profilmodule sind zur differenzierten Bewertung nur folgende Noten zugelassen:

1.0, 1.3	:	sehr gut
1.7, 2.0, 2.3	:	gut
2.7, 3.0, 3.3	:	befriedigend
3.7, 4.0	:	ausreichend
4.7, 5.0	:	nicht ausreichend

Diese Noten müssen in den Protokollen und in den Anlagen (Transcript of Records und Diploma Supplement) verwendet werden.

(3) Für Erfolgskontrollen anderer Art kann im Studienplan die Benotung mit „bestanden“ (passed) oder „nicht bestanden“ (failed) vorgesehen werden.

(4) Bei der Bildung der gewichteten Durchschnitte der Fachnoten, Modulnoten und der Gesamtnote wird nur die erste Dezimalstelle hinter dem Komma berücksichtigt; alle weiteren Stellen werden ohne Rundung gestrichen.

(5) Jedes Modul, jede Lehrveranstaltung und jede Erfolgskontrolle darf in demselben Studiengang bzw. einem darauf aufbauenden konsekutiven Masterstudiengang nur einmal angerechnet werden.

(6) Erfolgskontrollen anderer Art dürfen in Modulteilprüfungen oder Modulprüfungen nur eingerechnet werden, wenn die Benotung nicht nach Absatz 3 erfolgt ist. Die zu dokumentierenden Erfolgskontrollen und die daran geknüpften Bedingungen werden im Studienplan festgelegt.

(7) Eine Modulteilprüfung ist bestanden, wenn die Note mindestens „ausreichend“ (4.0) ist.

(8) Eine Modulprüfung ist dann bestanden, wenn die Modulnote mindestens „ausreichend“ (4.0) ist. Die Modulprüfung und die Bildung der Modulnote werden im Studienplan geregelt. Die differenzierten Lehrveranstaltungsnoten (Absatz 2) sind bei der Berechnung der Modulnoten als Ausgangsdaten zu verwenden. Enthält der Studienplan keine Regelung darüber, wann eine Modulprüfung bestanden ist, so ist diese Modulprüfung dann endgültig nicht bestanden, wenn eine dem Modul zugeordnete Modulteilprüfung endgültig nicht bestanden wurde.

(9) Die Ergebnisse der Bachelorarbeit, der Modulprüfungen bzw. der Modulteilprüfungen, der Erfolgskontrollen anderer Art sowie die erworbenen Leistungspunkte werden durch das Studienbüro der Universität erfasst.

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(10) Die Noten der Module eines Faches gehen in die Fachnote mit einem Gewicht proportional zu den ausgewiesenen Leistungspunkten der Module ein. Eine Fachprüfung ist bestanden, wenn die für das Fach erforderliche Anzahl von Leistungspunkten über die im Studienplan definierten Modulprüfungen nachgewiesen wird.

(11) Die Gesamtnote der Bachelorprüfung, die Fachnoten und die Modulnoten lauten:

		bis	1.5	:	sehr gut (very good)
von	1.6	bis	2.5	:	gut (good)
von	2.6	bis	3.5	:	befriedigend (satisfactory)
von	3.6	bis	4.0	:	ausreichend (sufficient)

(12) Zusätzlich zu den Noten nach Absatz 2 werden ECTS-Noten für Fachprüfungen, Modulprüfungen und für die Bachelorprüfung nach folgender Skala vergeben:

ECTS-Note	Quote	Definition
A	10	gehört zu den besten 10% der Studierenden, die die Erfolgskontrolle bestanden haben,
B	25	gehört zu den nächsten 25% der Studierenden, die die Erfolgskontrolle bestanden haben,
C	30	gehört zu den nächsten 30% der Studierenden, die die Erfolgskontrolle bestanden haben,
D	25	gehört zu den nächsten 25% der Studierenden, die die Erfolgskontrolle bestanden haben,
E	10	gehört zu den letzten 10% der Studierenden, die die Erfolgskontrolle bestanden haben,
FX		*nicht bestanden* (failed) - es sind Verbesserungen erforderlich, bevor die Leistungen anerkannt werden,
F		*nicht bestanden* (failed) - es sind erhebliche Verbesserungen erforderlich.

Die Quote ist als der Prozentsatz der erfolgreichen Studierenden definiert, die diese Note in der Regel erhalten. Dabei ist von einer mindestens fünfjährigen Datenbasis über mindestens 30 Studierende auszugehen. Für die Ermittlung der Notenverteilungen, die für die ECTS-Noten erforderlich sind, ist das Studienbüro der Universität zuständig.

(13) Bis zum Aufbau einer entsprechenden Datenbasis wird als Übergangsregel die Verteilung der Vordiplomsnoten des Diplomstudiengangs Informationswirtschaft per 31. Juli 2005 zur Bildung dieser Skala für alle Module des Bachelorstudiengangs herangezogen. Diese Verteilung wird jährlich gleitend über mindestens fünf Jahre mit mindestens 30 Studierenden jeweils zu Beginn des Studienjahres für jedes Modul, die Fachnoten und die Gesamtnote angepasst und in diesem Studienjahr für die Festsetzung der ECTS-Note verwendet.

§ 8 Orientierungsprüfungen, Wiederholung von Prüfungen und Erfolgskontrollen, Erlöschen des Prüfungsanspruchs

(1) Die Modulprüfungen im Modul Grundlagen der Informatik und im Modul Volkswirtschaftslehre sind bis zum Ende des Prüfungszeitraums des zweiten Fachsemesters abzulegen (Orientierungsprüfungen).

Wer die Orientierungsprüfungen einschließlich etwaiger Wiederholungen bis zum Ende des Prüfungszeitraums des dritten Fachsemesters nicht erfolgreich abgelegt hat, verliert den Prüfungsanspruch im Studiengang, es sei denn, dass er die Fristüberschreitung nicht zu vertreten hat;

hierüber entscheidet der Prüfungsausschuss auf Antrag des Studierenden. Eine zweite Wiederholung von Prüfungen der Orientierungsprüfungen ist ausgeschlossen.

(2) Studierende können eine nicht bestandene schriftliche Prüfung (§ 4 Abs. 2, Nr. 1) einmal wiederholen. Wird eine schriftliche Wiederholungsprüfung mit „nicht ausreichend“ bewertet, so findet eine mündliche Nachprüfung im zeitlichen Zusammenhang mit dem Termin der nicht bestandenen Prüfung statt. In diesem Falle kann die Note dieser Prüfung nicht besser als „ausreichend“ sein.

(3) Studierende können eine nicht bestandene mündliche Prüfung (§ 4 Abs. 2, Nr. 2) einmal wiederholen.

(4) Wiederholungsprüfungen nach Absatz 2 und 3 müssen in Inhalt, Umfang und Form (mündlich oder schriftlich) der ersten Prüfung entsprechen. Ausnahmen kann der zuständige Prüfungsausschuss auf Antrag zulassen. Fehlversuche an anderen Hochschulen sind anzurechnen.

(5) Die Wiederholung einer Erfolgskontrolle anderer Art (§ 4 Abs. 2, Nr. 3) wird im Studienplan geregelt.

(6) Eine zweite Wiederholung derselben schriftlichen oder mündlichen Prüfung ist nur in Ausnahmefällen zulässig. Einen Antrag auf Zweitwiederholung hat der Studierende schriftlich beim Prüfungsausschuss zu stellen. Über den ersten Antrag eines Studierenden auf Zweitwiederholung entscheidet der Prüfungsausschuss, wenn er den Antrag genehmigt. Wenn der Prüfungsausschuss diesen Antrag ablehnt, entscheidet der Rektor. Über weitere Anträge auf Zweitwiederholung entscheidet nach Stellungnahme des Prüfungsausschusses der Rektor. Absatz 2 Satz 2 und 3 gelten entsprechend.

(7) Die Wiederholung einer bestandenen Erfolgskontrolle ist nicht zulässig.

(8) Eine Fachprüfung ist endgültig nicht bestanden, wenn mindestens ein Modul des Faches endgültig nicht bestanden ist.

(9) Die Bachelorarbeit kann bei einer Bewertung mit „nicht ausreichend“ einmal wiederholt werden. Eine zweite Wiederholung der Bachelorarbeit ist ausgeschlossen.

(10) Ist gemäß § 34 Abs. 2 Satz 3 LHG die Bachelorprüfung bis zum Ende des neunten Fachsemesters dieses Studiengangs einschließlich etwaiger Wiederholungen nicht vollständig abgelegt, so erlischt der Prüfungsanspruch im Studiengang, es sei denn, dass der Studierende die Fristüberschreitung nicht zu vertreten hat. Die Entscheidung darüber trifft der Prüfungsausschuss. Die Entscheidung über eine Fristverlängerung und über Ausnahmen von der Fristregelung trifft der Prüfungsausschuss.

§ 9 Versäumnis, Rücktritt, Täuschung, Ordnungsverstoß

(1) Der Studierende kann bei schriftlichen Prüfungen ohne Angabe von Gründen bis einen Tag (24 Uhr) vor dem Prüfungstermin zurücktreten (Abmeldung). Bei mündlichen Prüfungen muss der Rücktritt spätestens drei Werktage vor dem betreffenden Prüfungstermin erklärt werden (Abmeldung). Ein Rücktritt von einer mündlichen Prüfung weniger als drei Werktage vor dem betreffenden Prüfungstermin ist nur unter Voraussetzungen des Absatzes 3 möglich. Die Abmeldung kann schriftlich beim Prüfer oder per Online-Abmeldung beim Studienbüro erfolgen. Eine durch Widerruf abgemeldete Prüfung gilt als nicht angemeldet. Der Rücktritt von mündlichen Nachprüfungen im Sinne von § 8 Absatz 2 ist grundsätzlich nur unter den Voraussetzungen von Absatz 3 möglich.

(2) Eine Prüfung gilt als mit „nicht ausreichend“ (5.0) bewertet, wenn der Studierende einen Prüfungstermin ohne triftigen Grund versäumt oder wenn er nach Beginn der Prüfung ohne triftigen Grund von der Prüfung zurücktritt. Dasselbe gilt, wenn die Bachelorarbeit nicht innerhalb der vorgesehenen Bearbeitungszeit erbracht wird, es sei denn, der Studierende hat die Fristüberschreitung nicht zu vertreten.

(3) Der für den Rücktritt nach Beginn der Prüfung oder das Versäumnis geltend gemachte Grund muss dem Prüfungsausschuss unverzüglich schriftlich angezeigt und glaubhaft gemacht

werden. Bei Krankheit des Studierenden oder eines von ihm allein zu versorgenden Kindes oder pflegebedürftigen Angehörigen kann die Vorlage eines ärztlichen Attests und in Zweifelsfällen ein amtsärztliches Attest verlangt werden. Die Anerkennung des Rücktritts ist ausgeschlossen, wenn bis zum Eintritt des Hinderungsgrundes bereits Prüfungsleistungen erbracht worden sind und nach deren Ergebnis die Prüfung nicht bestanden werden kann. Werden die Gründe anerkannt, wird ein neuer Termin anberaumt. Die bereits vorliegenden Prüfungsergebnisse sind in diesem Fall anzurechnen. Bei Modulprüfungen, die aus mehreren Prüfungen bestehen, werden die Prüfungsleistungen dieses Moduls, die bis zu einem anerkannten Rücktritt bzw. einem anerkannten Versäumnis einer Prüfungsleistung dieses Moduls erbracht worden sind, angerechnet.

(4) Versucht der Studierende, das Ergebnis einer mündlichen oder schriftlichen Prüfung (§ 4 Abs. 2 Nr. 1 und 2) durch Täuschung oder Benutzung nicht zugelassener Hilfsmittel zu beeinflussen, gilt die betreffende Prüfung als mit „nicht ausreichend“ (5.0) bewertet. Für Erfolgskontrollen anderer Art (§ 4 Abs. 2, Nr. 3) gilt dies entsprechend.

(5) Ein Studierender, der den ordnungsgemäßen Ablauf der Prüfung stört, kann von dem jeweiligen Prüfer oder der Aufsicht führenden Person von der Fortsetzung der Prüfung ausgeschlossen werden; in diesem Fall gilt die betreffende Prüfung als mit „nicht ausreichend“ (5.0) bewertet. In schwerwiegenden Fällen kann der Prüfungsausschuss den Studierenden von der Erbringung weiterer Prüfungen ausschließen. Für Erfolgskontrollen anderer Art (§ 4 Abs. 2, Nr. 3) gilt dies entsprechend.

(6) Der Studierende kann innerhalb von einem Monat verlangen, dass die Entscheidung gemäß Absatz 4 und 5 vom Prüfungsausschuss überprüft wird. Belastende Entscheidungen des Prüfungsausschusses sind dem Studierenden unverzüglich schriftlich mitzuteilen, zu begründen und mit einer Rechtsbehelfsbelehrung zu versehen. Vor einer Entscheidung ist dem Studierenden Gelegenheit zur Äußerung zu geben.

(7) Näheres regelt die Allgemeine Satzung der Universität Karlsruhe (TH) zur Redlichkeit bei Prüfungen und Praktika.

§ 10 Mutterschutz, Elternzeit, Wahrnehmung von Familienpflichten

(1) Auf Antrag sind die Mutterschutzfristen, wie sie im jeweils gültigen Gesetz zum Schutz der erwerbstätigen Mutter (MuSchG) festgelegt sind, entsprechend zu berücksichtigen. Dem Antrag sind die erforderlichen Nachweise beizufügen. Die Mutterschutzfristen unterbrechen jede Frist nach dieser Studien- und Prüfungsordnung. Die Dauer des Mutterschutzes wird nicht in die Frist eingerechnet.

(2) Gleichfalls sind die Fristen der Elternzeit nach Maßgabe des jeweiligen, gültigen Gesetzes (BErzGG) auf Antrag zu berücksichtigen. Der Studierende muss bis spätestens vier Wochen vor dem Zeitpunkt, von dem an er die Elternzeit antreten will, dem Prüfungsausschuss unter Beifügung der erforderlichen Nachweise schriftlich mitteilen, in welchem Zeitraum er Elternzeit in Anspruch nehmen will. Der Prüfungsausschuss hat zu prüfen, ob die gesetzlichen Voraussetzungen vorliegen, die bei einem Arbeitnehmer den Anspruch auf Elternzeit auslösen würden, und teilt dem Studierenden das Ergebnis sowie die neu festgesetzten Prüfungszeiten unverzüglich mit. Die Bearbeitungszeit der Bachelorarbeit kann nicht durch Elternzeit unterbrochen werden. Die gestellte Arbeit gilt als nicht vergeben. Nach Ablauf der Elternzeit erhält der Studierende ein neues Thema.

(3) Der Prüfungsausschuss entscheidet auf Antrag über die flexible Handhabung von Prüfungsfristen entsprechend den Bestimmungen des Landeshochschulgesetzes, wenn Studierende Familienpflichten wahrzunehmen haben. Die Bearbeitungszeit der Bachelorarbeit kann nicht durch die Wahrnehmung von Familienpflichten unterbrochen oder verlängert werden. Die gestellte Arbeit gilt als nicht vergeben. Der Studierende erhält ein neues Thema, das innerhalb der in § 11 festgelegten Bearbeitungszeit zu bearbeiten ist.

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§ 11 Bachelorarbeit

(1) Voraussetzung für die Zulassung zur Bachelorarbeit ist, dass der Studierende sich in der Regel im 3. Studienjahr befindet und nicht mehr als eine der Fachprüfungen laut § 17 Absatz 2 noch nicht bestanden wurde.

Vor Zulassung sind Betreuer, Thema und Anmeldedatum dem Prüfungsausschuss bekannt zu geben. Auf Antrag des Studierenden sorgt ausnahmsweise der Vorsitzende des Prüfungsausschusses dafür, dass der Studierende innerhalb von vier Wochen nach Antragstellung von einem Betreuer ein Thema für die Bachelorarbeit erhält. Die Ausgabe des Themas erfolgt in diesem Fall über den Vorsitzenden des Prüfungsausschusses.

(2) Thema, Aufgabenstellung und Umfang der Bachelorarbeit sind vom Betreuer so zu begrenzen, dass sie mit dem in Absatz 3 festgelegten Arbeitsaufwand bearbeitet werden kann.

(3) Die Bachelorarbeit soll zeigen, dass der Studierende in der Lage ist, ein Problem aus seinem Fach selbstständig und in begrenzter Zeit nach wissenschaftlichen Methoden zu bearbeiten. Der Bachelorarbeit werden 12 Leistungspunkte zugeordnet, der Arbeitsaufwand soll daher 360 Stunden nicht übersteigen. Die empfohlene Bearbeitungsdauer beträgt sechs Monate. Die maximale Bearbeitungsdauer beträgt einschließlich einer Verlängerung neun Monate. Die Bachelorarbeit kann auch auf Englisch geschrieben werden.

(4) Die Bachelorarbeit kann von jedem Prüfer nach § 15 Abs. 2 vergeben und betreut werden. Soll die Bachelorarbeit außerhalb der beiden nach § 1 Abs. 2 Satz 1 beteiligten Fakultäten angefertigt werden, so bedarf dies der Genehmigung des Prüfungsausschusses.

Dem Studierenden ist Gelegenheit zu geben, für das Thema Vorschläge zu machen. Die Bachelorarbeit kann auch in Form einer Gruppenarbeit zugelassen werden, wenn der als Prüfungsleistung zu bewertende Beitrag des einzelnen Studierenden aufgrund objektiver Kriterien, die eine eindeutige Abgrenzung ermöglichen, deutlich unterscheidbar ist und die Anforderung nach Absatz 1 erfüllt.

(5) Bei der Abgabe der Bachelorarbeit hat der Studierende schriftlich zu versichern, dass er die Arbeit selbstständig verfasst hat und keine anderen als die angegebenen Quellen und Hilfsmittel benutzt hat, die wörtlich oder inhaltlich übernommenen Stellen als solche kenntlich gemacht und die Satzung der Universität Karlsruhe (TH) zur Sicherung guter wissenschaftlicher Praxis in der jeweils gültigen Fassung beachtet hat. Wenn diese Erklärung nicht enthalten ist, wird die Arbeit nicht angenommen. Bei Abgabe einer unwahren Versicherung wird die Bachelorarbeit mit „nicht ausreichend“ (5.0) bewertet.

(6) Der Zeitpunkt der Ausgabe des Themas der Bachelorarbeit und der Zeitpunkt der Abgabe der Bachelorarbeit sind beim Prüfungsausschuss aktenkundig zu machen. Der Studierende kann das Thema der Bachelorarbeit nur einmal und nur innerhalb der ersten zwei Monate der Bearbeitungszeit zurückgeben. Auf begründeten Antrag des Studierenden kann der Prüfungsausschuss die in Absatz 3 festgelegte Bearbeitungszeit um höchstens drei Monate verlängern. Wird die Bachelorarbeit nicht fristgerecht abgeliefert, gilt sie als mit „nicht ausreichend“ bewertet, es sei denn, dass der Studierende dieses Versäumnis nicht zu vertreten hat. § 8 gilt entsprechend.

(7) Die Bachelorarbeit wird von einem Betreuer sowie in der Regel von einem weiteren Prüfer bewertet. Einer der beiden muss Juniorprofessor oder Professor sein. Bei nicht übereinstimmender Beurteilung der beiden Prüfer setzt der Prüfungsausschuss im Rahmen der Bewertung der beiden Prüfer die Note der Bachelorarbeit fest. Der Bewertungszeitraum soll sechs Wochen nicht überschreiten.

(8) Die Vorbereitung auf die Bachelorarbeit wird im Rahmen eines der verpflichtenden Seminare (nach § 17 Abs. 4) gewährleistet.

§ 12 Berufspraktikum

(1) Während des Bachelorstudiums ist ein mindestens sechswöchiges Berufspraktikum abzuleisten, welches geeignet ist, den Studierenden eine Anschauung von berufspraktischer Tätigkeit in Informationswirtschaft zu vermitteln. Dem Berufspraktikum sind 8 Leistungspunkte zugeordnet.

(2) Der Studierende setzt sich in eigener Verantwortung mit geeigneten privaten bzw. öffentlichen Einrichtungen in Verbindung, an denen das Praktikum abgeleistet werden kann. Der Studierende wird von einem Prüfer nach § 15 Abs. 2 und einem Firmenbetreuer betreut.

(3) Am Ende des Berufspraktikums ist dem Prüfer ein kurzer Bericht abzugeben und eine Kurzpräsentation der Erfahrungen im Berufspraktikum zu halten.

(4) Das Berufspraktikum ist abgeschlossen, wenn eine mindestens sechswöchige Tätigkeit nachgewiesen wird, der Bericht abgegeben und die Kurzpräsentation gehalten wurde. Die Durchführung des Berufspraktikums ist im Studienplan zu regeln. Das Berufspraktikum geht nicht in die Gesamtnote ein.

§ 13 Zusatzleistungen und Zusatzmodule

(1) Innerhalb der Regelstudienzeit, einschließlich der Urlaubssemester für das Studium an einer ausländischen Hochschule (Regelprüfungszeit), können in einem Modul bzw. Fach auch weitere Leistungspunkte (Zusatzleistungen) im Umfang von höchstens 20 Leistungspunkten erworben werden. § 3, § 4 und § 8 Abs. 10 der Studien- und Prüfungsordnung bleiben davon unberührt. Diese Zusatzleistungen gehen nicht in die Festsetzung der Gesamt-, Fach- und Modulnoten ein. Soweit Zusatzleistungen erbracht wurden, werden auf Antrag des Studierenden bei der Festlegung der Modul- bzw. Fachnote nur die Noten berücksichtigt, die unter Abdeckung der erforderlichen Leistungspunkte die beste Modul- bzw. Fachnote ergeben. Die bei der Festlegung der Modul- bzw. Fachnote nicht berücksichtigten Leistungspunkte werden als Zusatzleistungen automatisch im Transcript of Records aufgeführt und als Zusatzleistungen gekennzeichnet. Zusatzleistungen werden mit den nach § 7 vorgesehenen Noten gelistet.

(2) Der Studierende hat bereits bei der Anmeldung zu einer Prüfung in einem Modul diese als Zusatzleistung zu deklarieren.

(3) Die Ergebnisse maximal zweier Module, die jeweils mindestens 9 Leistungspunkte umfassen müssen, werden auf Antrag des Studierenden in das Bachelorzeugnis als Zusatzmodule aufgenommen und als solche gekennzeichnet. Zusatzmodule werden bei der Festsetzung der Gesamt-, Fach- und Modulnoten nicht mit einbezogen. Nicht in das Zeugnis aufgenommene Zusatzmodule werden im Transcript of Records automatisch aufgenommen und als Zusatzmodule gekennzeichnet. Zusatzmodule werden mit den nach § 7 vorgesehenen Noten gelistet.

(4) Neben den im Studienplan definierten fachwissenschaftlichen Modulen und Leistungen können die Zusatzleistungen nach Absatz 1 - 3 auch aus dem Lehrangebot anderer Fakultäten und Einrichtungen gewählt werden.

§ 14 Prüfungsausschuss

(1) Für den Bachelorstudiengang Informationswirtschaft wird ein Prüfungsausschuss gebildet. Er besteht aus sechs stimmberechtigten Mitgliedern, die jeweils zur Hälfte von der Fakultät für Informatik und der Fakultät für Wirtschaftswissenschaften bestellt werden: vier Professoren, Juniorprofessoren, Hochschul- oder Privatdozenten, zwei Vertretern der Gruppe der akademischen Mitarbeiter nach § 10 Abs. 1 Satz 2 Nr. 2 LHG und einem Vertreter der Studierenden mit beratender Stimme. Im Falle der Einrichtung eines gemeinsamen Prüfungsausschusses für den Bachelor- und den Masterstudiengang Informationswirtschaft erhöht sich die Anzahl der Vertreter der Studierenden auf zwei Mitglieder mit beratender Stimme, wobei je ein Vertreter aus dem Bachelor- und ein Vertreter aus dem Masterstudiengang stammt. Die Amtszeit der nichtstudentischen Mitglieder beträgt zwei Jahre, die des studentischen Mitglieds ein Jahr.

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(2) Der Vorsitzende, sein Stellvertreter, die weiteren Mitglieder des Prüfungsausschusses sowie deren Stellvertreter werden von den jeweiligen Fakultätsräten bestellt, die Mitglieder der Gruppe der akademischen Mitarbeiter nach § 10 Abs. 1 Satz 2 Nr. 2 LHG und der Vertreter der Studierenden auf Vorschlag der Mitglieder der jeweiligen Gruppe; Wiederbestellung ist möglich. Der Vorsitzende und dessen Stellvertreter müssen Professor oder Juniorprofessor aus einer der beteiligten Fakultäten sein. Der Vorsitz wechselt zwischen den Fakultäten alle zwei Jahre. Der Vorsitzende des Prüfungsausschusses nimmt die laufenden Geschäfte wahr und wird durch die Prüfungssekretariate unterstützt.

(3) Der Prüfungsausschuss regelt die Auslegung und die Umsetzung der Studien- und Prüfungsordnung in die Prüfungspraxis der Fakultäten. Er achtet darauf, dass die Bestimmungen der Studien- und Prüfungsordnung eingehalten werden. Er entscheidet über die Anrechnung von Studienzeiten, Studienleistungen und Modulprüfungen und übernimmt die Gleichwertigkeitsfeststellung. Er berichtet regelmäßig den Fakultätsräten über die Entwicklung der Prüfungen und Studienzeiten sowie über die Verteilung der Fach- und Gesamtnoten und gibt Anregungen zur Reform des Studienplans und der Studien- und Prüfungsordnung.

(4) Der Prüfungsausschuss kann die Erledigung seiner Aufgaben in dringenden Angelegenheiten und für alle Regelfälle auf den Vorsitzenden des Prüfungsausschusses übertragen.

(5) Die Mitglieder des Prüfungsausschusses haben das Recht, der Abnahme von Prüfungen beizuwohnen. Die Mitglieder des Prüfungsausschusses, die Prüfer und die Beisitzenden unterliegen der Amtsverschwiegenheit. Sofern sie nicht im öffentlichen Dienst stehen, sind sie durch den Vorsitzenden zur Verschwiegenheit zu verpflichten.

(6) In Angelegenheiten des Prüfungsausschusses, die eine an einer anderen Fakultät zu absolvierende Prüfungsleistung betreffen, ist auf Antrag eines Mitgliedes des Prüfungsausschusses ein fachlich zuständiger und von der betroffenen Fakultät zu nennender Professor, Juniorprofessor, Hochschul- oder Privatdozent hinzuziehen. Er hat in diesem Punkt Stimmrecht.

(7) Belastende Entscheidungen des Prüfungsausschusses sind schriftlich mitzuteilen. Sie sind zu begründen und mit einer Rechtsbehelfsbelehrung zu versehen. Widersprüche gegen Entscheidungen des Prüfungsausschusses sind innerhalb eines Monats nach Zugang der Entscheidung schriftlich oder zur Niederschrift beim Rektorat der Universität Karlsruhe (TH) einzulegen.

§ 15 Prüfer und Beisitzer

(1) Der Prüfungsausschuss bestellt die Prüfer und die Beisitzenden. Er kann die Bestellung dem Vorsitzenden übertragen.

(2) Prüfer sind Hochschullehrer und habilitierte Mitglieder sowie akademische Mitarbeiter der jeweiligen Fakultät, denen die Prüfungsbefugnis übertragen wurde. Bestellt werden darf nur, wer mindestens die dem jeweiligen Prüfungsgegenstand entsprechende fachwissenschaftliche Qualifikation erworben hat. Bei der Bewertung der Bachelorarbeit muss ein Prüfer Hochschullehrer sein.

(3) Soweit Lehrveranstaltungen von anderen als den unter Absatz 2 genannten Personen durchgeführt werden, sollen diese zum Prüfer bestellt werden, wenn die jeweilige Fakultät ihnen eine diesbezügliche Prüfungsbefugnis erteilt hat.

(4) Zum Beisitzenden darf nur bestellt werden, wer einen akademischen Abschluss in einem Studiengang der Informationswirtschaft, Informatik, Rechtswissenschaften, Wirtschaftswissenschaften oder einen gleichwertigen akademischen Abschluss erworben hat.

§ 16 Anrechnung von Studienzeiten, Anerkennung von Studien- und Prüfungsleistungen

(1) Studienzeiten im gleichen Studiengang werden angerechnet. Studien- und Prüfungsleistungen, die in gleichen oder anderen Studiengängen an der Universität Karlsruhe (TH) oder an anderen Hochschulen erbracht wurden, werden angerechnet, soweit Gleichwertigkeit besteht. Gleichwertigkeit ist festzustellen, wenn Leistungen in Inhalt, Umfang und in den Anforderungen

denjenigen des Studiengangs im Wesentlichen entsprechen. Dabei ist kein schematischer Vergleich, sondern eine Gesamtbetrachtung vorzunehmen. Bezüglich des Umfangs einer zur Anerkennung vorgelegten Studien- und Prüfungsleistung werden die Grundsätze des ECTS herangezogen; die inhaltliche Gleichwertigkeitsprüfung orientiert sich an den Qualifikationszielen des Moduls.

(2) Werden Leistungen angerechnet, können die Noten – soweit die Notensysteme vergleichbar sind – übernommen werden und in die Berechnung der Modulnoten und der Gesamtnote einbezogen werden. Liegen keine Noten vor, muss die Leistung nicht anerkannt werden. Der Studierende hat die für die Anrechnung erforderlichen Unterlagen vorzulegen.

(3) Bei der Anrechnung von Studienzeiten und der Anerkennung von Studien- und Prüfungsleistungen, die außerhalb der Bundesrepublik erbracht wurden, sind die von der Kultusministerkonferenz und der Hochschulrektorenkonferenz gebilligten Äquivalenzvereinbarungen sowie Absprachen im Rahmen der Hochschulpartnerschaften zu beachten.

(4) Absatz 1 gilt auch für Studienzeiten, Studien- und Prüfungsleistungen, die in staatlich anerkannten Fernstudien- und an anderen Bildungseinrichtungen, insbesondere an staatlichen oder staatlich anerkannten Berufsakademien sowie an Fach- und Ingenieurschulen erworben wurden.

(5) Die Anerkennung von Teilen der Bachelorprüfung kann versagt werden, wenn in einem Studiengang mehr als 80 Leistungspunkte und/oder die Bachelorarbeit anerkannt werden soll/en. Dies gilt insbesondere bei einem Studiengangwechsel sowie bei einem Studienortwechsel.

(6) Zuständig für die Anrechnungen ist der Prüfungsausschuss. Vor Feststellungen über die Gleichwertigkeit sind die zuständigen Fachvertreter zu hören. Der Prüfungsausschuss entscheidet in Abhängigkeit von Art und Umfang der anzurechnenden Studien- und Prüfungsleistungen über die Einstufung in ein höheres Fachsemester.

(7) Erbringt ein Studierender Studienleistungen an einer ausländischen Universität, soll die Gleichwertigkeit vorab durch einen Studienvertrag nach den ECTS-Richtlinien festgestellt und nach diesem verfahren werden.

II. Bachelorprüfung

§ 17 Umfang und Art der Bachelorprüfung

(1) Die Bachelorprüfung besteht aus den Fachprüfungen nach Absatz 2 - 4 sowie der Bachelorarbeit (§ 11).

(2) In den ersten beiden Studienjahren sind Fachprüfungen aus folgenden Fächern durch den Nachweis von Leistungspunkten in einem oder mehreren Modulen abzulegen:

1. Betriebswirtschaftslehre im Umfang von 16 Leistungspunkten,
2. Volkswirtschaftslehre im Umfang von 5 Leistungspunkten,
3. Informatik im Umfang von 37 Leistungspunkten,
4. Mathematik im Umfang von 16 Leistungspunkten,
5. Operations Research im Umfang von 9 Leistungspunkten,
6. Statistik im Umfang von 10 Leistungspunkten,
7. Recht im Umfang von 19 Leistungspunkten.

Die Module, die ihnen zugeordneten Leistungspunkte und die Zuordnung der Module zu den Fächern sind im Studienplan festgelegt. Zur entsprechenden Modulprüfung kann nur zugelassen werden, wer die Anforderungen nach § 5 erfüllt.

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(3) Im dritten Studienjahr sind Fachprüfungen

1. aus dem Fach Informatik durch Module im Umfang von 18 Leistungspunkten,
2. aus wirtschaftswissenschaftlichen Fächern durch Module im Umfang von 18 Leistungspunkten sowie
3. aus dem Fach Recht durch Module im Umfang von 6 Leistungspunkten

abzulegen. Wirtschaftswissenschaftliche Fächer sind Betriebswirtschaftslehre, Operations Research und Volkswirtschaftslehre. Dabei sind im Fach Betriebswirtschaftslehre mindestens 9 Leistungspunkte abzulegen. Die Module, die ihnen zugeordneten Leistungspunkte und die Zuordnung der Module und Seminare zu den Fächern sind im Studienplan festgelegt.

(4) Ferner ist im dritten Studienjahr in zwei unterschiedlichen Fächern jeweils ein Seminar im Umfang von je 3 Leistungspunkten zu absolvieren. Das Seminar wird dabei in die Fachnote des Faches eingerechnet, dem das Seminar zugeordnet ist. Die Zuordnung der Seminare zu den Fächern ist im Studienplan festgelegt.

(5) Im dritten Studienjahr ist als eine weitere Prüfungsleistung eine Bachelorarbeit gemäß § 11 anzufertigen.

§ 18 Nachweise für die Bachelorprüfung

Voraussetzung für die Anmeldung zur letzten Modulprüfung der Bachelorprüfung ist die Bescheinigung über das erfolgreich abgeleistete Berufspraktikum nach § 12. In Ausnahmefällen, die der Studierende nicht zu vertreten hat, kann der Prüfungsausschuss die nachträgliche Vorlage dieses Nachweises genehmigen.

§ 19 Bestehen der Bachelorprüfung, Bildung der Gesamtnote

(1) Die Bachelorprüfung ist bestanden, wenn alle in § 17 genannten Prüfungsleistungen mindestens mit „ausreichend“ bewertet wurden.

(2) Die Gesamtnote der Bachelorprüfung errechnet sich als ein mit Leistungspunkten gewichteter Notendurchschnitt. Dabei werden die Noten des dritten Studienjahres (§ 17 Abs. 3 und 4) und der Bachelorarbeit doppelt gewichtet.

(3) Hat der Studierende die Bachelorarbeit mit der Note 1.0 und die Bachelorprüfung mit einer Gesamtnote von 1.2 oder besser abgeschlossen, so wird das Prädikat „mit Auszeichnung“ (with distinction) verliehen.

§ 20 Bachelorzeugnis, Bachelorurkunde, Transcript of Records und Diploma Supplement

(1) Über die Bachelorprüfung werden nach Bewertung der letzten Prüfungsleistung eine Bachelorurkunde und ein Zeugnis erstellt. Die Ausfertigung von Bachelorurkunde und Zeugnis soll nicht später als sechs Wochen nach der Bewertung der letzten Prüfungsleistung erfolgen. Bachelorurkunde und Bachelorzeugnis werden in deutscher und englischer Sprache ausgestellt. Bachelorurkunde und Zeugnis tragen das Datum der letzten erfolgreich nachgewiesenen Prüfungsleistung. Sie werden dem Studierenden gleichzeitig ausgehändigt. In der Bachelorurkunde wird die Verleihung des akademischen Bachelorgrades beurkundet. Die Bachelorurkunde wird vom Rektor und den Dekanen der beteiligten Fakultäten unterzeichnet und mit dem Siegel der Universität versehen.

(2) Das Zeugnis enthält die in den Fachprüfungen, den zugeordneten Modulprüfungen und der Bachelorarbeit erzielten Noten, deren zugeordnete Leistungspunkte und ECTS-Noten und die Gesamtnote und die ihr entsprechende ECTS-Note. Das Zeugnis ist von den Dekanen der beteiligten Fakultäten und vom Vorsitzenden des Prüfungsausschusses zu unterzeichnen.

(3) Weiterhin erhält der Studierende als Anhang ein Diploma Supplement in deutscher und englischer Sprache, das den Vorgaben des jeweils gültigen ECTS User’s Guide entspricht. Das

Diploma Supplement enthält eine Abschrift der Studiendaten des Studierenden (Transcript of Records).

(4) Die Abschrift der Studiendaten (Transcript of Records) enthält in strukturierter Form alle vom Studierenden erbrachten Prüfungsleistungen. Dies beinhaltet alle Fächer, Fachnoten und ihre entsprechende ECTS-Note samt den zugeordneten Leistungspunkten, die dem jeweiligen Fach zugeordneten Module mit den Modulnoten, entsprechender ECTS-Note und zugeordneten Leistungspunkten sowie die den Modulen zugeordneten Lehrveranstaltungen samt Noten und zugeordneten Leistungspunkten. Aus der Abschrift der Studiendaten sollen die Zugehörigkeit von Lehrveranstaltungen zu den einzelnen Modulen und die Zugehörigkeit der Module zu den einzelnen Fächern deutlich erkennbar sein. Angerechnete Studienleistungen sind im Transcript of Records aufzunehmen.

(5) Die Bachelorurkunde, das Bachelorzeugnis und das Diploma Supplement einschließlich des Transcript of Records werden vom Studienbüro der Universität ausgestellt.

III. Schlussbestimmungen

§ 21 Bescheid über Nicht-Bestehen, Bescheinigung von Prüfungsleistungen

(1) Der Bescheid über die endgültig nicht bestandene Bachelorprüfung wird dem Studierenden durch den Prüfungsausschuss in schriftlicher Form erteilt. Der Bescheid ist mit einer Rechtsbehelfsbelehrung zu versehen.

(2) Hat der Studierende die Bachelorprüfung endgültig nicht bestanden, wird ihm auf Antrag und gegen Vorlage der Exmatrikulationsbescheinigung eine schriftliche Bescheinigung ausgestellt, die die erbrachten Prüfungsleistungen und deren Noten enthält und erkennen lässt, dass die Prüfung insgesamt nicht bestanden ist. Dasselbe gilt, wenn der Prüfungsanspruch erloschen ist.

§ 22 Ungültigkeit der Bachelorprüfung, Aberkennung des Bachelorgrades

(1) Hat der Studierende bei einer Prüfung getäuscht und wird diese Tatsache erst nach der Aushändigung des Zeugnisses bekannt, so kann der Prüfungsausschuss nachträglich die Noten für diejenigen Prüfungsleistungen, bei deren Erbringung der Studierende getäuscht hat, entsprechend berichtigen und die Prüfung ganz oder teilweise für „nicht bestanden“ erklären.

(2) Waren die Voraussetzungen für die Zulassung zu einer Prüfung nicht erfüllt, ohne dass der Studierende darüber täuschen wollte, und wird diese Tatsache erst nach Aushändigung des Zeugnisses bekannt, wird dieser Mangel durch das Bestehen der Prüfung geheilt. Hat der Studierende die Zulassung vorsätzlich zu Unrecht erwirkt, so kann die Modulprüfung für „nicht ausreichend” (5.0) und die Bachelorprüfung für „nicht bestanden“ erklärt werden.

(3) Dem Studierenden ist vor einer Entscheidung nach Absatz 1 und Absatz 2 Satz 2 Gelegenheit zur Äußerung zu geben.

(4) Das unrichtige Zeugnis ist zu entziehen und gegebenenfalls ein neues zu erteilen. Dies bezieht sich auch auf alle davon betroffenen Anlagen (Transcript of Records und Diploma Supplement). Mit dem unrichtigen Zeugnis ist auch die Bachelorurkunde und alle Anlagen (Transcript of Records und Diploma Supplement) einzuziehen, wenn die Prüfung aufgrund einer Täuschung für „nicht bestanden“ erklärt wurde.

(5) Eine Entscheidung nach Absatz 1 oder Absatz 2 Satz 2 ist nach einer Frist von fünf Jahren ab dem Datum des Prüfungszeugnisses ausgeschlossen.

(6) Die Aberkennung des akademischen Bachelorgrades richtet sich nach den gesetzlichen Bestimmungen.

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§ 23 Einsicht in die Prüfungsakten

(1) Nach Abschluss der Bachelorprüfung wird dem Studierenden auf Antrag innerhalb eines Jahres Einsicht in seine Bachelorarbeit, die darauf bezogenen Gutachten und in die Prüfungsprotokolle gewährt.

(2) Für die Einsichtnahme in die schriftlichen Modulprüfungen, schriftlichen Modulteilprüfungen bzw. Prüfungsprotokolle gilt eine Frist von einem Monat nach Bekanntgabe des Prüfungsergebnisses.

(3) Der Prüfer bestimmt Ort und Zeit der Einsichtnahme.

(4) Prüfungsunterlagen sind mindestens fünf Jahre aufzubewahren.

§ 24 In-Kraft-Treten

(1) Diese Satzung tritt am 1. Oktober 2009 in Kraft.

(2) Studierende, die ihr Studium an der Universität Karlsruhe (TH) auf Grundlage der Prüfungsordnung für den Bachelorstudiengang Informationswirtschaft vom 12. August 2005 (Amtliche Bekanntmachung der Universität Karlsruhe (TH) Nr. 29 vom 14. Oktober 2005) in der Fassung der Neubekanntmachung vom 15. August 2008 (Amtliche Bekanntmachung der Universität Karlsruhe (TH) Nr. 65 vom 18. August 2008) aufgenommen haben, können einen Antrag auf Zulassung zur Prüfung letztmalig am 30. September 2013 stellen.

(3) Auf Antrag können Studierende, die ihr Studium an der Universität Karlsruhe (TH) auf Grundlage der Prüfungsordnung für den Bachelorstudiengang Informationswirtschaft vom 12. August 2005 (Amtliche Bekanntmachung der Universität Karlsruhe (TH) Nr. 29 vom 14. Oktober 2005) in der Fassung der Neubekanntmachung vom 15. August 2008 (Amtliche Bekanntmachung der Universität Karlsruhe (TH) Nr. 65 vom 18. August 2008) begonnen haben, ihr Studium nach der vorliegenden Prüfungsordnung fortsetzen. Der Prüfungsausschuss stellt dabei fest, ob und wie die bisher erbrachten Prüfungsleistungen in den neuen Studienplan integriert werden können und nach welchen Bedingungen das Studium nach einem Wechsel fortgeführt werden kann.

Karlsruhe, den 15. April 2009

Professor Dr. sc. tech. Horst Hippler
(Rektor)

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