

# Module Handbook Information Engineering and Management B.Sc.

SPO 2015

Winter term 2019/20

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KIT DEPARTMENT OF ECONOMICS AND MANAGEMENT / KIT DEPARTMENT OF INFORMATICS



## Table Of Contents

<b>1. Welcome to the new module handbook of your study programme .....</b>	<b>7</b>
<b>2. About this handbook .....</b>	<b>8</b>
2.1. Notes and rules .....	8
2.1.1. Begin and completion of a module .....	8
2.1.2. Module versions .....	8
2.1.3. General and partial examinations .....	8
2.1.4. Types of exams .....	8
2.1.5. Repeating exams .....	8
2.1.6. Examiners .....	9
2.1.7. Additional accomplishments .....	9
2.1.8. Further information .....	9
<b>3. The Bachelor's degree program in Information Engineering and Management.....</b>	<b>10</b>
3.1. Qualification objectives of the Bachelor's degree in Information Engineering and Management .....	10
3.2. Structure of the Bachelor's degree program in Information Engineering and Management SPO 2015 .....	10
<b>4. Field of study structure.....</b>	<b>13</b>
4.1. Orientation Exam .....	13
4.2. Bachelor Thesis .....	13
4.3. Internship .....	13
4.4. Business Administration .....	13
4.5. Economics .....	14
4.6. Informatics .....	14
4.7. Mathematics .....	14
4.8. Operations Research .....	14
4.9. Statistics .....	14
4.10. Law .....	14
4.11. Advanced Studies in Informatics .....	15
4.12. Advanced Studies in Economics and Management .....	16
4.13. Advanced Studies in Law .....	17
4.14. Research Course .....	17
<b>5. Modules .....</b>	<b>18</b>
5.1. Advanced Object Orientation - M-INFO-100809 .....	18
5.2. Algorithmic Methods for Hard Optimization Problems - M-INFO-101237 .....	19
5.3. Algorithms for Planar Graphs - M-INFO-101220 .....	20
5.4. Algorithms I - M-INFO-100030 .....	21
5.5. Algorithms II - M-INFO-101173 .....	22
5.6. Applications of Operations Research - M-WIWI-101413 .....	23
5.7. Applied Informatics - M-WIWI-101430 .....	25
5.8. Applied Microeconomics - M-WIWI-101499 .....	26
5.9. Basic Notions of Computer Science - M-INFO-101170 .....	27
5.10. Business Administration - M-WIWI-101492 .....	28
5.11. Business Processes and Information Systems - M-WIWI-101476 .....	29
5.12. Commercial Law - M-INFO-101191 .....	30
5.13. Communication and Database Systems - M-INFO-101178 .....	31
5.14. Computer Architecture - M-INFO-100818 .....	32
5.15. Computer Engineering - M-INFO-101836 .....	33
5.16. Constitutional and Administrative Law - M-INFO-101192 .....	34
5.17. CRM and Service Management - M-WIWI-101460 .....	35
5.18. Database Systems in Theory and Practice - M-INFO-101229 .....	36
5.19. Design, Construction and Sustainability Assessment of Buildings - M-WIWI-101467 .....	37
5.20. Digital Circuits Design - M-INFO-102978 .....	38
5.21. eBusiness and Service Management - M-WIWI-101434 .....	39
5.22. Economic Policy I - M-WIWI-101668 .....	41
5.23. Economic Theory - M-WIWI-101501 .....	42
5.24. Economics - M-WIWI-101431 .....	43
5.25. eFinance - M-WIWI-101402 .....	44
5.26. Empirical Finance - M-WIWI-105035 .....	45
5.27. Energy Economics - M-WIWI-101464 .....	46

5.28. Essentials of Finance - M-WIWI-101435 .....	47
5.29. Foundations in Business Administration - M-WIWI-101491 .....	48
5.30. Foundations of Information Systems - M-INFO-101193 .....	49
5.31. Foundations of Marketing - M-WIWI-101424 .....	50
5.32. Fundamentals of Digital Service Systems - M-WIWI-102752 .....	51
5.33. Human Resources and Organizations - M-WIWI-101513 .....	52
5.34. Industrial Production I - M-WIWI-101437 .....	53
5.35. Information Security - M-WIWI-104069 .....	54
5.36. Information Services in Networks - M-WIWI-101440 .....	55
5.37. Intellectual Property and Data Protection - M-INFO-101253 .....	56
5.38. Internship - M-WIWI-101433 .....	57
5.39. Introduction to Civil Law - M-INFO-101190 .....	59
5.40. Introduction to Data and Information Management - M-INFO-101235 .....	60
5.41. Introduction to Operations Research - M-WIWI-101418 .....	61
5.42. Introduction to Statistics - M-WIWI-101432 .....	62
5.43. IT-Security Management for Networked Systems - M-INFO-100786 .....	63
5.44. Lego Mindstorms - Practical Course - M-INFO-102557 .....	64
5.45. Mathematics I - M-MATH-101311 .....	65
5.46. Mathematics II - M-MATH-101312 .....	66
5.47. Mechano-Informatics and Robotics - M-INFO-100757 .....	67
5.48. Methodical Foundations of OR - M-WIWI-101936 .....	68
5.49. Mobile Computing and Internet of Things - M-INFO-101249 .....	69
5.50. Mobile Robots – Practical Course - M-INFO-101184 .....	70
5.51. Module Bachelor Thesis - M-WIWI-101611 .....	71
5.52. Optimization under Uncertainty - M-WIWI-103337 .....	72
5.53. Orientation Exam - M-WIWI-101528 .....	73
5.54. Programming - M-INFO-101174 .....	74
5.55. Public Finance - M-WIWI-101403 .....	75
5.56. Real Estate Management - M-WIWI-101466 .....	76
5.57. Security - M-INFO-100834 .....	77
5.58. Semantic Knowledge Management - M-WIWI-101438 .....	78
5.59. Seminar Module Economic Sciences - M-WIWI-101826 .....	79
5.60. Seminar Module Informatics - M-INFO-102058 .....	80
5.61. Seminar Module Law - M-INFO-101218 .....	81
5.62. Software Engineering I - M-INFO-101175 .....	82
5.63. Software Engineering II - M-INFO-100833 .....	83
5.64. Specialization in Customer Relationship Management - M-WIWI-101422 .....	84
5.65. Statistics and Econometrics - M-WIWI-101599 .....	86
5.66. Strategy and Organization - M-WIWI-101425 .....	87
5.67. Supply Chain Management - M-WIWI-101421 .....	88
5.68. Telematics - M-INFO-101194 .....	89
5.69. Theoretical Informatics - M-INFO-101189 .....	90
5.70. Topics in Finance I - M-WIWI-101465 .....	91
5.71. Topics in Finance II - M-WIWI-101423 .....	92
<b>6. Courses.....</b>	<b>93</b>
6.1. Advanced Lab Informatics (Master) - T-WIWI-110541 .....	93
6.2. Advanced Lab Informatics (Master) - T-WIWI-110548 .....	94
6.3. Advanced Lab Security - T-WIWI-109786 .....	95
6.4. Advanced Lab Security, Usability and Society - T-WIWI-108439 .....	96
6.5. Advanced Object Orientation - T-INFO-101346 .....	97
6.6. Advanced Topics in Economic Theory - T-WIWI-102609 .....	98
6.7. Algorithmic Methods for Hard Optimization Problems - T-INFO-103334 .....	99
6.8. Algorithms for Planar Graphs - T-INFO-101986 .....	100
6.9. Algorithms I - T-INFO-100001 .....	101
6.10. Algorithms II - T-INFO-102020 .....	102
6.11. Analysis of Multivariate Data - T-WIWI-103063 .....	103
6.12. Applied Informatics – Applications of Artificial Intelligence - T-WIWI-110340 .....	104
6.13. Applied Informatics – Information Security - T-WIWI-110342 .....	106
6.14. Applied Informatics – Modelling - T-WIWI-110338 .....	108

6.15. Applied Informatics – Principles of Internet Computing: Foundations for Emerging Technologies and Future Services - T-WIWI-110339	110
6.16. Auction & Mechanism Design - T-WIWI-102876	112
6.17. Bachelor Thesis - T-WIWI-103095	114
6.18. Basic Notions of Computer Science - T-INFO-101964	115
6.19. Basic Notions of Computer Science Pass - T-INFO-101965	116
6.20. Basic Principles of Economic Policy - T-WIWI-103213	117
6.21. Basics of German Company Tax Law and Tax Planning - T-WIWI-108711	120
6.22. Big Data Analytics - T-INFO-101305	121
6.23. Big Data Analytics 2 - T-INFO-105742	122
6.24. Business Administration: Finance and Accounting - T-WIWI-102819	123
6.25. Business Administration: Production Economics and Marketing - T-WIWI-102818	124
6.26. Business Process Modelling - T-WIWI-102697	126
6.27. Business Strategies of Banks - T-WIWI-102626	127
6.28. Civil Law for Beginners - T-INFO-103339	129
6.29. Competition in Networks - T-WIWI-100005	130
6.30. Computer Architecture - T-INFO-101355	131
6.31. Computer Organization - T-INFO-103531	132
6.32. Consulting in Practice - T-INFO-101975	133
6.33. Customer Relationship Management - T-WIWI-102595	134
6.34. Data and Storage Management - T-INFO-101276	136
6.35. Data Mining and Applications - T-WIWI-103066	137
6.36. Database Systems - T-INFO-101497	139
6.37. Decision Theory - T-WIWI-102792	140
6.38. Deployment of Database Systems - T-INFO-101317	141
6.39. Derivatives - T-WIWI-102643	142
6.40. Design, Construction and Sustainability Assessment of Buildings I - T-WIWI-102742	143
6.41. Design, Construction and Sustainability Assessment of Buildings II - T-WIWI-102743	144
6.42. Digital Circuits Design - T-INFO-103469	146
6.43. Digital Services - T-WIWI-109938	147
6.44. Economics and Behavior - T-WIWI-102892	149
6.45. Economics I: Microeconomics - T-WIWI-102708	150
6.46. Economics III: Introduction in Econometrics - T-WIWI-102736	151
6.47. eFinance: Information Systems for Securities Trading - T-WIWI-109941	152
6.48. Empirical Finance - T-WIWI-110216	154
6.49. Energy Policy - T-WIWI-102607	155
6.50. Enterprise Architecture Management - T-WIWI-102668	156
6.51. Exercises in Civil Law - T-INFO-102013	157
6.52. Facility Location and Strategic Supply Chain Management - T-WIWI-102704	158
6.53. Financial Accounting and Cost Accounting - T-WIWI-102816	159
6.54. Financial Accounting for Global Firms - T-WIWI-107505	160
6.55. Financial Econometrics - T-WIWI-103064	162
6.56. Financial Intermediation - T-WIWI-102623	163
6.57. Financial Management - T-WIWI-102605	164
6.58. Foundations of Interactive Systems - T-WIWI-109816	165
6.59. Foundations of Mobile Business - T-WIWI-104679	166
6.60. Fundamentals of Production Management - T-WIWI-102606	167
6.61. Global Optimization I - T-WIWI-102726	168
6.62. Global Optimization I and II - T-WIWI-103638	170
6.63. Global Optimization II - T-WIWI-102727	172
6.64. Human Resource Management - T-WIWI-102909	174
6.65. Industrial Organization - T-WIWI-102844	175
6.66. Integrated Network and Systems Management - T-INFO-101284	176
6.67. Intellectual Property and Data Protection - T-INFO-109840	177
6.68. International Finance - T-WIWI-102646	178
6.69. International Marketing - T-WIWI-102807	179
6.70. Internship - T-WIWI-103093	180
6.71. Introduction in Computer Networks - T-INFO-102015	181
6.72. Introduction to Energy Economics - T-WIWI-102746	182
6.73. Introduction to Game Theory - T-WIWI-102850	183

6.74. Introduction to Information Engineering and Management - T-WIWI-102757 .....	184
6.75. Introduction to Operations Research I and II - T-WIWI-102758 .....	186
6.76. Introduction to Public Finance - T-WIWI-102877 .....	188
6.77. Introduction to Stochastic Optimization - T-WIWI-106546 .....	189
6.78. Investments - T-WIWI-102604 .....	190
6.79. IT-Security Management for Networked Systems - T-INFO-101323 .....	191
6.80. Lab: Working with Database Systems - T-INFO-103552 .....	192
6.81. Logistics - Organisation, Design and Control of Logistic Systems - T-MACH-102089 .....	193
6.82. Logistics and Supply Chain Management - T-WIWI-102870 .....	195
6.83. Macroeconomic Theory - T-WIWI-109121 .....	196
6.84. Management and Strategy - T-WIWI-102629 .....	197
6.85. Managing Organizations - T-WIWI-102630 .....	198
6.86. Managing the Marketing Mix - T-WIWI-102805 .....	199
6.87. Mathematics I for Information Engineering and Management - Exam - T-MATH-102266 .....	200
6.88. Mathematics I for Information Engineering and Management - Exercise - T-MATH-102267 .....	201
6.89. Mathematics II for Information Engineering and Management - Exam - T-MATH-102269 .....	202
6.90. Mathematics II for Information Engineering and Management - Exercise - T-MATH-102268 .....	203
6.91. Mechanisms and Applications of Workflow Systems - T-INFO-101257 .....	204
6.92. Mechano-Informatics and Robotics - T-INFO-101294 .....	205
6.93. Mobile Computing and Internet of Things - T-INFO-102061 .....	206
6.94. Mobile Robots – Practical Course - T-INFO-101992 .....	207
6.95. Modeling and OR-Software: Introduction - T-WIWI-106199 .....	208
6.96. Nonlinear Optimization I - T-WIWI-102724 .....	209
6.97. Nonlinear Optimization I and II - T-WIWI-103637 .....	211
6.98. Nonlinear Optimization II - T-WIWI-102725 .....	213
6.99. Operative CRM - T-WIWI-102597 .....	215
6.100. Optimization under Uncertainty - T-WIWI-106545 .....	217
6.101. Personnel Policies and Labor Market Institutions - T-WIWI-102908 .....	218
6.102. Platform Economy - T-WIWI-109936 .....	219
6.103. Practical Course: Lego Mindstorms - T-INFO-107502 .....	220
6.104. Practical Seminar Digital Services - T-WIWI-105711 .....	221
6.105. Problem Solving, Communication and Leadership - T-WIWI-102871 .....	222
6.106. Process Mining - T-WIWI-109799 .....	224
6.107. Production Economics and Sustainability - T-WIWI-102820 .....	226
6.108. Programming - T-INFO-101531 .....	227
6.109. Programming Pass - T-INFO-101967 .....	228
6.110. Project Management in Practice - T-INFO-101976 .....	229
6.111. Public Law I - Basic Principles - T-INFO-101963 .....	230
6.112. Public Law I & II - T-INFO-110300 .....	231
6.113. Public Law II - Public Business Law - T-INFO-102042 .....	232
6.114. Public Revenues - T-WIWI-102739 .....	233
6.115. Public Sector Finance - T-WIWI-109590 .....	235
6.116. Python for Empirical Finance - T-WIWI-110217 .....	236
6.117. Real Estate Management I - T-WIWI-102744 .....	237
6.118. Real Estate Management II - T-WIWI-102745 .....	238
6.119. Renewable Energy-Resources, Technologies and Economics - T-WIWI-100806 .....	240
6.120. Security - T-INFO-101371 .....	242
6.121. Selling IT-Solutions Professionally - T-INFO-101977 .....	243
6.122. Semantic Web Technologies - T-WIWI-102874 .....	244
6.123. Seminar in Business Administration (Bachelor) - T-WIWI-103486 .....	246
6.124. Seminar in Economics (Bachelor) - T-WIWI-103487 .....	252
6.125. Seminar in Informatics (Bachelor) - T-WIWI-103485 .....	255
6.126. Seminar in Operations Research (Bachelor) - T-WIWI-103488 .....	259
6.127. Seminar in Statistics (Bachelor) - T-WIWI-103489 .....	261
6.128. Seminar Informatics A - T-INFO-104336 .....	262
6.129. Seminar: Legal Studies I - T-INFO-101997 .....	263
6.130. Services Marketing and B2B Marketing - T-WIWI-102806 .....	264
6.131. Software Engineering I - T-INFO-101968 .....	265
6.132. Software Engineering I Pass - T-INFO-101995 .....	266
6.133. Software Engineering II - T-INFO-101370 .....	267

6.134. Special Topics in Information Systems - T-WIWI-109940 .....	268
6.135. Special Topics of Applied Informatics - T-WIWI-102910 .....	269
6.136. Statistical Modeling of Generalized Regression Models - T-WIWI-103065 .....	270
6.137. Statistics I - T-WIWI-102737 .....	271
6.138. Statistics II - T-WIWI-102738 .....	272
6.139. Strategic Finance and Technoloy Change - T-WIWI-110511 .....	273
6.140. Tactical and Operational Supply Chain Management - T-WIWI-102714 .....	274
6.141. Technical Conditions Met - T-WIWI-106623 .....	276
6.142. Telematics - T-INFO-101338 .....	277
6.143. Theoretical Foundations of Computer Science - T-INFO-103235 .....	278
6.144. Welfare Economics - T-WIWI-102610 .....	279
6.145. Wildcard eBusiness and Service Management - T-WIWI-109808 .....	280
6.146. Wildcard Supply Chain Management - T-WIWI-109802 .....	281
6.147. Wildcard Supply Chain Management - T-WIWI-109803 .....	282

## 1 Welcome to the new module handbook of your study programme

We are delighted that you have decided to study at the KIT Department of Economics and Management and wish you a good start into the new semester!

The following contact persons are at your disposal for questions and problems at any time.

For modules and courses with INFO-Id:



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For modules and courses with WIWI-Id



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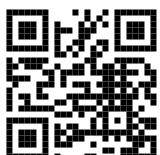
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## 2 About this handbook

### 2.1 Notes and rules

The program exists of several **subjects** (e.g. business administration, economics, operations research). Every subject is split into **modules** and every module itself consists of one or more interrelated **module component exams**. 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 program, 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 program according to personal needs, interest and job perspective. The **module handbook** describes the modules belonging to the program. It describes particularly:

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

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

#### 2.1.1 Begin and completion of a module

Each module and each examination can only be selected once. The decision on the assignment of an examination to a module (if, for example, an examination in several modules is selectable) is made by the student at the moment when he / she is registered for the appropriate examination. A module is completed or passed when the module examination is passed (grade 4.0 or better). For modules in which the module examination is carried out over several partial examinations, the following applies: The module is completed when all necessary module partial examinations have been passed. In the case of modules which offer alternative partial examinations, the module examination is concluded with the examination with which the required total credit points are reached or exceeded. The module grade, however, is combined with the weight of the predefined credit points for the module in the overall grade calculation.

#### 2.1.2 Module versions

It is not uncommon for modules to be revised due to, for example, new courses or cancelled examinations. As a rule, a new module version is created, which applies to all students who are new to the module. On the other hand, students who have already started the module enjoy confidence and remain in the old module version. These students can complete the module on the same conditions as at the beginning of the module (exceptions are regulated by the examination committee). The date of the student's "binding declaration" on the choice of the module in the sense of §5(2) of the Study and Examination Regulation is decisive. This binding declaration is made by registering for the first examination in this module.

In the module handbook, all modules are presented in their current version. The version number is given in the module description. Older module versions can be accessed via the previous module handbooks in the archive at [http://www.wiwi.kit.edu/Archiv\\_MHB.php](http://www.wiwi.kit.edu/Archiv_MHB.php).

#### 2.1.3 General and partial examinations

Module examinations can be either taken in a general examination or in partial examinations. If the module examination is offered as a general examination, the entire learning content of the module will be examined in a single examination. If the module examination is subdivided into partial examinations, the content of each course will be examined in corresponding partial examinations. Registration for examinations can be done online at the campus management portal. The following functions can be accessed on <https://campus.studium.kit.edu/>:

- Register/unregister for examinations
- Check for examination results
- Create transcript of records

For further and more detailed information, <https://studium.kit.edu/Seiten/FAQ.aspx>.

#### 2.1.4 Types of exams

Exams are split into written exams, oral exams and alternative exam assessments. Exams are always graded. Non exam assessments can be repeated several times and are not graded.

#### 2.1.5 Repeating exams

Principally, a failed written exam, oral exam or alternative exam assessment 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. A request for a



second repetition has to be made in written form to the examination committee two months after losing the examination claim. A counseling interview is mandatory.

For further information see <http://www.wiwi.kit.edu/hinweiseZweitwdh.php>.

### **2.1.6 Examiners**

The examination committee has appointed the KIT examiners and lecturers listed in the module handbook for the modules and their courses as examiners for the courses they offer.

### **2.1.7 Additional accomplishments**

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. Additional accomplishments with at most 30 CP may appear additionally in the certificate.

### **2.1.8 Further information**

More detailed information about the legal and general conditions of the program can be found in the examination regulation of the program (<http://www.sle.kit.edu/amtlicheBekanntmachungen.php>).

### 3 The Bachelor's degree program in Information Engineering and Management

#### 3.1 Qualification objectives of the Bachelor's degree in Information Engineering and Management

Graduates with a Bachelor's degree in Information Engineering and Management are equipped with strategically oriented basic knowledge in the fields of informatics (theoretical computer science, algorithms, programming technology and software engineering), economic sciences (business-related topics from the financial industry, information industry, production management, marketing and accounting as well as economic correlations of microeconomics) and law (basics of private law, private business law and of the constitutional and administrative law) as well as mathematics, statistics and operation research.

Through the comprehensive methodological basis, the graduates are in a position to acknowledge and apply specialized basic concepts, methods, models and approaches.

The graduates have an in-depth knowledge in computer science and law.

They can acknowledge, describe and communicate economic, IT and legal problems. This hereby entails planning, analyzing, comparing, reviewing and optimizing products, systems and processes. They make decisions, develop specialized solutions and implement their innovative ideas using methods and models from different disciplines within the framework of the available resources. They know how to illustrate, validate, review and guarantee the quality of the results achieved.

The practical use of their know-how also takes into account the social, scientific and ethical aspects.

Through the interdisciplinary nature of the course, the graduates can effectively respond at the interface of the different topics as well as set up targeted communication between the respective disciplines.

The graduates are in a position to work in a team and cope with challenges, e.g., those encountered in information and communication technology fields.

They have the ability to exercise career-related activities in the industry, service sector or in trade, start their own firms or take up a Master's degree program in Information Engineering and Management or any other related course.

#### 3.2 Structure of the Bachelor's degree program in Information Engineering and Management SPO 2015

The Bachelor's degree program in **Information Engineering and Management SPO 2015** 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 2 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.

	Term	Credits	Informatics		Business Administration	Economics	Operations Research	Statistics	Mathematics	Law		Internship
Basic Program	1 (WT)	32	Foundations in Informatics 6 CP		Foundations in BUS 8 CP	ECON 5 CP			MATH 1 8 CP	Introduction to Civil Law 4 CP		
			Programming 5 CP									
	2 (ST)	30,5	Algorithms 1 6 CP				OR 9 CP	STAT 10 CP	MATH 2 8 CP	Commercial Law 9 CP		
	3 (WT)	29,5	Theor. Informatics 6 CP	Applied Informatics 8 CP	BUS 8 CP							
			4 (ST)			28	Software Engineering 1 6 CP					
Specialization Program	Term	Credits	Advanced Studies in Informatics		Advanced Studies in Economics and Management		Advanced Studies in Law		Research Course		Bachelor Thesis	
	5 (WT)	27	Modules 18 CP		BUS-Module 9 CP	Module 9 CP	Modules 6 CP		2 Seminars 3 CP + 3 CP			
	6 (ST)	33										
		180										

Figure 2: Structure of Bachelor's degree program in Information Engineering and Management SPO2015 (recommendation)

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. Figure 3 shows the allocation of courses to modules and the curriculum for the first four terms.

ModulID	Course	Hours per week	CP
<b>1st Term</b>			
M-WIWI-101491	Business Administration: Finance and Accounting	2/0/2	4.0
M-WIWI-101431	Economics I	3/0/2	5.0
M-MATH-101311	Mathematics I	4/2/2	8.0
M-INFO-101170	Basic Notions of Computer Science	3/1/3	6.0
M-INFO-101174	Programming	2/0/2	5.0
M-INFO-101190	Civil Law for Beginners	4/0	4.0
			32.0
<b>2nd Term</b>			
M-WIWI-101491	Introduction to Information Engineering and Management	2/0/2	4.0
M-WIWI-101432	Statistics I	4/0/2	5.0
M-WIWI-101418	Introduction to Operations Research I	2/2/2	4.5
M-MATH-101312	Mathematics II	4/2/2	8.0
M-INFO-100030	Algorithms I	3/1/2	6.0
M-INFO-101191	Advanced Civil Law	2/0	3.0
			30.5
<b>3rd Term</b>			
M-WIWI-101492	Financial Accounting and Cost Accounting	2/2	4.0
M-WIWI-101432	Statistics II	4/0/2	5.0
M-WIWI-101418	Introduction to Operations Research II	2/2/2	4.5
M-INFO-101189	Theoretical Foundation of Computer Science	3/1/2	6.0
M-WIWI-101430	Applied Informatics I	2/1	4.0
M-INFO-101191	Commercial and Corporate Law	2/0	3.0
M-INFO-101192	Public Law I	2/0	3.0
			29.5
<b>4th Term</b>			
M-WIWI-101492	Business Administration: Production Economics and Marketing	2/0/2	4.0
M-WIWI-101430	Applied Informatics II	2/1/1	4.0
M-INFO-101175	Software Engineering I	3/1/2	6.0
M-INFO-101192	Public Law II	2/0	3.0
M-INFO-101191	Exercises in Civil Law	2/2/0	3.0
M-WIWI-101433	Internship		8.0
			28.0
			120.0

Figure 3: Curriculum in the terms 1-4

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

- module(s) with 18 credits in informatics
- a module with 9 credits in the subject Business Administration
- a module with 9 credits in the subject BA/OR/EC,
- a module with 6 credits in law,

- two out of the three seminar modules with 3 credits each,
- and the bachelor thesis with 12 credits.

## 4 Field of study structure

Mandatory	
Orientation Exam	
Bachelor Thesis	12 CR
Internship	8 CR
Business Administration	16 CR
Economics	5 CR
Informatics	37 CR
Mathematics	16 CR
Operations Research	9 CR
Statistics	10 CR
Law	19 CR
Advanced Studies in Informatics	18 CR
Advanced Studies in Economics and Management	18 CR
Advanced Studies in Law	6 CR
Research Course	6 CR

### 4.1 Orientation Exam

Mandatory		
M-WIWI-101528	Orientation Exam	0 CR

### 4.2 Bachelor Thesis

**Credits**  
12

Mandatory		
M-WIWI-101611	Module Bachelor Thesis	12 CR

### 4.3 Internship

**Credits**  
8

Mandatory		
M-WIWI-101433	Internship	8 CR

### 4.4 Business Administration

**Credits**  
16

Mandatory		
M-WIWI-101491	Foundations in Business Administration	8 CR
M-WIWI-101492	Business Administration	8 CR

**4.5 Economics****Credits**  
5

Mandatory		
M-WIWI-101431	Economics	5 CR

**4.6 Informatics****Credits**  
37

Mandatory		
M-INFO-101170	Basic Notions of Computer Science	6 CR
M-INFO-101174	Programming	5 CR
M-INFO-100030	Algorithms I	6 CR
M-WIWI-101430	Applied Informatics	8 CR
M-INFO-101189	Theoretical Informatics	6 CR
M-INFO-101175	Software Engineering I	6 CR

**4.7 Mathematics****Credits**  
16

Mandatory		
M-MATH-101311	Mathematics I	8 CR
M-MATH-101312	Mathematics II	8 CR

**4.8 Operations Research****Credits**  
9

Mandatory		
M-WIWI-101418	Introduction to Operations Research	9 CR

**4.9 Statistics****Credits**  
10

Mandatory		
M-WIWI-101432	Introduction to Statistics	10 CR

**4.10 Law****Credits**  
19

Mandatory		
M-INFO-101190	Introduction to Civil Law	4 CR
M-INFO-101191	Commercial Law	9 CR
M-INFO-101192	Constitutional and Administrative Law	6 CR

**Prerequisites**

xxx

**4.11 Advanced Studies in Informatics****Credits**  
18

Election block: Vertiefungsfach Informatik Wahl (at least 1 item as well as at least 18 credits)		
M-WIWI-101438	Semantic Knowledge Management	9 CR
M-WIWI-101440	Information Services in Networks	9 CR
M-WIWI-101476	Business Processes and Information Systems	9 CR
M-INFO-100809	Advanced Object Orientation	5 CR
M-INFO-100818	Computer Architecture	6 CR
M-INFO-100833	Software Engineering II	6 CR
M-INFO-100834	Security	6 CR
M-INFO-101173	Algorithms II	6 CR
M-INFO-101193	Foundations of Information Systems	9 CR
M-INFO-101194	Telematics	10 CR
M-INFO-101220	Algorithms for Planar Graphs	5 CR
M-INFO-101229	Database Systems in Theory and Practice	9 CR
M-INFO-101235	Introduction to Data and Information Management	9 CR
M-INFO-101237	Algorithmic Methods for Hard Optimization Problems	5 CR
M-INFO-101249	Mobile Computing and Internet of Things	5 CR
M-INFO-101178	Communication and Database Systems	8 CR
M-INFO-101836	Computer Engineering	6 CR
M-INFO-100757	Mechano-Informatics and Robotics	4 CR
M-INFO-100786	IT-Security Management for Networked Systems	5 CR
M-INFO-101184	Mobile Robots – Practical Course	4 CR
M-INFO-102557	Lego Mindstorms – Practical Course	4 CR
M-INFO-102978	Digital Circuits Design	6 CR
M-WIWI-104069	Information Security	9 CR

## 4.12 Advanced Studies in Economics and Management

Credits  
18

Election block: Betriebswirtschaftslehre Wahl (1 item)		
M-WIWI-101434	eBusiness and Service Management	9 CR
M-WIWI-101421	Supply Chain Management	9 CR
M-WIWI-101402	eFinance	9 CR
M-WIWI-101460	CRM and Service Management <i>First usage possible until 3/30/2020.</i>	9 CR
M-WIWI-101422	Specialization in Customer Relationship Management <i>First usage possible until 3/30/2020.</i>	9 CR
M-WIWI-101425	Strategy and Organization	9 CR
M-WIWI-101437	Industrial Production I	9 CR
M-WIWI-101464	Energy Economics	9 CR
M-WIWI-101435	Essentials of Finance	9 CR
M-WIWI-101465	Topics in Finance I	9 CR
M-WIWI-101467	Design, Construction and Sustainability Assessment of Buildings	9 CR
M-WIWI-101466	Real Estate Management	9 CR
M-WIWI-101424	Foundations of Marketing	9 CR
M-WIWI-101513	Human Resources and Organizations	9 CR
M-WIWI-102752	Fundamentals of Digital Service Systems	9 CR
M-WIWI-101423	Topics in Finance II	9 CR
M-WIWI-105035	Empirical Finance	9 CR
Election block: Wirtschaftswissenschaften Wahl (1 item)		
M-WIWI-101402	eFinance	9 CR
M-WIWI-101421	Supply Chain Management	9 CR
M-WIWI-101422	Specialization in Customer Relationship Management <i>First usage possible until 3/30/2020.</i>	9 CR
M-WIWI-101424	Foundations of Marketing	9 CR
M-WIWI-101425	Strategy and Organization	9 CR
M-WIWI-101434	eBusiness and Service Management	9 CR
M-WIWI-101435	Essentials of Finance	9 CR
M-WIWI-101437	Industrial Production I	9 CR
M-WIWI-101460	CRM and Service Management <i>First usage possible until 3/30/2020.</i>	9 CR
M-WIWI-101464	Energy Economics	9 CR
M-WIWI-101465	Topics in Finance I	9 CR
M-WIWI-101466	Real Estate Management	9 CR
M-WIWI-101467	Design, Construction and Sustainability Assessment of Buildings	9 CR
M-WIWI-101413	Applications of Operations Research	9 CR
M-WIWI-101499	Applied Microeconomics	9 CR
M-WIWI-101501	Economic Theory	9 CR
M-WIWI-101513	Human Resources and Organizations	9 CR
M-WIWI-101599	Statistics and Econometrics	9 CR
M-WIWI-101936	Methodical Foundations of OR	9 CR
M-WIWI-102752	Fundamentals of Digital Service Systems	9 CR
M-WIWI-103337	Optimization under Uncertainty	9 CR
M-WIWI-101403	Public Finance	9 CR
M-WIWI-101423	Topics in Finance II	9 CR
M-WIWI-101668	Economic Policy I	9 CR
M-WIWI-105035	Empirical Finance	9 CR



**4.13 Advanced Studies in Law****Credits**  
**6**

<b>Mandatory</b>		
M-INFO-101253	Intellectual Property and Data Protection	6 CR

**4.14 Research Course****Credits**  
**6**

<b>Election block: Forschungsfach Wahl (2 aus 3 Modulen) (2 items)</b>		
M-WIWI-101826	Seminar Module Economic Sciences	3 CR
M-INFO-101218	Seminar Module Law	3 CR
M-INFO-102058	Seminar Module Informatics	3 CR

## 5 Modules

### M

#### 5.1 Module: Advanced Object Orientation [M-INFO-100809]

**Responsible:** Prof. Dr.-Ing. Gregor Snelting  
**Organisation:** KIT Department of Informatics  
**Part of:** [Advanced Studies in Informatics](#)

**Credits**  
5

**Recurrence**  
Each summer term

**Duration**  
1 semester

**Language**  
German

**Level**  
3

**Version**  
1

Mandatory			
T-INFO-101346	<a href="#">Advanced Object Orientation</a>	5 CR	Snelting

#### Content

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

#### Annotation

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.

**M****5.2 Module: Algorithmic Methods for Hard Optimization Problems [M-INFO-101237]**

**Responsible:** Prof. Dr. Dorothea Wagner  
**Organisation:** KIT Department of Informatics  
**Part of:** [Advanced Studies in Informatics](#)

Credits	Recurrence	Duration	Language	Level	Version
5	Irregular	1 semester	German	3	1

Mandatory			
T-INFO-103334	<a href="#">Algorithmic Methods for Hard Optimization Problems</a>	5 CR	Wagner

**Competence Goal**

The goal of this course is to familiarize the students with hard problems and possible approaches to solve them. Online problems may also be part of the course.

**Content**

There are many practical problems that cannot be solved optimally - some not at all and some not in a reasonable amount of time. An example is the "bin packing problem" where a collection of objects must be packed using a possibly small number of bins. Moreover, problems sometimes arise where knowledge about the future (or even about the present) is incomplete, but a decision is required nevertheless ("online problems"). Regarding bin packing, for example, there must be a point in time when you close the bins and send them away. Even if there are some more objects arriving later.

## M

## 5.3 Module: Algorithms for Planar Graphs [M-INFO-101220]

**Responsible:** Prof. Dr. Dorothea Wagner  
**Organisation:** KIT Department of Informatics  
**Part of:** [Advanced Studies in Informatics](#)

**Credits**  
5

**Recurrence**  
Each winter term

**Duration**  
1 semester

**Language**  
German

**Level**  
3

**Version**  
1

Mandatory			
T-INFO-101986	<a href="#">Algorithms for Planar Graphs</a>	5 CR	Wagner

**Content**

A planar graph is defined as a graph that can be drawn in the plane such that no edges intersect. Planar graphs have many interesting properties that can be used to solve several problems in a particularly simple, fast and elegant way. In addition, some problems that are (NP-)hard in general graphs can be efficiently solved in planar graphs. The lecture presents a selection of these problems and corresponding algorithmic approaches.

**Annotation**

The module is offered irregularly.

**Workload**

approx. 150 h

## M

## 5.4 Module: Algorithms I [M-INFO-100030]

**Responsible:** Prof. Dr. Peter Sanders  
**Organisation:** KIT Department of Informatics  
**Part of:** [Informatics](#)

**Credits**  
6

**Recurrence**  
Each summer term

**Duration**  
1 term

**Language**  
German

**Level**  
2

**Version**  
1

Mandatory			
T-INFO-100001	<a href="#">Algorithms I</a>	6 CR	Sanders

**M****5.5 Module: Algorithms II [M-INFO-101173]**

**Responsible:** Prof. Dr. Hartmut Prautzsch  
 Prof. Dr. Peter Sanders  
 Prof. Dr. Dorothea Wagner

**Organisation:** KIT Department of Informatics

**Part of:** [Advanced Studies in Informatics](#)

**Credits**  
6

**Recurrence**  
Each winter term

**Duration**  
1 semester

**Language**  
German

**Level**  
3

**Version**  
1

Mandatory			
T-INFO-102020	<a href="#">Algorithms II</a>	6 CR	Prautzsch, Sanders, Wagner

## M

**5.6 Module: Applications of Operations Research [M-WIWI-101413]****Responsible:** Prof. Dr. Stefan Nickel**Organisation:** KIT Department of Economics and Management**Part of:** *Advanced Studies in Economics and Management (Wirtschaftswissenschaften Wahl)*

Credits	Recurrence	Duration	Language	Level	Version
9	Each term	1 semester	German	3	9

Election block: Wahlpflichtangebot (between 1 and 2 items)			
T-WIWI-102704	Facility Location and Strategic Supply Chain Management	4,5 CR	Nickel
T-WIWI-102714	Tactical and Operational Supply Chain Management	4,5 CR	Nickel
Election block: Ergänzungsangebot (at most 1 item)			
T-WIWI-102726	Global Optimization I	4,5 CR	Stein
T-WIWI-106199	Modeling and OR-Software: Introduction	4,5 CR	Nickel
T-WIWI-106545	Optimization under Uncertainty	4,5 CR	Rebennack

**Competence Certificate**

Due to a research semester of Professor Nickel in WS 19/20, the events Location Planning and Strategic SCM and Practice Seminar: Health Care Management do NOT take place in WS 19/20. Please also refer to the information at <https://dol.ior.kit.edu/Lehrveranstaltungen.php> for further details.

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 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.

**Competence Goal**

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.

**Prerequisites**

At least one of the courses *Facility Location and strategic Supply Chain Management* and *Tactical and operational Supply Chain Management* has to be taken.

**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 Supply 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.

**Recommendation**

The courses Introduction to Operations Research I and II are helpful.

**Annotation**

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

**Workload**

The total workload of the module is about 240 hours. The workload is proportional to the credit points of the individual courses.



## M

**5.7 Module: Applied Informatics [M-WIWI-101430]**

**Responsible:** Prof. Dr. Andreas Oberweis  
Prof. Dr. Ali Sunyaev

**Organisation:** KIT Department of Economics and Management

**Part of:** Informatics

Credits	Recurrence	Duration	Language	Level	Version
8	Each term	2 semester	German	1	3

Mandatory			
T-WIWI-110339	Applied Informatics – Principles of Internet Computing: Foundations for Emerging Technologies and Future Services	4 CR	Sunyaev
T-WIWI-110338	Applied Informatics – Modelling	4 CR	Oberweis, Sure-Vetter

**Competence Certificate**

The learning control for both courses takes the form of a written examination (60 minutes) in accordance with § 4(2), 1 SPO.

The module grade consists of the credit-weighted average of the grades for both courses.

**Competence Goal**

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.

**Prerequisites**

None.

**Content**

The course Applied Informatics - Modelling [2511030] mainly addresses 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 course Applied Informatics - Internet Computing [2511032] provides insights into fundamental concepts and future technologies of distributed systems and Internet computing. Students should be able to select, design and apply the presented concepts and technologies. The course first introduces basic concepts of distributed systems (e.g. design of architectures for distributed systems, internet architectures, web services, middleware).

In the second part of the course, emerging technologies of Internet computing will be examined in depth. These include, among others:

- Cloud Computing
- Edge & Fog Computing
- Internet of Things
- Blockchain
- Artificial Intelligence

**Recommendation**

Knowledge of the module *Basic Notions of Computer Science* as well as *Algorithms I* is expected.

**Workload**

See german version.

## M

**5.8 Module: Applied Microeconomics [M-WIWI-101499]**

**Responsible:** Prof. Dr. Johannes Philipp Reiß  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [Advanced Studies in Economics and Management \(Wirtschaftswissenschaften Wahl\)](#)

**Credits**  
9

**Recurrence**  
Each term

**Language**  
German

**Level**  
3

**Version**  
3

Election block: Wahlpflichtangebot (at least 9 credits)			
T-WIWI-102876	<a href="#">Auction &amp; Mechanism Design</a>	4,5 CR	Szech
T-WIWI-102892	<a href="#">Economics and Behavior</a>	4,5 CR	Szech
T-WIWI-102850	<a href="#">Introduction to Game Theory</a>	4,5 CR	Puppe, Reiß
T-WIWI-102792	<a href="#">Decision Theory</a>	4,5 CR	Ehrhart
T-WIWI-102844	<a href="#">Industrial Organization</a>	4,5 CR	Reiß
T-WIWI-102739	<a href="#">Public Revenues</a>	4,5 CR	Wigger
T-WIWI-102736	<a href="#">Economics III: Introduction in Econometrics</a>	5 CR	Schienle
T-WIWI-100005	<a href="#">Competition in Networks</a>	4,5 CR	Mitusch

**Competence Certificate**

The assessment is carried out as partial exams (according to Section 4 (2), 1-3 SPO) of the 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.

**Competence Goal**

Students

- are introduced to the basic theoretical analysis of strategic interaction situations and shall be able to analyze situations of strategic interaction systematically and to use game theory to predict outcomes and give advice in applied economics settings, (course "Introduction to Game Theory");
- are exposed to the basic problems of imperfect competition and its implications for policy making; (course "Industrial Organization");
- are provided with the basic economics of network industries (e.g., telecom, utilities, IT, and transport sectors) and should get a vivid idea of the special characteristics of network industries concerning planning, competition, competitive distortion, and state intervention, (course "Competition in Networks").

**Prerequisites**

None.

**Content**

The module's purpose is to extend and foster skills in microeconomic theory by investigating a variety of applications. Students shall be able to analyze real-life problems using microeconomics.

**Recommendation**

None.

**Workload**

The total workload for this module is approximately 270 hours. For further information see German version.

**M****5.9 Module: Basic Notions of Computer Science [M-INFO-101170]**

**Responsible:** Dr. Sebastian Stüker  
Thomas Worsch

**Organisation:** KIT Department of Informatics

**Part of:** Informatics

**Credits**  
6

**Recurrence**  
Each winter term

**Duration**  
1 term

**Language**  
German

**Level**  
1

**Version**  
1

Mandatory			
T-INFO-101965	Basic Notions of Computer Science Pass	0 CR	Stüker, Worsch
T-INFO-101964	Basic Notions of Computer Science	6 CR	Stüker, Worsch

**Competence Goal**

- Students know the most important techniques for definitions and are able to read and understand such definitions.
- Students know the difference between syntax and semantics.
- Students know the most important notions from discrete mathematics and computer science and are able to use them for the description of problems and in proofs.

**Content**

- informal notion of algorithm, basics of correctness proofs
- computational complexity measures, hard problems
- big O notation, master theorem
- alphabets, words, formal languages
- finite acceptors, contextfree grammars
- inductive/recursive definitions, proofs by induction, closure
- relations and functions
- graphs

**Workload**

180 h

## M

**5.10 Module: Business Administration [M-WIWI-101492]**

**Responsible:** Prof. Dr. Marliese Uhrig-Homburg  
Prof. Dr. Christof Weinhardt

**Organisation:** KIT Department of Economics and Management

**Part of:** [Business Administration](#)

Credits	Recurrence	Duration	Language	Level	Version
8	Each term	2 semester	German	1	1

Mandatory			
T-WIWI-102818	<a href="#">Business Administration: Production Economics and Marketing</a>	4 CR	Fichtner, Klarmann, Lützkendorf, Ruckes, Schultmann
T-WIWI-102816	<a href="#">Financial Accounting and Cost Accounting</a>	4 CR	Strych

**Competence Certificate**

The assessments of the courses 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.

**Competence Goal**

The student should be able to

- deal with advanced topics in accounting,
- 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 assess information.

**Prerequisites**

None

**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. Advanced topics in accounting are also taught.

**Recommendation**

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

**Workload**

See German version.

## M

## 5.11 Module: Business Processes and Information Systems [M-WIWI-101476]

**Responsible:** Prof. Dr. Andreas Oberweis  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [Advanced Studies in Informatics](#)

**Credits**  
9

**Recurrence**  
Each term

**Duration**  
1 semester

**Language**  
German

**Level**  
3

**Version**  
4

Election block: Wahlpflichtangebot (between 1 and 2 items)			
T-WIWI-102697	<a href="#">Business Process Modelling</a>	4,5 CR	Oberweis
T-WIWI-109799	<a href="#">Process Mining</a>	4,5 CR	Oberweis
Election block: Ergänzungsangebot (between 0 and 1 items)			
T-WIWI-102668	<a href="#">Enterprise Architecture Management</a>	4,5 CR	Wolf
T-WIWI-104679	<a href="#">Foundations of Mobile Business</a>	4,5 CR	Oberweis
T-WIWI-110541	<a href="#">Advanced Lab Informatics (Master)</a>	4,5 CR	Professorenschaft des Fachbereichs Informatik
T-WIWI-102910	<a href="#">Special Topics of Applied Informatics</a>	4,5 CR	Oberweis, Sack, Sunyaev, Sure-Vetter, Volkamer, Zöllner

**Competence Certificate**

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.

**Competence Goal**

Students

- design architecture models of enterprise information systems and compare alternative designs,
- explain the concepts and principles of process modeling languages and methods, apply the methods in a concrete situation and evaluate the results,
- choose an appropriate modeling language according to a given context for analysing, modeling and improving business processes.

**Prerequisites**

At least one of the courses "Business Process Modelling" or "Process Mining" has to be attended.

**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.

## M

## 5.12 Module: Commercial Law [M-INFO-101191]

**Responsible:** Prof. Dr. Thomas Dreier  
**Organisation:** KIT Department of Informatics  
**Part of:** [Law](#)

**Credits**  
9

**Recurrence**  
Each term

**Duration**  
2 semester

**Language**  
German

**Level**  
2

**Version**  
3

Mandatory			
T-INFO-102013	<a href="#">Exercises in Civil Law</a>	9 CR	Dreier, Matz

**M****5.13 Module: Communication and Database Systems [M-INFO-101178]**

**Responsible:** Prof. Dr.-Ing. Klemens Böhm  
Prof. Dr. Martina Zitterbart

**Organisation:** KIT Department of Informatics

**Part of:** [Advanced Studies in Informatics](#)

**Credits**  
8

**Recurrence**  
Each summer term

**Duration**  
1 semester

**Language**  
German

**Level**  
3

**Version**  
1

Mandatory			
T-INFO-101497	<a href="#">Database Systems</a>	4 CR	Böhm
T-INFO-102015	<a href="#">Introduction in Computer Networks</a>	4 CR	Zitterbart

**Competence Goal**

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.

**Workload**

approx. 240 h

## M

## 5.14 Module: Computer Architecture [M-INFO-100818]

**Responsible:** Prof. Dr.-Ing. Jörg Henkel  
Prof. Dr. Wolfgang Karl

**Organisation:** KIT Department of Informatics

**Part of:** [Advanced Studies in Informatics](#)

**Credits**  
6

**Recurrence**  
Each summer term

**Duration**  
1 term

**Language**  
German

**Level**  
3

**Version**  
1

Mandatory			
T-INFO-101355	<a href="#">Computer Architecture</a>	6 CR	Henkel, Karl



## M

## 5.15 Module: Computer Engineering [M-INFO-101836]

**Responsible:** Prof. Dr. Wolfgang Karl  
**Organisation:** KIT Department of Informatics  
**Part of:** [Advanced Studies in Informatics](#)

**Credits**  
6

**Recurrence**  
Each winter term

**Language**  
German

**Level**  
3

**Version**  
1

Mandatory			
T-INFO-103531	<a href="#">Computer Organization</a>	6 CR	Karl

## M

## 5.16 Module: Constitutional and Administrative Law [M-INFO-101192]

**Responsible:** Prof. Dr. Nikolaus Marsch  
**Organisation:** KIT Department of Informatics  
**Part of:** Law

**Credits**  
6

**Recurrence**  
Each term

**Duration**  
2 semester

**Language**  
German

**Level**  
3

**Version**  
3

Election block: Verfassungs- und Verwaltungsrecht (between 1 and 2 items as well as 6 credits)			
T-INFO-110300	Public Law I & II	6 CR	Marsch
T-INFO-101963	Public Law I - Basic Principles	3 CR	Marsch
T-INFO-102042	Public Law II - Public Business Law	3 CR	Marsch

**Workload**

See German version.

## M

## 5.17 Module: CRM and Service Management [M-WIWI-101460]

**Responsible:** Prof. Dr. Andreas Geyer-Schulz

**Organisation:** KIT Department of Economics and Management

**Part of:** [Advanced Studies in Economics and Management \(Betriebswirtschaftslehre Wahl\)](#) (Usage until 3/30/2020)  
[Advanced Studies in Economics and Management \(Wirtschaftswissenschaften Wahl\)](#) (Usage until 3/30/2020)

Credits	Recurrence	Duration	Language	Level	Version
9	Each term	1 semester	German/English	3	3

Election block: Wahlpflichtangebot (2 items)			
T-WIWI-102595	<a href="#">Customer Relationship Management</a>	4,5 CR	Geyer-Schulz
T-WIWI-102597	<a href="#">Operative CRM</a>	4,5 CR	Geyer-Schulz

### Competence Certificate

This module will be offered for the last time in winter semester 2019/20.

The assessment is carried out as partial exams (according to § 4 (1) S. 2 2nd clause 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 overall grade of the module is the average of the grades for each course weighted by the credits and truncated after the first decimal.

### Competence Goal

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 company,
- 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, ...).

### Prerequisites

None

### Content

In the module CRM and Service Management 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 implementation 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 loyalty, ...) 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, ...).

### Annotation

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

### Workload

The total amount of work for this module is approximately 270 hours (9 credits). The subdivision is based on the credits of the courses of the module.

The total number of hours per course results from the time of visiting the lectures and exercises, as well as from the exam periods and the time that is required to achieve the objectives of the module as an average student with an average performance.

## M

## 5.18 Module: Database Systems in Theory and Practice [M-INFO-101229]

**Responsible:** Prof. Dr.-Ing. Klemens Böhm  
**Organisation:** KIT Department of Informatics  
**Part of:** [Advanced Studies in Informatics](#)

**Credits**  
9

**Duration**  
2 semester

**Level**  
3

**Version**  
1

Mandatory			
T-INFO-103552	<a href="#">Lab: Working with Database Systems</a>	4 CR	Böhm
Election block: Datenbanksysteme in Theorie und Praxis (at least 1 item as well as at least 5 credits)			
T-INFO-101317	<a href="#">Deployment of Database Systems</a>	5 CR	Böhm
T-INFO-101305	<a href="#">Big Data Analytics</a>	5 CR	Böhm

**Workload**  
120 h

**M****5.19 Module: Design, Construction and Sustainability Assessment of Buildings [M-WIWI-101467]****Responsible:** Prof. Dr.-Ing. Thomas Lützkendorf**Organisation:** KIT Department of Economics and Management**Part of:** [Advanced Studies in Economics and Management \(Betriebswirtschaftslehre Wahl\)](#)  
[Advanced Studies in Economics and Management \(Wirtschaftswissenschaften Wahl\)](#)**Credits**  
9**Recurrence**  
Each term**Duration**  
2 semester**Language**  
German**Level**  
3**Version**  
3

Mandatory			
T-WIWI-102742	<a href="#">Design, Construction and Sustainability Assessment of Buildings I</a>	4,5 CR	Lützkendorf
T-WIWI-102743	<a href="#">Design, Construction and Sustainability Assessment of Buildings II</a>	4,5 CR	Lützkendorf

**Competence Certificate**

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.

**Competence Goal**

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.

**Prerequisites**

None

**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.

**Recommendation**

The combination with the module *Real Estate Management* 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.

**Workload**

The total workload for this module is approximately 270 hours. For further information see German version.

## M

## 5.20 Module: Digital Circuits Design [M-INFO-102978]

**Responsible:** Prof. Dr.-Ing. Uwe Hanebeck  
**Organisation:** KIT Department of Informatics  
**Part of:** [Advanced Studies in Informatics](#)

**Credits**  
6

**Recurrence**  
Each winter term

**Language**  
German

**Level**  
3

**Version**  
1

Mandatory			
T-INFO-103469	<a href="#">Digital Circuits Design</a>	6 CR	Karl

## M

**5.21 Module: eBusiness and Service Management [M-WIWI-101434]****Responsible:** Prof. Dr. Christof Weinhardt**Organisation:** KIT Department of Economics and Management**Part of:** [Advanced Studies in Economics and Management \(Betriebswirtschaftslehre Wahl\)](#)  
[Advanced Studies in Economics and Management \(Wirtschaftswissenschaften Wahl\)](#)**Credits**  
9**Language**  
German**Level**  
3**Version**  
8

Election block: Wahlpflichtangebot (9 credits)			
T-WIWI-109938	<a href="#">Digital Services</a>	4,5 CR	Satzger, Weinhardt
T-WIWI-109941	<a href="#">eFinance: Information Systems for Securities Trading</a>	4,5 CR	Weinhardt
T-WIWI-109816	<a href="#">Foundations of Interactive Systems</a>	4,5 CR	Mädche
T-WIWI-109936	<a href="#">Platform Economy</a>	4,5 CR	Weinhardt
T-WIWI-109940	<a href="#">Special Topics in Information Systems</a>	4,5 CR	Weinhardt
T-WIWI-109808	<a href="#">Wildcard eBusiness and Service Management</a>	4,5 CR	

**Competence Certificate**

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.

**Competence Goal**

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.

**Prerequisites**

None

**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 "Platform Economy", "eFinance: Information systems in finance" and "eServices" constitute three different application domains in which the basic principles of the Internet Economy are deepened. In the core lecture "Platform Economy" the focus is set on markets between two parties that act through an intermediary on an Internet platform. Topics discussed are network effects, peer-to-peer markets, blockchains and marketdesign. The course is held in English and teaches parts of the syllabus with the support of a case study in which students analyze a platform.

The course "eFinance: information systems for securities trading" provides 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 services.

The theoretic fundamentals of Information systems 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 systems.

**Annotation**

All practical Seminars offered at the IM can be chosen for *Special Topics in Information Systems*. Please update yourself on [www.iism.kit.edu/im/lehre](http://www.iism.kit.edu/im/lehre)

**Workload**

The total workload of the module is about 240 hours. The workload is proportional to the credit points of the individual courses.



## M

**5.22 Module: Economic Policy I [M-WIWI-101668]****Responsible:** Prof. Dr. Ingrid Ott**Organisation:** KIT Department of Economics and Management**Part of:** [Advanced Studies in Economics and Management \(Wirtschaftswissenschaften Wahl\)](#)**Credits**  
9**Recurrence**  
Each term**Language**  
German**Level**  
3**Version**  
9

Mandatory			
T-WIWI-103213	<a href="#">Basic Principles of Economic Policy</a>	4,5 CR	Ott
Election block: Wahlpflichtangebot (1 item)			
T-WIWI-109121	<a href="#">Macroeconomic Theory</a>	4,5 CR	Brumm
T-WIWI-102739	<a href="#">Public Revenues</a>	4,5 CR	Wigger
T-WIWI-102908	<a href="#">Personnel Policies and Labor Market Institutions</a>	4,5 CR	Nieken
T-WIWI-100005	<a href="#">Competition in Networks</a>	4,5 CR	Mitusch

**Competence Certificate**

The module examination takes place in the form of examinations (§4(2),1 SPO) of the selected partial module performance. The examination is carried out separately for each partial module and is described there. It is possible to repeat examinations at any regular examination date.

The grades of the partial module correspond to the grades of the passed examinations. The overall grade of the module is formed from the grades of the partial performances weighted with LP.

**Competence Goal**

Students shall be given the ability to

- understand and deepen basic concepts of micro- and macroeconomic theories
- apply those theories to economic policy issues
- understand government interventions in the market and their legitimation from the perspective of economic welfare
- learn how theory-based policy recommendations are derived

**Prerequisites**

The course "Introduction to Economic Policy" is mandatory in the module.

**Content**

- Intervention in the market: micro-economic perspective
- Intervention in the market: macroeconomic perspective
- Institutional economic aspects
- Economic policy and welfare economics
- Carriers of economic policy: political-economic aspects

**Recommendation**

Basic knowledge of micro- and macroeconomics is assumed, as taught in the courses Economics I [2610012], and Economics II [2600014].

**Workload**

Total effort for 9 credit points: approx. 270 hours. The distribution is made according to the credit points of the courses of the module.

## M

**5.23 Module: Economic Theory [M-WIWI-101501]**

**Responsible:** Prof. Dr. Clemens Puppe  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [Advanced Studies in Economics and Management \(Wirtschaftswissenschaften Wahl\)](#)

Credits	Recurrence	Duration	Language	Level	Version
9	Each term	2 semester	German/English	3	3

Election block: Wahlpflichtangebot (9 credits)			
T-WIWI-102609	<a href="#">Advanced Topics in Economic Theory</a>	4,5 CR	Mitusch
T-WIWI-102876	<a href="#">Auction &amp; Mechanism Design</a>	4,5 CR	Szech
T-WIWI-102892	<a href="#">Economics and Behavior</a>	4,5 CR	Szech
T-WIWI-102850	<a href="#">Introduction to Game Theory</a>	4,5 CR	Puppe, Reiß
T-WIWI-102844	<a href="#">Industrial Organization</a>	4,5 CR	Reiß
T-WIWI-109121	<a href="#">Macroeconomic Theory</a>	4,5 CR	Brumm
T-WIWI-102610	<a href="#">Welfare Economics</a>	4,5 CR	Puppe

**Competence Certificate**

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 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.

**Competence Goal**

See German version.

**Prerequisites**

None

**Content**

The lecture Introduction to Game Theory focuses on the basics of non-cooperative game theory. Model assumptions, solution concepts and applications are discussed in detail both for simultaneous games (normal form games) and for sequential games (extensive form games). Classical equilibrium concepts like the Nash equilibrium or the subgame perfect equilibrium, but also advanced concepts will be discussed in detail. If necessary, a brief insight into cooperative game theory will also be given.

The course Auction & Mechanism Design starts with the basic theory of equilibrium behavior and yield management in single object standard auctions. After introducing the yield equivalence theorem for standard auctions, the focus shifts to mechanism design and its applications for single-object auctions and bilateral exchanges.

The course Economics and Behavior introduces fundamental topics of behavioural economics in terms of content and methodology. Students will also gain insight into the design of economic experimental studies. Students will also be introduced to the reading of and critical examination of current research in behavioural economics.

**Recommendation**

None

**Annotation**

The course T-WIWI-102609 - Advanced Topics in Economic Theory is currently not available.

## M

## 5.24 Module: Economics [M-WIWI-101431]

**Responsible:** Prof. Dr. Clemens Puppe  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [Economics](#)

Credits	Recurrence	Duration	Language	Level	Version
5	Each term	1 semester	German	1	2

Mandatory			
T-WIWI-102708	<a href="#">Economics I: Microeconomics</a>	5 CR	Puppe, Reiß

**Competence Certificate**

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.

The main exam takes place subsequent to the lectur. The re-examination is offered at the same examination period. Only repeating candidates are entitled for taking place the re-examination. For a detailed description on the exam regulations see the information of the respective chair.

**Competence Goal**

It is the main aim of this module to provide basic knowledge in economic modelling. In particular, 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, 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 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 to present own problem solutions,
- solve simple economic decision problems.

**Prerequisites**

None

**Content**

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

**Annotation**

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

**Workload**

See German version.

## M

## 5.25 Module: eFinance [M-WIWI-101402]

**Responsible:** Prof. Dr. Christof Weinhardt  
**Organisation:** KIT Department of Economics and Management  
**Part of:** Advanced Studies in Economics and Management (Betriebswirtschaftslehre Wahl)  
 Advanced Studies in Economics and Management (Wirtschaftswissenschaften Wahl)

Credits	Recurrence	Duration	Language	Level	Version
9	Each term	2 semester	German/English	3	7

Mandatory			
T-WIWI-109941	eFinance: Information Systems for Securities Trading	4,5 CR	Weinhardt
Election block: Ergänzungsangebot (at least 4,5 credits)			
T-WIWI-102643	Derivatives	4,5 CR	Uhrig-Homburg
T-WIWI-102646	International Finance	3 CR	Uhrig-Homburg

**Competence Certificate**

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.

**Competence Goal**

The students

- are able to understand and analyse the value creation chain in stock broking,
- are able to adequately 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.

**Prerequisites**

The course *eFinance: Information Systems for Securities Trading* [2540454] is compulsory and must be examined.

**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 addition 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 supplementary 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.

**Annotation**

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>

**Workload**

The total workload of the module is about 240 hours. The workload is proportional to the credit points of the individual courses.

## M

## 5.26 Module: Empirical Finance [M-WIWI-105035]

**Responsible:** Prof. Dr Maxim Ulrich

**Organisation:** KIT Department of Economics and Management

**Part of:** [Advanced Studies in Economics and Management \(Betriebswirtschaftslehre Wahl\)](#)  
[Advanced Studies in Economics and Management \(Wirtschaftswissenschaften Wahl\)](#)

Credits	Language	Level	Version
9	English	3	2

Mandatory			
T-WIWI-110216	<a href="#">Empirical Finance</a>	6 CR	Ulrich
T-WIWI-110217	<a href="#">Python for Empirical Finance</a>	3 CR	Ulrich

### Competence Certificate

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.

The assessment of "Empirical Finance" is carried out in form of a written exam (90 minutes), the assessment of "Python for Empirical Finance" is carried out in form of six biweekly Python programming tasks and offered each winter term.

The overall grade of the module is the grade of the written exam weighted with factor 0.75 and the grade for the Python programming tasks weighted with factor 0.25. The resulting grade is truncated after the first decimal.

### Competence Goal

Students learn the fundamental concepts of modern portfolio theory and their realization in Python. The course focuses on the implementation of statistical concepts in Python, such that students are able to make investment decision under uncertainty after successful completion of this module.

### Content

The module covers several topics, among them:

- Mean-Variance Portfolio Optimization
- Modeling Distribution of Asset Returns with Factor Models and ARMA-GARCH
- Monte-Carlo Simulation
- Parameter Estimation with Maximum Likelihood and Regressions?

### Recommendation

Prior knowledge of statistics is recommended.

### Workload

Total effort for 9 credit points: approx. 270 hours. The distribution is based on the credit points of the courses of the module. The total number of hours per course results from the effort required to attend lectures and exercises, as well as the examination times and the time required to achieve the learning objectives of the module for an average student for an average performance.

## M

**5.27 Module: Energy Economics [M-WIWI-101464]****Responsible:** Prof. Dr. Wolf Fichtner**Organisation:** KIT Department of Economics and Management**Part of:** [Advanced Studies in Economics and Management \(Betriebswirtschaftslehre Wahl\)](#)  
[Advanced Studies in Economics and Management \(Wirtschaftswissenschaften Wahl\)](#)**Credits**  
9**Recurrence**  
Each term**Duration**  
1 semester**Language**  
German/English**Level**  
3**Version**  
3

Mandatory			
T-WIWI-102746	<a href="#">Introduction to Energy Economics</a>	5,5 CR	Fichtner
Election block: Ergänzungsangebot (3,5 credits)			
T-WIWI-102607	<a href="#">Energy Policy</a>	3,5 CR	Wietschel
T-WIWI-100806	<a href="#">Renewable Energy-Resources, Technologies and Economics</a>	3,5 CR	Jochem, McKenna

**Competence Certificate**

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 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.

**Competence Goal**

The student

- is able to understand interdependencies in energy economics and to evaluate ecological impacts in energy supply,
- is able to assess the different energy carriers and their characteristics,
- knows the energy political framework conditions,
- gains knowledge about new market-based conditions and the cost and potentials of renewable energies in particular.

**Prerequisites**

The lecture *Introduction into Energy Economics* [2581010] has to be examined.

**Content**

Introduction to Energy Economics: Characterisation (reserves, suppliers, cost, technologies) of different energy carriers (coal, gas, oil, electricity, heat etc.)

Renewable Energy - Resources, Technology and Economics: Characterisation of different renewable energy carriers (wind, solar, hydro, geothermal etc.)

Energy Policy: Management of energy flows, energy-political targets and instruments (emission trading etc.)

**Recommendation**

The courses are conceived in a way that they can be attended independently from each other. Therefore, it is possible to start the module in winter and summer term.

**Annotation**

Additional study courses (E.g. from other universities) can be transferred to the grade of the module on special request at the institute.

**Workload**

The total workload for this module is approximately 270 hours. For further information see German version.

**M****5.28 Module: Essentials of Finance [M-WIWI-101435]**

**Responsible:** Prof. Dr. Martin Ruckes  
Prof. Dr. Marliese Uhrig-Homburg

**Organisation:** KIT Department of Economics and Management

**Part of:** [Advanced Studies in Economics and Management \(Betriebswirtschaftslehre Wahl\)](#)  
[Advanced Studies in Economics and Management \(Wirtschaftswissenschaften Wahl\)](#)

Credits	Recurrence	Duration	Language	Level	Version
9	Each summer term	1 semester	German	3	2

Mandatory			
T-WIWI-102605	<a href="#">Financial Management</a>	4,5 CR	Ruckes
T-WIWI-102604	<a href="#">Investments</a>	4,5 CR	Uhrig-Homburg

**Competence Certificate**

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 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.

**Competence Goal**

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.

**Prerequisites**

None

**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.

**Workload**

The total workload of the module is about 240 hours. The workload is proportional to the credit points of the individual courses.

**M****5.29 Module: Foundations in Business Administration [M-WIWI-101491]**

**Responsible:** Prof. Dr. Marliese Uhrig-Homburg  
Prof. Dr. Christof Weinhardt

**Organisation:** KIT Department of Economics and Management

**Part of:** [Business Administration](#)

Credits	Recurrence	Duration	Level	Version
8	Each term	2 semester	1	1

Mandatory			
T-WIWI-102819	<a href="#">Business Administration: Finance and Accounting</a>	4 CR	Ruckes, Uhrig-Homburg, Wouters
T-WIWI-102757	<a href="#">Introduction to Information Engineering and Management</a>	4 CR	Geyer-Schulz, Weinhardt

**Competence Certificate**

The assessment is carried out as partial exams (according to §4(2), 1-3 of the examination regulation) of the single courses 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.

**Competence Goal**

The objectives of this module are that the student is capable of dealing with issues in finance, investments, accounting and information engineering and management.

**Prerequisites**

None

**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. Also an introduction to financial and management accounting is provided. 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.

**Workload**

See German version.



## M

## 5.30 Module: Foundations of Information Systems [M-INFO-101193]

**Responsible:** Prof. Dr.-Ing. Klemens Böhm  
**Organisation:** KIT Department of Informatics  
**Part of:** [Advanced Studies in Informatics](#)

**Credits**  
9

**Recurrence**  
Each term

**Duration**  
1 semester

**Level**  
3

**Version**  
3

Election block: Grundlagen von Informationssystemen (at least 1 item as well as at least 4 credits)			
T-INFO-101977	<a href="#">Selling IT-Solutions Professionally</a>	1,5 CR	Böhm
T-INFO-101975	<a href="#">Consulting in Practice</a>	1,5 CR	Böhm
T-INFO-101976	<a href="#">Project Management in Practice</a>	1,5 CR	Böhm
T-INFO-103552	<a href="#">Lab: Working with Database Systems</a>	4 CR	Böhm
T-INFO-105742	<a href="#">Big Data Analytics 2</a>	3 CR	Böhm
T-INFO-101305	<a href="#">Big Data Analytics</a>	5 CR	Böhm
T-INFO-101317	<a href="#">Deployment of Database Systems</a>	5 CR	Böhm
T-INFO-101257	<a href="#">Mechanisms and Applications of Workflow Systems</a>	5 CR	Mülle
Election block: Grundlagen von Informationssystemen -- Pflichtblock (at least 1 item as well as at least 5 credits)			
T-INFO-101305	<a href="#">Big Data Analytics</a>	5 CR	Böhm
T-INFO-101317	<a href="#">Deployment of Database Systems</a>	5 CR	Böhm
T-INFO-101257	<a href="#">Mechanisms and Applications of Workflow Systems</a>	5 CR	Mülle

**Competence Goal**

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.

**Prerequisites**

None

**Content**

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

**Recommendation**

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

**Annotation**

The courses in this module are offered irregularly, however, the exam can be taken anytime.

**Workload**

approx. 300 h

For further details see the German version.

## M

**5.31 Module: Foundations of Marketing [M-WIWI-101424]****Responsible:** Prof. Dr. Martin Klarmann**Organisation:** KIT Department of Economics and Management**Part of:** [Advanced Studies in Economics and Management \(Betriebswirtschaftslehre Wahl\)](#)  
[Advanced Studies in Economics and Management \(Wirtschaftswissenschaften Wahl\)](#)**Credits**  
9**Recurrence**  
Each term**Duration**  
1 semester**Language**  
German/English**Level**  
3**Version**  
5

Mandatory			
T-WIWI-102805	<a href="#">Managing the Marketing Mix</a>	4,5 CR	Klarmann
Election block: Ergänzungsangebot (at least 4,5 credits)			
T-WIWI-102806	<a href="#">Services Marketing and B2B Marketing</a>	3 CR	Klarmann
T-WIWI-102807	<a href="#">International Marketing</a>	1,5 CR	Feurer

**Competence Certificate**

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.

**Prerequisites**

The course *Marketing Mix* is compulsory and must be examined.

**Content**

The core course of the module is "Marketing Mix". This course is compulsory and must be examined. "Marketing Mix" contains instruments and methods that enable you to goal-oriented decisions in the operative marketing management (product management, pricing, promotion and sales management).

To deepen the marketing knowledge students can complete the courses "Services- and B2B-Marketing" and "International Marketing".

**Annotation**

For further information please contact Marketing & Sales Research Group ([marketing.iism.kit.edu](mailto:marketing.iism.kit.edu)).

**Workload**

The total workload for this module is approximately 270 hours. For further information see German version.

## M

**5.32 Module: Fundamentals of Digital Service Systems [M-WIWI-102752]**

**Responsible:** Prof. Dr. Gerhard Satzger  
Prof. Dr. Christof Weinhardt

**Organisation:** KIT Department of Economics and Management

**Part of:** [Advanced Studies in Economics and Management \(Betriebswirtschaftslehre Wahl\)](#)  
[Advanced Studies in Economics and Management \(Wirtschaftswissenschaften Wahl\)](#)

Credits	Language	Level	Version
9	German	3	5

Election block: Wahlpflichtangebot (9 credits)			
T-WIWI-109938	<a href="#">Digital Services</a>	4,5 CR	Satzger, Weinhardt
T-WIWI-109816	<a href="#">Foundations of Interactive Systems</a>	4,5 CR	Mädche
T-WIWI-105711	<a href="#">Practical Seminar Digital Services</a>	4,5 CR	Satzger, Weinhardt

**Competence Certificate**

The assessment is carried out as partial exams (according to Section 4 (2), 1-3 SPO), 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.

**Competence Goal**

Students

- understand services from different perspectives and the concept of value creation in service networks
- know about the concepts, methods and tools for the design, modelling, development and management of digital services and are able to use them
- understand the basic characteristics and effects of integrated information system as a an integral element of digital services
- gain experience in group work as well as in the analysis of case studies and the professional presentation of research results
- practice skills in the English language in preparation of jobs in an international environment

**Prerequisites**

None

**Content**

Global economy is increasingly determined by services: in industrialized countries nearly 70% of gross value added is achieved in the tertiary sector. Unfortunately, for the design, development and the management of services traditional concepts focused on goods are often insufficient or inappropriate. Besides, the rapid technical advance in the information and communication technology sector pushes the economic importance of digital services even further thus changing the competition environment. ICT-based interaction and individualization open up completely new dimensions of shared value between clients and providers, dynamic and scalable "service value networks" replace established value chains, digital services are provided globally crossing geographical boundaries. This module establishes a basis for further specialization in service innovation, service economics, service design, service modelling, service analytics as well as the transformation and coordination of service networks.

**Recommendation**

None

**Annotation**

This module is part of the KSRI teaching profile "Digital Service Systems". Further information on a service-specific profiling is available under [www.ksri.kit.edu/teaching](http://www.ksri.kit.edu/teaching).

**Workload**

The total workload for this module is approximately 270 hours. For further information see German version.

## M

**5.33 Module: Human Resources and Organizations [M-WIWI-101513]****Responsible:** Prof. Dr. Petra Nieken**Organisation:** KIT Department of Economics and Management**Part of:** [Advanced Studies in Economics and Management \(Betriebswirtschaftslehre Wahl\)](#)  
[Advanced Studies in Economics and Management \(Wirtschaftswissenschaften Wahl\)](#)**Credits**  
9**Recurrence**  
Each term**Language**  
German**Level**  
3**Version**  
4

Mandatory			
T-WIWI-102909	<a href="#">Human Resource Management</a>	4,5 CR	Nieken
Election block: Ergänzungsangebot (between 4,5 and 5,5 credits)			
T-WIWI-102630	<a href="#">Managing Organizations</a>	3,5 CR	Lindstädt
T-WIWI-102908	<a href="#">Personnel Policies and Labor Market Institutions</a>	4,5 CR	Nieken
T-WIWI-102871	<a href="#">Problem Solving, Communication and Leadership</a>	2 CR	Lindstädt

**Competence Certificate**

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 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.

**Competence Goal**

The student

- knows and analyzes basic concepts, instruments, and challenges of present human resource and organizational management.
- uses the techniques he / she has learned to evaluate strategic situations which occur in human resource and organizational management.
- evaluates the strengths and weaknesses of existing structures and rules based on systematic criterions.
- Discusses and evaluates the practical use of models and methods by using case studies.
- has basic knowledge of fit and challenges of different scientific methods in the context of personnel and organizational economics.

**Prerequisites**

The course "Human Resource Management" is compulsory and must be examined.

**Content**

Students acquire basic knowledge in the field of human resource and organizational management. Strategic as well as operative aspects of human resource management practices are analyzed. The module offers an up-to-date overview over basic concepts and models. It also shows the strengths and weaknesses of rational concepts in human resources and organizational management.

The students learn to apply methods and instruments to plan, select, and manage staff. Current issues of organizational management or selected aspects of personnel politics are examined and evaluated.

The focus lies on the strategic analysis of decisions and the use microeconomic or behavioral approaches. Empirical results of field or lab studies are discussed critically.

**Recommendation**

Completion of module Business Administration is recommended.

Basic knowledge of microeconomics, game theory and statistics is recommended.

**Workload**

The total workload for this module is approximately 270 hours.

## M

## 5.34 Module: Industrial Production I [M-WIWI-101437]

**Responsible:** Prof. Dr. Frank Schultmann

**Organisation:** KIT Department of Economics and Management

**Part of:** [Advanced Studies in Economics and Management \(Betriebswirtschaftslehre Wahl\)](#)  
[Advanced Studies in Economics and Management \(Wirtschaftswissenschaften Wahl\)](#)

**Credits**  
9

**Recurrence**  
Each term

**Duration**  
2 semester

**Language**  
German/English

**Level**  
3

**Version**  
3

Mandatory			
T-WIWI-102606	<a href="#">Fundamentals of Production Management</a>	5,5 CR	Schultmann
Election block: Ergänzungsangebot (3,5 credits)			
T-WIWI-102870	<a href="#">Logistics and Supply Chain Management</a>	3,5 CR	Wiens
T-WIWI-102820	<a href="#">Production Economics and Sustainability</a>	3,5 CR	Rimbon

### Competence Certificate

The assessment is carried out as partial exams (according to section 4 (2), 1 SPO) of the core course “Fundamentals of Production Management” [2581950] and one further single course 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.

### Competence Goal

- 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.

### Prerequisites

The course “Fundamentals of Production Management” [2581950] and one additional activity have to be chosen.

### 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.

### Workload

Total effort will account to 270 hours (9 credit points) and can be allocated according to the credit point rating. Therefore, a course with 3.5 credits requires an effort of approximately 105h and a course with 5.5 credits 165h.

The total effort for each course consists of attending lectures and tutorials, examination times and the time an average student needs to prepare himself in order to pass the exam with an average grade.

**M****5.35 Module: Information Security [M-WIWI-104069]**

**Responsible:** Prof. Dr. Melanie Volkamer  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [Advanced Studies in Informatics](#)

Credits	Recurrence	Duration	Language	Level	Version
9	Each term	1 semester	German	3	3

Mandatory			
T-WIWI-110342	<a href="#">Applied Informatics – Information Security</a>	4,5 CR	Volkamer
Election block: Wahlpflichtangebot (1 item)			
T-WIWI-108439	<a href="#">Advanced Lab Security, Usability and Society</a>	4,5 CR	Volkamer
T-WIWI-109786	<a href="#">Advanced Lab Security</a>	4,5 CR	Volkamer

**Competence Certificate**

The module examination is carried out in the form of partial examinations on the selected courses of the module, with which the minimum requirement at creditpoints is fulfilled. The learning control is described in each course. The overall score of the module is made up of the sub-scores weighted with creditpoints and is cut off after the first comma point.

**Competence Goal**

The student

- can explain and apply the basics of information security
- knows appropriate measures to achieve different protection goals and can implement these measures
- can assess the quality of organisational protective measures, i. e. among other things knows what has to be taken into account when using the individual measures
- Understanding the differences between information security in the enterprise and in the private context
- knows the areas of application of a variety of relevant standards and knows their weaknesses
- knows and can explain the problems of information security which may arise from human-machine interaction
- can assess messages about detected security problems in a critical way
- can structure a software project in the field of information security and explain and present results in oral and written form
- can use the techniques of Human Centred Security and Privacy by Design to create user-friendly software.

**Prerequisites**

None

**Content**

- Basics and concepts of information security
- Understanding the protection objectives of information security and various attack models (including associated assumptions)
- introduction of measures to achieve the respective protection goals, taking into account different attack models
- Note: In contrast to the IT Security lecture, measures such as encryption algorithms are treated only abstractly, i. e. the idea of the measure, assumptions to the attacker and the deployment environment.
- Presentation and analysis of problems of information security arising from human-machine interaction and presentation of the Human Centered Security by Design approach.
- Introduction into organisational protective measures and standards to be observed for companies.

**Annotation**

This new module can be chosen from summer term 2018.

**Workload**

The total workload for this module is approximately 270 hours.

## M

## 5.36 Module: Information Services in Networks [M-WIWI-101440]

**Responsible:** N.N.  
Prof. Dr. Hartmut Schneck

**Organisation:** KIT Department of Economics and Management

**Part of:** [Advanced Studies in Informatics](#)

Credits  
9Recurrence  
Each termDuration  
1 semesterLanguage  
German/EnglishLevel  
3Version  
3

Election block: Wahlpflichtangebot ()			
T-INFO-101276	<a href="#">Data and Storage Management</a>	4 CR	Neumair
T-INFO-101284	<a href="#">Integrated Network and Systems Management</a>	4 CR	Neumair
T-WIWI-110541	<a href="#">Advanced Lab Informatics (Master)</a>	4,5 CR	Professorenschaft des Fachbereichs Informatik
T-WIWI-102874	<a href="#">Semantic Web Technologies</a>	4,5 CR	Sure-Vetter

**Competence Certificate**

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.

**Prerequisites**

None

**Workload**

The total workload for this module is approximately 270 hours. For further information see German version.

## M

## 5.37 Module: Intellectual Property and Data Protection [M-INFO-101253]

**Responsible:** Prof. Dr. Thomas Dreier  
**Organisation:** KIT Department of Informatics  
**Part of:** [Advanced Studies in Law](#)

**Credits**  
6

**Recurrence**  
Each winter term

**Duration**  
1 semester

**Language**  
German

**Level**  
3

**Version**  
2

Mandatory			
T-INFO-109840	<a href="#">Intellectual Property and Data Protection</a>	6 CR	Matz

**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...



## M

**5.38 Module: Internship [M-WIWI-101433]**

**Responsible:** Studiendekan der KIT-Fakultät für Informatik  
Studiendekan der KIT-Fakultät für Wirtschaftswissenschaften

**Organisation:** KIT Department of Economics and Management

**Part of:** [Internship](#)

Credits	Recurrence	Level	Version
8	Once	1	1

Mandatory			
T-WIWI-103093	<a href="#">Internship</a>	8 CR	Studiendekan der KIT-Fakultät für Informatik, Studiendekan der KIT-Fakultät für Wirtschaftswissenschaften

**Competence Certificate**

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. The internship is not graded.

**Competence Goal**

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 his 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

**Prerequisites**

None

**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 be 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 is produced and transferred to the office of study ("Studienbüro").

**Recommendation**

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

**Annotation**

The internship is regulated in §14a 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).

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

**Workload**

See German version.

## M

## 5.39 Module: Introduction to Civil Law [M-INFO-101190]

**Responsible:** Prof. Dr. Thomas Dreier  
**Organisation:** KIT Department of Informatics  
**Part of:** [Law](#)

**Credits**  
4

**Recurrence**  
Each winter term

**Duration**  
1 semester

**Language**  
German

**Level**  
1

**Version**  
2

Mandatory			
T-INFO-103339	<a href="#">Civil Law for Beginners</a>	4 CR	Dreier

## M

## 5.40 Module: Introduction to Data and Information Management [M-INFO-101235]

**Responsible:** Prof. Dr.-Ing. Klemens Böhm  
**Organisation:** KIT Department of Informatics  
**Part of:** [Advanced Studies in Informatics](#)

**Credits**  
9

**Recurrence**  
Once

**Duration**  
1 semester

**Language**  
German/English

**Level**  
3

**Version**  
1

Mandatory			
T-INFO-101497	<a href="#">Database Systems</a>	4 CR	Böhm
Election block: Grundlagen des Daten- und Informationsmanagements (at least 1 item as well as at least 5 credits)			
T-INFO-101305	<a href="#">Big Data Analytics</a>	5 CR	Böhm
T-INFO-103552	<a href="#">Lab: Working with Database Systems</a>	4 CR	Böhm
T-INFO-101317	<a href="#">Deployment of Database Systems</a>	5 CR	Böhm
T-INFO-101257	<a href="#">Mechanisms and Applications of Workflow Systems</a>	5 CR	Mülle
T-INFO-101977	<a href="#">Selling IT-Solutions Professionally</a>	1,5 CR	Böhm
T-INFO-101975	<a href="#">Consulting in Practice</a>	1,5 CR	Böhm
T-INFO-101976	<a href="#">Project Management in Practice</a>	1,5 CR	Böhm

**Competence Goal**

The students

- see the necessity of specialised systems for information and data management and are able to define and deploy decision criteria for purchasing such software,
- are aware of the fundamental approaches in information and database 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

**Prerequisites**

None

**Content**

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

## M

**5.41 Module: Introduction to Operations Research [M-WIWI-101418]**

**Responsible:** Prof. Dr. Stefan Nickel  
 Prof. Dr. Steffen Rebennack  
 Prof. Dr. Oliver Stein

**Organisation:** KIT Department of Economics and Management

**Part of:** [Operations Research](#)

Credits	Recurrence	Duration	Language	Level	Version
9	Each summer term	2 semester	German	1	1

Mandatory			
T-WIWI-102758	<a href="#">Introduction to Operations Research I and II</a>	9 CR	Nickel, Rebennack, Stein

**Competence Certificate**

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.

**Competence Goal**

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.

**Module grade calculation**

The overall grade of the module is the grade of the written examination.

**Prerequisites**

None

**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.

**Workload**

The total workload of the module is about 240 hours. The workload is proportional to the credit points of the individual courses.

**M****5.42 Module: Introduction to Statistics [M-WIWI-101432]**

**Responsible:** Prof. Dr. Oliver Grothe  
Prof. Dr. Melanie Schienle

**Organisation:** KIT Department of Economics and Management

**Part of:** [Statistics](#)

Credits	Recurrence	Duration	Language	Level	Version
10	Each term	2 semester	German	1	2

Mandatory			
T-WIWI-102737	<a href="#">Statistics I</a>	5 CR	Grothe, Schienle
T-WIWI-102738	<a href="#">Statistics II</a>	5 CR	Grothe, Schienle

**Competence Certificate**

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.

**Competence Goal**

See German version.

**Module grade calculation**

The overall grade of the module is the average of the grades of these two written examinations.

**Prerequisites**

Keine

**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 important discrete and continuous distributions, covariance and correlation, limit distributions

C. Theory of estimation and testing: sufficiency of statistics, point estimation (optimality, ML-method), interval estimations, linear regression

**Workload**

The total workload for this module is approximately 300 hours. For further information see German version.

## M

## 5.43 Module: IT-Security Management for Networked Systems [M-INFO-100786]

**Responsible:** Prof. Dr. Hannes Hartenstein  
**Organisation:** KIT Department of Informatics  
**Part of:** [Advanced Studies in Informatics](#)

**Credits**  
5

**Recurrence**  
Each winter term

**Duration**  
1 term

**Language**  
German

**Level**  
3

**Version**  
1

Mandatory			
T-INFO-101323	<a href="#">IT-Security Management for Networked Systems</a>	5 CR	Hartenstein

## M

## 5.44 Module: Lego Mindstorms - Practical Course [M-INFO-102557]

**Responsible:** Prof. Dr.-Ing. Tamim Asfour  
**Organisation:** KIT Department of Informatics  
**Part of:** [Advanced Studies in Informatics](#)

Credits	Language	Level	Version
4	German	3	2

Mandatory			
T-INFO-107502	<a href="#">Practical Course: Lego Mindstorms</a>	4 CR	Asfour

**Competence Goal**

The participants are able to design and construct a robot with motors and sensors using the Lego Mindstorms kit. The students are familiar with programming the Lego EV3 components using the Java programming language. They are able to understand and solve several key problems in mobile robotics, such as autonomous navigation, detection of landmarks and objects as well as obstacle avoidance. The students know how to efficiently and independently solve problems in a small group in a given time frame and are able to systematically document their work and results.

**Content**

In this practical course, teams of three students build and program a mobile robot using Lego Mindstorms and the Java programming language. The robots are challenged to complete a versatile parkour including sections like the traversal of a maze, following a line, crossing a bridge or avoiding obstacle. After initial building of the robots, a section of the parkour will be set up each week and tackled by the robots, for which the students have to prepare their code beforehand. A final race of the robots on the entire parkour will be held at the end of the semester.

**Recommendation**

Basic knowledge in JAVA is necessary for successful completion of this course.





## 5.45 Module: Mathematics I [M-MATH-101311]

**Responsible:** Prof. Dr. Andreas Rieder  
Prof. Dr. Christian Wieners

**Organisation:** KIT Department of Mathematics

**Part of:** [Mathematics](#)

Credits	Recurrence	Duration	Level	Version
8	Once	1 semester	1	1

Mandatory			
T-MATH-102266	<a href="#">Mathematics I for Information Engineering and Management - Exam</a>	7 CR	Rieder, Weiß, Wieners
T-MATH-102267	<a href="#">Mathematics I for Information Engineering and Management - Exercise</a>	1 CR	Rieder, Weiß, Wieners

### Competence Certificate

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 examination has a weight of 80% and the certificate a weight of 20%.

### Competence Goal

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.

### Prerequisites

None

### 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.

### Annotation

None.

### Workload

See German version.

**M****5.46 Module: Mathematics II [M-MATH-101312]**

**Responsible:** Prof. Dr. Andreas Rieder  
Prof. Dr. Christian Wieners

**Organisation:** KIT Department of Mathematics

**Part of:** [Mathematics](#)

Credits	Recurrence	Duration	Level	Version
8	Once	1 semester	1	1

Mandatory			
T-MATH-102269	<a href="#">Mathematics II for Information Engineering and Management - Exam</a>	7 CR	Rieder, Weiß, Wieners
T-MATH-102268	<a href="#">Mathematics II for Information Engineering and Management - Exercise</a>	1 CR	Rieder, Weiß, Wieners

**Competence Certificate**

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 (1 credit) and
2. a written examination of 60 minutes on the lectures mathematics II 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 examination has a weight of 80% and the certificate a weight of 20%.

**Competence Goal**

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.

**Workload**

See German version.

## M

**5.47 Module: Mechano-Informatics and Robotics [M-INFO-100757]**

**Responsible:** Prof. Dr.-Ing. Tamim Asfour  
**Organisation:** KIT Department of Informatics  
**Part of:** [Advanced Studies in Informatics](#)

**Credits**  
4

**Recurrence**  
Each winter term

**Duration**  
1 term

**Language**  
German/English

**Level**  
3

**Version**  
1

Mandatory			
T-INFO-101294	<a href="#">Mechano-Informatics and Robotics</a>	4 CR	Asfour

**Competence Goal**

Based on the example of robotics students understand the synergistic effects and interdisciplinarity of mechatronics and informatics, the embedded systems, the control, and the methods and the algorithms. They are acquainted with the basic terminology and the methods which are common in robotics, signal processing, action representation, machine learning and cognitive systems. They are capable of applying fundamental state-of-the-art methods and tools for the development and programming of robots. Based on examples originating from current research conducted in the fields of humanoid robotics, the students interactively learn how to identify and formalize problems and tasks and how to develop solutions in an analytical and goal-directed way.

**Content**

The lecture addresses various engineering and algorithmic aspects and topics in robotics which are illustrated and explained based on examples originating from current research conducted in the field of humanoid robotics. First, this lecture gives an introduction into the mathematical fundamentals which are needed to describe a robotic system as well as the basic algorithms commonly applied in motion planning.

Subsequently, models and methods are introduced with which dynamical systems can be formalized and which can be used to encode and represent robot actions. To do so, we will discuss linear time-invariant systems in statespace as well as non-linear systems described as a set of differential equations which are driven by canonical systems. Further topics include perception, exploration, and classification of objects using haptics, and the basics as well as advanced applications of (deep) neural networks. Applications and approaches are presented which address current problems in robotics such as grasping, walking, visual and tactile visual servoing, and the classification of actions.

**Recommendation**

Siehe Teilleistung.

## M

**5.48 Module: Methodical Foundations of OR [M-WIWI-101936]****Responsible:** Prof. Dr. Oliver Stein**Organisation:** KIT Department of Economics and Management**Part of:** Advanced Studies in Economics and Management (Wirtschaftswissenschaften Wahl)**Credits**  
9**Recurrence**  
Each term**Duration**  
1 semester**Language**  
German**Level**  
3**Version**  
8

Election block: Wahlpflichtangebot (at least 1 item as well as between 4,5 and 9 credits)			
T-WIWI-102726	Global Optimization I	4,5 CR	Stein
T-WIWI-103638	Global Optimization I and II	9 CR	Stein
T-WIWI-102724	Nonlinear Optimization I	4,5 CR	Stein
T-WIWI-103637	Nonlinear Optimization I and II	9 CR	Stein
Election block: Ergänzungsangebot (at most 1 item)			
T-WIWI-102727	Global Optimization II	4,5 CR	Stein
T-WIWI-102725	Nonlinear Optimization II	4,5 CR	Stein
T-WIWI-102704	Facility Location and Strategic Supply Chain Management	4,5 CR	Nickel

**Competence Certificate**

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 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.

**Competence Goal**

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.

**Prerequisites**

At least one of the courses "Nonlinear Optimization I" and "Global Optimization I" has to be examined.

**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.

**Annotation**

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

**Workload**

The total workload for this module is approximately 270 hours. For further information see German version.

## M

## 5.49 Module: Mobile Computing and Internet of Things [M-INFO-101249]

**Responsible:** Prof. Dr.-Ing. Michael Beigl  
**Organisation:** KIT Department of Informatics  
**Part of:** [Advanced Studies in Informatics](#)

**Credits**  
5

**Recurrence**  
Each winter term

**Duration**  
1 semester

**Language**  
German

**Level**  
3

**Version**  
1

Mandatory			
T-INFO-102061	<a href="#">Mobile Computing and Internet of Things</a>	5 CR	Beigl

**Prerequisites**

None

## M

**5.50 Module: Mobile Robots – Practical Course [M-INFO-101184]**

**Responsible:** Prof. Dr.-Ing. Tamim Asfour  
**Organisation:** KIT Department of Informatics  
**Part of:** [Advanced Studies in Informatics](#)

Credits	Recurrence	Duration	Language	Level	Version
4	Each summer term	1 semester	German/English	3	2

Mandatory			
T-INFO-101992	<a href="#">Mobile Robots – Practical Course</a>	4 CR	Asfour

**Competence Goal**

The student is able to understand circuit diagrams and can assemble, test and debug complex PCBs. The student is familiar with programming microcontroller-based embedded systems using the C language and cross compilers. The student is able to use methods for controlling robotic sensors and actuators, can conduct experiments with robots and solve tasks in this context independently and in small groups.

**Content**

In this practical course, students assemble an ASURO robot in groups of two. Each student will be provided with his own robot, which he has to put into operation. While using the robots, a new set of problems will be solved each week. The students will need to prepare for each week given the provided material. Sets of problem be solved using the C language and focus on controlling the robot's sensors and actuators as well as on the generation of reflex-based behavior. The course ends with a race, where the robots have to tackle an obstacle course.

## M

**5.51 Module: Module Bachelor Thesis [M-WIWI-101611]**

**Responsible:** Studiendekan der KIT-Fakultät für Informatik  
Studiendekan der KIT-Fakultät für Wirtschaftswissenschaften

**Organisation:** KIT Department of Economics and Management

**Part of:** [Bachelor Thesis](#)

Credits	Language	Level	Version
12	German	3	2

Mandatory			
T-WIWI-103095	<a href="#">Bachelor Thesis</a>	12 CR	Abeck, Lindstädt

**Competence Certificate**

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.

**Competence Goal**

The student can independently work on a relevant topic in accordance with scientific criteria within the specified time frame.

He/she is in a position to research, analyze the information, abstract and identify basic principles and regulations from less structured information.

He/she reviews the task ahead, can select scientific methods and techniques and apply them to solve a problem or identify further potential. This is basically also done under consideration of social and/or ethical aspects.

He/she can interpret, evaluate and if required, graphically present the obtained results.

He/she is in a position to clearly structure a research paper and communicate in writing using the technical terminology.

**Prerequisites**

The regulations for the Bachelor thesis can be found in §14 of the examination regulation.

**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.

**Workload**

The total workload for this module is approximately 360 hours. For further information see German version.

## M

**5.52 Module: Optimization under Uncertainty [M-WIWI-103337]**

**Responsible:** Prof. Dr. Steffen Rebennack  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [Advanced Studies in Economics and Management \(Wirtschaftswissenschaften Wahl\)](#)

Credits	Recurrence	Duration	Level	Version
9	Each term	1 semester	3	2

Mandatory			
T-WIWI-106546	<a href="#">Introduction to Stochastic Optimization</a>	4,5 CR	Rebennack
Election block: Ergänzungsangebot (at most 1 item)			
T-WIWI-102724	<a href="#">Nonlinear Optimization I</a>	4,5 CR	Stein
T-WIWI-102714	<a href="#">Tactical and Operational Supply Chain Management</a>	4,5 CR	Nickel

**Competence Certificate**

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 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.

**Competence Goal**

The student

- denominates and describes basic notions for optimization methods under uncertainty, in particular from stochastic optimization,
- knows the indispensable methods and models for quantitative analysis,
- models and classifies optimization problems under uncertainty 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, in particular of
- stochastic optimization problems.

**Prerequisites**

The course *Introduction to Stochastic Optimization* has to be taken.

**Content**

The module focuses on modeling and analyzing mathematical optimization problems where certain data is not fully present at the time of decision-making. The lectures on the introduction to stochastic optimization deal with methods to integrate distribution information into the mathematical model. The lectures on the optimization approaches under uncertainty offer alternative approaches such as robust optimization.

**Recommendation**

Knowledge from the lectures "Introduction to Operations Research I" and "Introduction to Operations Research II" are helpful.

**Annotation**

The curriculum, planned for three years in advance, can be found on the Internet at <http://sop.ior.kit.edu/28.php>.

**Workload**

The total workload for this module is approximately 270 hours (9 credits). The allocation is made according to the credit points of the courses of the module. The total number of hours per course is determined by the amount of time spent attending the lectures and exercises, as well as the exam times and the time required to achieve the module's learning objectives for an average student for an average performance.



**M****5.53 Module: Orientation Exam [M-WIWI-101528]****Organisation:** University**Part of:** Orientation Exam**Credits**  
0**Language**  
German**Level**  
3**Version**  
1

Mandatory			
T-INFO-101964	Basic Notions of Computer Science	6 CR	Stüker, Worsch
T-INFO-101531	Programming	5 CR	Koziolek, Reussner
T-WIWI-102708	Economics I: Microeconomics	5 CR	Puppe, Reiß
T-INFO-101965	Basic Notions of Computer Science Pass	0 CR	Stüker, Worsch
T-INFO-101967	Programming Pass	0 CR	Koziolek, Reussner

**Modelled deadline**This module must be passed until the end of the **3. term**.**Prerequisites**

None

**M****5.54 Module: Programming [M-INFO-101174]**

**Responsible:** Prof. Dr.-Ing. Anne Koziolk  
 Prof. Dr. Ralf Reussner  
 Prof. Dr.-Ing. Gregor Snelting

**Organisation:** KIT Department of Informatics

**Part of:** [Informatics](#)

Credits	Recurrence	Duration	Language	Level	Version
5	Each winter term	1 semester	German	1	1

Mandatory			
T-INFO-101967	<a href="#">Programming Pass</a>	0 CR	Koziolk, Reussner
T-INFO-101531	<a href="#">Programming</a>	5 CR	Koziolk, Reussner

**Competence Goal**

Students should learn

- 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
- basics of programming methodology and the ability to autonomously write executable small to medium sized Java programs

**Content**

- objects and classes
- types, values and variables
- methods
- control structures
- recursion
- references, lists
- inheritance
- input and output
- exceptions
- programming methodology
- implementation of basic algorithms in Java (such as sorting algorithms)

**M****5.55 Module: Public Finance [M-WIWI-101403]**

**Responsible:** Prof. Dr. Berthold Wigger  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [Advanced Studies in Economics and Management \(Wirtschaftswissenschaften Wahl\)](#)

Credits	Recurrence	Duration	Language	Level	Version
9	Each term	1 semester	German	3	5

Election block: Wahlpflichtangebot (9 credits)			
T-WIWI-102877	<a href="#">Introduction to Public Finance</a>	4,5 CR	Wigger
T-WIWI-108711	<a href="#">Basics of German Company Tax Law and Tax Planning</a>	4,5 CR	Gutekunst, Wigger
T-WIWI-102739	<a href="#">Public Revenues</a>	4,5 CR	Wigger
T-WIWI-109590	<a href="#">Public Sector Finance</a>	4,5 CR	Wigger

**Competence Certificate**

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 exams are offered at the beginning of the recess period about the subject matter of the latest held lecture. Re-examinations are offered at every ordinary examination date. The assessment procedures are described for each course of the module separately.

The overall grade for the module is the average of the grades for each course weighted by the credits and truncated after the first decimal.

**Competence Goal**

See German version.

**Content**

As a branch of Economics, Public Finance is concerned with the theory and policy of the public sector and its interrelations with the private sector. It analyzes the economic role of the state from a normative as well as from a positive point of view. The normative view examines efficiency- and equity-oriented motives for government intervention and develops fiscal policy guidelines. The positive view explains the actual behavior of economic agents in public sector affairs. Special fields of Public Finance are public revenues, i.e. taxes and public debt, public expenditures for publicly provided goods, and welfare programs.

**Recommendation**

It is recommended to attend the course 2560129 after having completed the course 2560120.

**Annotation**

The course T-WIWI-102790 "Specific Aspects in Taxation" will no longer be offered in the module as of winter semester 2018/2019.

**Workload**

The total workload for this module is approximately 270 hours. For further information see German version.

## M

**5.56 Module: Real Estate Management [M-WIWI-101466]**

**Responsible:** Prof. Dr.-Ing. Thomas Lützkendorf  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [Advanced Studies in Economics and Management \(Betriebswirtschaftslehre Wahl\)](#)  
[Advanced Studies in Economics and Management \(Wirtschaftswissenschaften Wahl\)](#)

Credits	Recurrence	Duration	Language	Level	Version
9	Each term	2 semester	German	3	2

Mandatory			
T-WIWI-102744	<a href="#">Real Estate Management I</a>	4,5 CR	Lützkendorf
T-WIWI-102745	<a href="#">Real Estate Management II</a>	4,5 CR	Lützkendorf

**Competence Certificate**

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.

**Competence Goal**

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 and procedures to problems within the real estate area.

**Prerequisites**

None

**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.

**Recommendation**

The combination with the module *Design Constructions and Assessment of Green Buildings* 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.

**Workload**

The total workload for this module is approximately 270 hours. For further information see German version.



## 5.57 Module: Security [M-INFO-100834]

**Responsible:** Prof. Dr. Jörn Müller-Quade  
**Organisation:** KIT Department of Informatics  
**Part of:** [Advanced Studies in Informatics](#)

**Credits**  
6

**Recurrence**  
Each summer term

**Duration**  
1 term

**Language**  
German

**Level**  
3

**Version**  
1

Mandatory			
T-INFO-101371	<a href="#">Security</a>	6 CR	Hofheinz, Müller-Quade

## M

**5.58 Module: Semantic Knowledge Management [M-WIWI-101438]**

**Responsible:** Prof. Dr. York Sure-Vetter  
**Organisation:** KIT Department of Economics and Management  
**Part of:** *Advanced Studies in Informatics*

Credits	Recurrence	Duration	Language	Level	Version
9	Each term	1 semester	German/English	3	9

Mandatory			
T-WIWI-102874	<i>Semantic Web Technologies</i>	4,5 CR	Sure-Vetter
Election block: Ergänzungsangebot (at least 1 item)			
T-WIWI-110340	<i>Applied Informatics – Applications of Artificial Intelligence</i>	4,5 CR	Sure-Vetter
T-WIWI-110548	<i>Advanced Lab Informatics (Master)</i>	4,5 CR	Professorenschaft des Fachbereichs Informatik
T-WIWI-102697	<i>Business Process Modelling</i>	4,5 CR	Oberweis

**Competence Certificate**

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.

**Competence Goal**

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

**Prerequisites**

Lecture *Semantic Web Technologien* [2511310] is mandatory.

**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.

**Annotation**

Detailed information on the recognition of examinations in the field of Informatics can be found at <http://www.aifb.kit.edu/web/Auslandsaufenthalt>.

**Workload**

The workload is app. 270 hours.

**M****5.59 Module: Seminar Module Economic Sciences [M-WIWI-101826]**

**Responsible:** Studiendekan der KIT-Fakultät für Wirtschaftswissenschaften

**Organisation:** KIT Department of Economics and Management

**Part of:** [Research Course](#)

Credits	Language	Level	Version
3	German	3	1

Election block: Wahlpflichtangebot (1 item)			
T-WIWI-103486	<a href="#">Seminar in Business Administration (Bachelor)</a>	3 CR	Professorenschaft des Fachbereichs Betriebswirtschaftslehre
T-WIWI-103488	<a href="#">Seminar in Operations Research (Bachelor)</a>	3 CR	Nickel, Rebennack, Stein
T-WIWI-103489	<a href="#">Seminar in Statistics (Bachelor)</a>	3 CR	Grothe, Schienle
T-WIWI-103487	<a href="#">Seminar in Economics (Bachelor)</a>	3 CR	Professorenschaft des Fachbereichs Volkswirtschaftslehre

**Competence Certificate**

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.

**Competence Goal**

- Students are able to independently deal with a defined problem in a specialized field based on scientific criteria.
- They are able to research, analyze the information, abstract and derive basic principles and regularities from unstructured information.
- They can solve the problems in a structured manner using their interdisciplinary know-how.
- They know how to validate the obtained results.
- Finally, they are able to logically and systematically present the results both orally and in written form in accordance with scientific guidelines (structuring, technical terminology, referencing). They can argue and defend the results professionally in the discussion.

**Prerequisites**

None.

**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.

**Annotation**

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.

**Workload**

The total workload for this module is approximately 90 hours.

**M****5.60 Module: Seminar Module Informatics [M-INFO-102058]**

**Responsible:** Dr. Ioana Gheta  
Jürgen Weixler  
Dr. André Wiesner

**Organisation:** KIT Department of Informatics  
KIT Department of Economics and Management

**Part of:** [Research Course](#)

**Credits**  
3

**Recurrence**  
Each term

**Language**  
German/English

**Level**  
3

**Version**  
1

Election block: Seminar Informatik (1 item)			
T-INFO-104336	<a href="#">Seminar Informatics A</a>	3 CR	Abeck
T-WIWI-103485	<a href="#">Seminar in Informatics (Bachelor)</a>	3 CR	Professorenschaft des Fachbereichs Informatik



## M

## 5.61 Module: Seminar Module Law [M-INFO-101218]

**Responsible:** Prof. Dr. Thomas Dreier  
**Organisation:** KIT Department of Informatics  
**Part of:** [Research Course](#)

**Credits**  
3

**Recurrence**  
Each term

**Duration**  
1 semester

**Language**  
German

**Level**  
3

**Version**  
1

Mandatory			
T-INFO-101997	<a href="#">Seminar: Legal Studies I</a>	3 CR	Dreier

**M****5.62 Module: Software Engineering I [M-INFO-101175]**

**Responsible:** Prof. Dr.-Ing. Anne Koziolek  
 Prof. Dr. Ralf Reussner  
 Prof. Dr. Walter Tichy

**Organisation:** KIT Department of Informatics

**Part of:** [Informatics](#)

**Credits**  
6

**Recurrence**  
Each summer term

**Duration**  
1 semester

**Language**  
German

**Level**  
2

**Version**  
1

Mandatory			
T-INFO-101968	<a href="#">Software Engineering I</a>	6 CR	Koziolek, Reussner, Tichy
T-INFO-101995	<a href="#">Software Engineering I Pass</a>	0 CR	Tichy

**Competence Goal**

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.

**Workload**

approx. 180 h

**M****5.63 Module: Software Engineering II [M-INFO-100833]**

**Responsible:** Prof. Dr.-Ing. Anne Kozirolek  
 Prof. Dr. Ralf Reussner  
 Prof. Dr. Walter Tichy

**Organisation:** KIT Department of Informatics

**Part of:** [Advanced Studies in Informatics](#)

**Credits**  
6

**Recurrence**  
Each winter term

**Duration**  
1 semester

**Language**  
German

**Level**  
3

**Version**  
1

Mandatory			
T-INFO-101370	<a href="#">Software Engineering II</a>	6 CR	Kozirolek, Reussner, Tichy

**Content**

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

## M

**5.64 Module: Specialization in Customer Relationship Management [M-WIWI-101422]****Responsible:** Prof. Dr. Andreas Geyer-Schulz**Organisation:** KIT Department of Economics and Management**Part of:** [Advanced Studies in Economics and Management \(Betriebswirtschaftslehre Wahl\)](#) (Usage until 3/30/2020)  
[Advanced Studies in Economics and Management \(Wirtschaftswissenschaften Wahl\)](#) (Usage until 3/30/2020)**Credits**  
9**Language**  
German**Level**  
3**Version**  
5

Mandatory			
T-WIWI-102597	<a href="#">Operative CRM</a>	4,5 CR	Geyer-Schulz
Election block: Ergänzungsangebot (1 item)			
T-WIWI-109938	<a href="#">Digital Services</a>	4,5 CR	Satzger, Weinhardt
T-WIWI-100005	<a href="#">Competition in Networks</a>	4,5 CR	Mitusch

**Competence Certificate**

This module will be offered for the last time in winter semester 2019/20.

The assessment is carried out as partial exams (according to Section 4(1), S. 2 2nd clause 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 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.

**Competence Goal**

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.

**Prerequisites**

The course "Operative CRM" is compulsory.

It is only possible to choose this module in combination with the module *CRM and Servicemanagement*. The module is passed only after the final partial exam of *CRM and Servicemanagement* is additionally passed.

**Content**

In this module, analysis 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. Regarding 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 assortments, analysis of customer loyalty, ...). 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 transferring data from the operative systems into the data warehouse is known as the ETL process (Extract / Transform / Load). The process of modelling a data-warehouse as well as the so-called extraction, transformation, 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.

Regarding the operative 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 management, permission marketing, ...)

Customer service processes (sales force management, field services, call center management, ...)

**Workload**

The total amount of work for this module is approximately 270 hours (9 credits). The subdivision is based on the credits of the courses of the module.

The total number of hours per course results from the time of visiting the lectures and exercises, as well as from the exam periods and the time that is required to achieve the objectives of the module as an average student with an average performance.

## M

**5.65 Module: Statistics and Econometrics [M-WIWI-101599]**

**Responsible:** Prof. Dr. Oliver Grothe  
Prof. Dr. Melanie Schienle

**Organisation:** KIT Department of Economics and Management

**Part of:** [Advanced Studies in Economics and Management \(Wirtschaftswissenschaften Wahl\)](#)

**Credits**  
9

**Recurrence**  
Each term

**Language**  
German

**Level**  
3

**Version**  
3

Election block: Wahlpflichtangebot (1 item)			
T-WIWI-102736	<a href="#">Economics III: Introduction in Econometrics</a>	5 CR	Schienle
T-WIWI-106623	<a href="#">Technical Conditions Met</a>	0 CR	
Election block: Ergänzungsangebot (between 1 and 2 items)			
T-WIWI-103063	<a href="#">Analysis of Multivariate Data</a>	4,5 CR	Grothe
T-WIWI-103066	<a href="#">Data Mining and Applications</a>	4,5 CR	Nakhaeizadeh
T-WIWI-103064	<a href="#">Financial Econometrics</a>	4,5 CR	Schienle
T-WIWI-103065	<a href="#">Statistical Modeling of Generalized Regression Models</a>	4,5 CR	Heller

**Competence Certificate**

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 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.

**Competence Goal**

The student

- shows an advanced understanding of Econometric techniques and statistical model building.
- is able to develop Econometric models for applied problems based on available data
- is able to apply techniques and models with statistical software, to interpret results and to judge on different approaches with appropriate statistical criteria.

**Prerequisites**

The course "Economics III: Introduction in Econometrics" is compulsory and must be examined. In case the course „Economics III: Introduction in Econometrics“ has already been examined within the module „Applied Microeconomics“, the course „Economics III: Introduction in Econometrics“ is not compulsory.

**Content**

The courses provide a solid Econometric and statistical foundation of techniques necessary to conduct valid regression, time series and multivariate analysis.

**Workload**

The total workload for this module is approximately 270 hours.

## M

**5.66 Module: Strategy and Organization [M-WIWI-101425]****Responsible:** Prof. Dr. Hagen Lindstädt**Organisation:** KIT Department of Economics and Management**Part of:** [Advanced Studies in Economics and Management \(Betriebswirtschaftslehre Wahl\)](#)  
[Advanced Studies in Economics and Management \(Wirtschaftswissenschaften Wahl\)](#)**Credits**  
9**Language**  
German**Level**  
3**Version**  
4

Election block: Strategie und Organisation (at least 9 credits)			
T-WIWI-102630	<a href="#">Managing Organizations</a>	3,5 CR	Lindstädt
T-WIWI-102871	<a href="#">Problem Solving, Communication and Leadership</a>	2 CR	Lindstädt
T-WIWI-102629	<a href="#">Management and Strategy</a>	3,5 CR	Lindstädt

**Competence Certificate**

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 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.

**Competence Goal**

- The student describes both central concepts of strategic management as well as concepts and models for the design of organizational structures.
- He / she evaluates the strengths and weaknesses of existing organizational structures and regulations on the basis of systematic criteria.
- The management of organizational changes discusses and examines the students by means of case studies to what extent the models can be used in practice and what conditions must apply to them.
- In addition, students plan to use IT to support corporate governance.

**Content**

The module has a practical and action-oriented structure and provides the student with an up-to-date overview of basic skills concepts and models of strategic management and a realistic picture of possibilities and limitations rational design approaches of the organization.

The focus is firstly on internal and external strategic analysis, concept and sources of competitive advantage, Formulation of competitive and corporate strategies as well as strategy assessment and implementation. Secondly strengths and weaknesses of organizational structures and regulations are assessed on the basis of systematic criteria. Concepts for the organization of organizational structures, the regulation of organizational processes and the control organizational changes are presented.

**Workload**

The total workload of the module is about 240 hours. The workload is proportional to the credit points of the individual courses.

**M****5.67 Module: Supply Chain Management [M-WIWI-101421]****Responsible:** Prof. Dr. Stefan Nickel**Organisation:** KIT Department of Economics and Management**Part of:** [Advanced Studies in Economics and Management \(Betriebswirtschaftslehre Wahl\)](#)  
[Advanced Studies in Economics and Management \(Wirtschaftswissenschaften Wahl\)](#)**Credits**  
9**Recurrence**  
Each term**Duration**  
1 semester**Language**  
German/English**Level**  
3**Version**  
8

Mandatory			
T-WIWI-109936	<a href="#">Platform Economy</a>	4,5 CR	Weinhardt
Election block: Ergänzungsangebot (1 item)			
T-WIWI-102704	<a href="#">Facility Location and Strategic Supply Chain Management</a>	4,5 CR	Nickel
T-WIWI-102714	<a href="#">Tactical and Operational Supply Chain Management</a>	4,5 CR	Nickel
T-MACH-102089	<a href="#">Logistics - Organisation, Design and Control of Logistic Systems</a>	6 CR	Furmans
T-WIWI-109802	<a href="#">Wildcard Supply Chain Management</a>	4,5 CR	
T-WIWI-109803	<a href="#">Wildcard Supply Chain Management</a>	4,5 CR	

**Competence Certificate**

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.

**Competence Goal**

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

**Prerequisites**

The course T-WIWI-107506 "Platform Economy" has to be taken.

**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 "Platform Economy" the focus is set on markets between two parties that act through an intermediary on an Internet platform. Topics discussed are network effects, peer-to-peer markets, blockchains and market design. The course is held in English and teaches parts of the syllabus with the support of a case study in which students analyze a platform.

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

**Annotation**

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

**Workload**

The total workload of the module is about 240 hours. The workload is proportional to the credit points of the individual courses.



## M

## 5.68 Module: Telematics [M-INFO-101194]

**Responsible:** Prof. Dr. Martina Zitterbart  
**Organisation:** KIT Department of Informatics  
**Part of:** [Advanced Studies in Informatics](#)

Credits	Recurrence	Duration	Level	Version
10	Each term	1 semester	3	1

Mandatory			
T-INFO-102015	<a href="#">Introduction in Computer Networks</a>	4 CR	Zitterbart
T-INFO-101338	<a href="#">Telematics</a>	6 CR	Zitterbart

**Competence Goal**

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.

**Prerequisites**

None

**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.

**Recommendation**

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].

**Workload**

approx. 300 h

For further details see the German version.

**M****5.69 Module: Theoretical Informatics [M-INFO-101189]**

**Responsible:** Prof. Dr. Jörn Müller-Quade  
Prof. Dr. Dorothea Wagner

**Organisation:** KIT Department of Informatics

**Part of:** Informatics

**Credits**  
6

**Recurrence**  
Once

**Duration**  
1 semester

**Language**  
German/English

**Level**  
2

**Version**  
1

Mandatory			
T-INFO-103235	Theoretical Foundations of Computer Science	6 CR	Müller-Quade, Sanders, Wagner

**Competence Certificate**

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.

**Competence Goal**

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.

**Workload**

approx. 210 h

## M

**5.70 Module: Topics in Finance I [M-WIWI-101465]**

**Responsible:** Prof. Dr. Martin Ruckes  
Prof. Dr. Marliese Uhrig-Homburg

**Organisation:** KIT Department of Economics and Management

**Part of:** [Advanced Studies in Economics and Management \(Betriebswirtschaftslehre Wahl\)](#)  
[Advanced Studies in Economics and Management \(Wirtschaftswissenschaften Wahl\)](#)

Credits	Recurrence	Duration	Language	Level	Version
9	Each term	1 semester	German/English	3	7

Election block: Wahlpflichtangebot (9 credits)			
T-WIWI-102643	<a href="#">Derivatives</a>	4,5 CR	Uhrig-Homburg
T-WIWI-109941	<a href="#">eFinance: Information Systems for Securities Trading</a>	4,5 CR	Weinhardt
T-WIWI-107505	<a href="#">Financial Accounting for Global Firms</a>	4,5 CR	Luedecke
T-WIWI-102623	<a href="#">Financial Intermediation</a>	4,5 CR	Ruckes
T-WIWI-102626	<a href="#">Business Strategies of Banks</a>	3 CR	Müller
T-WIWI-108711	<a href="#">Basics of German Company Tax Law and Tax Planning</a>	4,5 CR	Gutekunst, Wigger
T-WIWI-102646	<a href="#">International Finance</a>	3 CR	Uhrig-Homburg
T-WIWI-110511	<a href="#">Strategic Finance and Technology Change</a>	1,5 CR	Ruckes

**Competence Certificate**

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 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.

**Competence Goal**

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

**Prerequisites**

It is only possible to choose this module in combination with the module *Essentials in Finance*. The module is passed only after the final partial exam of *Essentials in Finance* is additionally passed.

In addition to that it is possible to choose the module *Topics in Finance II*.

**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.

**Annotation**

The course T-WIWI-102790 "Specific Aspects in Taxation" will no longer be offered in the module as of winter semester 2018/2019.

**Workload**

The total workload of the module is about 240 hours. The workload is proportional to the credit points of the individual courses.

## M

**5.71 Module: Topics in Finance II [M-WIWI-101423]**

**Responsible:** Prof. Dr. Martin Ruckes  
Prof. Dr. Marliese Uhrig-Homburg

**Organisation:** KIT Department of Economics and Management

**Part of:** [Advanced Studies in Economics and Management \(Betriebswirtschaftslehre Wahl\)](#)  
[Advanced Studies in Economics and Management \(Wirtschaftswissenschaften Wahl\)](#)

Credits	Recurrence	Duration	Language	Level	Version
9	Each term	1 semester	German/English	3	8

Election block: Wahlpflichtangebot (9 credits)			
T-WIWI-102643	<a href="#">Derivatives</a>	4,5 CR	Uhrig-Homburg
T-WIWI-109941	<a href="#">eFinance: Information Systems for Securities Trading</a>	4,5 CR	Weinhardt
T-WIWI-102623	<a href="#">Financial Intermediation</a>	4,5 CR	Ruckes
T-WIWI-107505	<a href="#">Financial Accounting for Global Firms</a>	4,5 CR	Luedecke
T-WIWI-102626	<a href="#">Business Strategies of Banks</a>	3 CR	Müller
T-WIWI-108711	<a href="#">Basics of German Company Tax Law and Tax Planning</a>	4,5 CR	Gutekunst, Wigger
T-WIWI-102646	<a href="#">International Finance</a>	3 CR	Uhrig-Homburg
T-WIWI-110511	<a href="#">Strategic Finance and Technology Change</a>	1,5 CR	Ruckes

**Competence Certificate**

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 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.

**Competence Goal**

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

**Prerequisites**

It is only possible to choose this module in combination with the module *Essentials in Finance*. The module is passed only after the final partial exam of *Essentials in Finance* is additionally passed.

In addition to that it is possible to choose the module *Topics in Finance I*.

**Content**

The module *Topics in Finance II* 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.

**Annotation**

The course T-WIWI-102790 "Special Taxation" will no longer be offered in the module as of winter semester 2018/2019.

**Workload**

The total workload for this module is approximately 270 hours.

## 6 Courses

### T

### 6.1 Course: Advanced Lab Informatics (Master) [T-WIWI-110541]

**Responsible:** Professorenschaft des Fachbereichs Informatik  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-WIWI-101440 - Information Services in Networks](#)  
[M-WIWI-101476 - Business Processes and Information Systems](#)

Type	Credits	Recurrence	Version
Examination of another type	4,5	Each term	1

Exams				
WS 19/20	7900046	<a href="#">Sicherheit</a>	Prüfung (PR)	Volkamer
WS 19/20	7900116	<a href="#">Advanced Lab Security, Usability and Society</a>	Prüfung (PR)	Volkamer
WS 19/20	7900187	<a href="#">Real-World Challenges in Data Science und Analytics</a>	Prüfung (PR)	Sure-Vetter

#### Competence Certificate

The alternative exam assessment consists of:

- a practical work
- a presentation and
- a written seminar thesis

Practical work, presentation and written thesis are weighted according to the course.

#### Prerequisites

None

#### Annotation

The title of this course is a generic one. Specific titles and the topics of offered seminars will be announced before the start of a semester in the internet at <https://portal.wiwi.kit.edu>.

## T

## 6.2 Course: Advanced Lab Informatics (Master) [T-WIWI-110548]

**Responsible:** Professorenschaft des Fachbereichs Informatik  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-WIWI-101438 - Semantic Knowledge Management](#)

Type	Credits	Recurrence	Version
Examination of another type	4,5	Each term	1

Exams				
WS 19/20	7900038	<a href="#">Linked Data and the Semantic Web</a>	Prüfung (PR)	Sure-Vetter
WS 19/20	7900046	<a href="#">Sicherheit</a>	Prüfung (PR)	Volkamer
WS 19/20	7900047	<a href="#">Praktikum Betriebliche Informationssysteme: Realisierung innovativer Dienste für Studierende</a>	Prüfung (PR)	Oberweis
WS 19/20	7900102	<a href="#">Advanced Lab Information Service Engineering</a>	Prüfung (PR)	Sack
WS 19/20	7900107	<a href="#">Advanced Lab Cognitive Automobile and Robots</a>	Prüfung (PR)	Zöllner
WS 19/20	7900116	<a href="#">Advanced Lab Security, Usability and Society</a>	Prüfung (PR)	Volkamer
WS 19/20	7900187	<a href="#">Real-World Challenges in Data Science und Analytics</a>	Prüfung (PR)	Sure-Vetter

**Competence Certificate**

The alternative exam assessment consists of:

- a practical work
- a presentation and
- a written seminar thesis

Practical work, presentation and written thesis are weighted according to the course.

**Prerequisites**

None

**Annotation**

The title of this course is a generic one. Specific titles and the topics of offered seminars will be announced before the start of a semester in the internet at <https://portal.wiwi.kit.edu>.

## T

## 6.3 Course: Advanced Lab Security [T-WIWI-109786]

**Responsible:** Prof. Dr. Melanie Volkamer  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-WIWI-104069 - Information Security](#)

Type	Credits	Recurrence	Version
Examination of another type	4,5	Each winter term	2

Events					
WS 19/20	2512100	<a href="#">Security</a>	4 SWS	Practical course (P)	Baumgart, Volkamer, Mayer, Zarei
Exams					
WS 19/20	7900046	<a href="#">Sicherheit</a>		Prüfung (PR)	Volkamer

**Competence Certificate**

The alternative exam assessment consists of:

- a practical work
- a presentation and possibly
- a written seminar thesis

Practical work, presentation and written thesis are weighted according to the course.

**Prerequisites**

None

**Recommendation**

Knowledge from the lecture "Information Security" is recommended.

*Below you will find excerpts from events related to this course:*

## V

**Security**

2512100, WS 19/20, 4 SWS, Language: German, [Open in study portal](#)

**Practical course (P)**

**Notes**

The lab deals with the IT security of everyday utensils. Implemented security mechanisms are first theoretically investigated and put to the test with practical attacks. Finally, countermeasures and suggestions for improvement are worked out. The lab is offered within the competence center for applied security technologies (KASTEL) and is supervised by several institutes.

The success control takes the form of a final presentation, a thesis and the handing over of the developed code.

More information on [https://ilias.studium.kit.edu/goto\\_produkativ\\_crs\\_998421.html](https://ilias.studium.kit.edu/goto_produkativ_crs_998421.html)

## T

## 6.4 Course: Advanced Lab Security, Usability and Society [T-WIWI-108439]

**Responsible:** Prof. Dr. Melanie Volkamer  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-104069 - Information Security](#)

Type	Credits	Recurrence	Version
Examination of another type	4,5	Each summer term	2

Events					
WS 19/20	2512551	<a href="#">Practical lab Security, Usability and Society</a>	3 SWS	Practical course (P)	Volkamer, Mayer
Exams					
WS 19/20	7900116	<a href="#">Advanced Lab Security, Usability and Society</a>	Prüfung (PR)		Volkamer

**Competence Certificate**

The alternative exam assessment consists of:

- a practical work
- a presentation and possibly
- a written seminar thesis

Practical work, presentation and written thesis are weighted according to the course.

**Prerequisites**

None

**Recommendation**

Knowledge from the lecture "Information Security" is recommended.

**Annotation**

The course is expected to be offered from winter term 2018/2019.

**Contents:**

In the course of the programming lab, changing topics from the field of Human Factors in Security und Privacy will be worked on.

**Learning goals:**

The student

- can apply the basics of information security
- is able to implement appropriate measures to achieve different protection goals
- can structure a software project in the field of information security
- can use the Human Centred Security and Privacy by Design technique to develop user-friendly software
- can explain and present technical facts and the results of the programming lab in oral and written form

*Below you will find excerpts from events related to this course:*

## V

**Practical lab Security, Usability and Society**

2512551, WS 19/20, 3 SWS, [Open in study portal](#)

Practical course (P)

**Notes**

Kick-off Meeting (compulsory attendance) on 18.10.2019 at 11:00 in room 3A-11.2



## T

## 6.5 Course: Advanced Object Orientation [T-INFO-101346]

**Responsible:** Prof. Dr.-Ing. Gregor Snelting  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-100809 - Advanced Object Orientation](#)  
[M-INFO-102060 - Further Examinations](#)

Type	Credits	Recurrence	Version
Written examination	5	Irregular	1

Events					
SS 2019	24665	<a href="#">Advanced object orientation</a>	2 SWS	Lecture (V)	Snelting
Exams					
SS 2019	7500034	<a href="#">Advanced Object Orientation</a>		Prüfung (PR)	Snelting

Below you will find excerpts from events related to this course:

## V

## Advanced object orientation

24665, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

Lecture (V)

### Learning Content

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

## T

**6.6 Course: Advanced Topics in Economic Theory [T-WIWI-102609]**

**Responsible:** Prof. Dr. Kay Mitusch  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101501 - Economic Theory](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Irregular	1

Events					
SS 2019	2520527	<a href="#">Advanced Topics in Economic Theory</a>	2 SWS	Lecture (V)	Mitusch, Scheffel
SS 2019	2520528	<a href="#">Übung zu Advanced Topics in Economic Theory</a>	1 SWS	Practice (Ü)	Pegorari
Exams					
SS 2019	00227	<a href="#">Advanced Topics in Economic Theory</a>		Prüfung (PR)	Mitusch, Scheffel
SS 2019	7900291	<a href="#">Advanced Topics in Economic Theory</a>		Prüfung (PR)	Mitusch, Scheffel

**Competence Certificate**

The course T-WIWI-102609 "Advanced Topics in Economic Theory" restarts in summer term 2019.

The assessment consists of a written exam (60min) (following §4(2), 1 of the examination regulation) at the end of the lecture period or at the beginning of the following semester.

**Prerequisites**

None

**Recommendation**

This course is designed for advanced Master students with a strong interest in economic theory and mathematical models. Bachelor students who would like to participate are free to do so, but should be aware that the level is much more advanced than in other courses of their curriculum.

*Below you will find excerpts from events related to this course:*

## V

**Advanced Topics in Economic Theory**

2520527, SS 2019, 2 SWS, Language: English, [Open in study portal](#)

Lecture (V)

**Learning Content**

The course deals with basic elements of modern economic theory. It is divided into two parts. The first part introduces the microeconomic foundations of general equilibrium à la Debreu ("The Theory of Value", 1959) and Hildenbrand/Kirman ("Equilibrium Analysis", 1988). The second part deals with asymmetric information and introduces the basic techniques of contract theory.

The course is largely based on the textbook "Microeconomic Theory" (Chapters 1-5, 10, 13-20) by A.Mas-Colell, M.D.Whinston, and J.R.Green.

**Workload**

The total workload for this course is approximately 135.0 hours. For further information see German version.

**Literature**

The course is based on the excellent textbook "Microeconomic Theory" (Chapters 1-5, 10, 13-20) by A.Mas-Colell, M.D.Whinston, and J.R.Green.

## T

## 6.7 Course: Algorithmic Methods for Hard Optimization Problems [T-INFO-103334]

**Responsible:** Prof. Dr. Dorothea Wagner  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-101237 - Algorithmic Methods for Hard Optimization Problems](#)  
[M-INFO-102060 - Further Examinations](#)

Type	Credits	Recurrence	Version
Oral examination	5	Irregular	1

## T

## 6.8 Course: Algorithms for Planar Graphs [T-INFO-101986]

**Responsible:** Prof. Dr. Dorothea Wagner  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-101220 - Algorithms for Planar Graphs](#)  
[M-INFO-102060 - Further Examinations](#)

Type	Credits	Recurrence	Version
Oral examination	5	Each summer term	1

Events					
SS 2019	24614	<a href="#">Algorithmen für planare Graphen (mit Übungen)</a>	2 SWS	Lecture / Practice (VÜ)	Wagner, Brückner
Exams					
SS 2019	7500018	<a href="#">Algorithms for Planar Graphs</a>		Prüfung (PR)	Wagner

## T

## 6.9 Course: Algorithms I [T-INFO-100001]

**Responsible:** Prof. Dr. Peter Sanders  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-100030 - Algorithms I](#)

**Type**  
Written examination

**Credits**  
6

**Recurrence**  
Each summer term

**Version**  
1

Events					
SS 2019	24500	<a href="#">Algorithms I</a>	4 SWS	Lecture / Practice (VÜ)	Sinz, Iser
Exams					
SS 2019	7500266	<a href="#">Algorithms I</a>		Prüfung (PR)	Sinz

## T

## 6.10 Course: Algorithms II [T-INFO-102020]

**Responsible:** Prof. Dr. Hartmut Prautzsch  
 Prof. Dr. Peter Sanders  
 Prof. Dr. Dorothea Wagner

**Organisation:** KIT Department of Informatics

**Part of:** [M-INFO-101173 - Algorithms II](#)  
[M-INFO-102060 - Further Examinations](#)

Type	Credits	Recurrence	Version
Written examination	6	Each winter term	1

Events					
WS 19/20	24079	<a href="#">Algorithms II</a>	4 SWS	Lecture (V)	Sanders, Lamm, Heuer
Exams					
SS 2019	7500464	<a href="#">Algorithms II</a>		Prüfung (PR)	Sanders

## T

**6.11 Course: Analysis of Multivariate Data [T-WIWI-103063]**

**Responsible:** Prof. Dr. Oliver Grothe  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101599 - Statistics and Econometrics](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Irregular	1

Events					
WS 19/20	2550550		2 SWS	Lecture (V)	Grothe
WS 19/20	2550551		2 SWS	Practice (Ü)	Grothe, N.N.

**Competence Certificate**

The assessment of this course is a written examination (60 min) according to §4(2), 1 of the examination regulation. The exam is offered every semester. Re-examinations are offered only for repeaters.

**Prerequisites**

None

**Recommendation**

Attendance of the courses Statistics 1 [2600008] and Statistics 2 [2610020] is recommended.

**Annotation**

The lecture is not offered regularly. The courses planned for three years in advance can be found online.

*Below you will find excerpts from events related to this course:*

## V

2550550, WS 19/20, 2 SWS, [Open in study portal](#)

**Lecture (V)**

**Learning Content**

Multivariate Data  
 Basics of multivariate estimating and testing  
 Correlation Analysis  
 Variance Analysis  
 Factor- and Principal Component Analysis  
 Discriminant function analysis  
 Cluster Analysis

**Literature**

Comprehensive lecture notes

## T

**6.12 Course: Applied Informatics – Applications of Artificial Intelligence [T-WIWI-110340]**

**Responsible:** Prof. Dr. York Sure-Vetter  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-WIWI-101438 - Semantic Knowledge Management](#)

**Type**  
Written examination

**Credits**  
4,5

**Recurrence**  
Each winter term

**Version**  
1

Events					
WS 19/20	2511314	<a href="#">Applications of Artificial Intelligence</a>	2 SWS	Lecture (V)	Sure-Vetter
WS 19/20	2511315	<a href="#">Exercises to Applied Informatics – Applications of Artificial Intelligence</a>	1 SWS	Practice (Ü)	Sure-Vetter, Weller
Exams					
WS 19/20	7900091	<a href="#">Applied Informatics - Applications of Artificial Intelligence</a>		Prüfung (PR)	Sure-Vetter

**Competence Certificate**

Written Examination (60 min) according to §4, Abs. 2, 1 of the examination regulations or oral examination of 20 minutes according to §4, Abs. 2, 2 of the examination regulations. The exam takes place every semester and can be repeated at every regular examination date.

**Prerequisites**

None.

**Recommendation**

Basics in logic, e.g. from lecture Foundations of Informatics 1 are important.

**Annotation**

Replaces from winter semester 2019/2020 T-WIWI-109263 "Applications of Artificial Intelligence".

*Below you will find excerpts from events related to this course:*

## V

**Applications of Artificial Intelligence**

2511314, WS 19/20, 2 SWS, Language: German, [Open in study portal](#)

**Lecture (V)**



**Notes**

The lecture provides insights into the fundamentals of artificial intelligence. Basic methods of artificial intelligence and their applications in industry are presented.

Applications of the AI is a sub-area of computer science dealing with the automation of intelligent behavior. In general, it is a question of mapping human intelligence. Methods of artificial intelligence are presented in various areas such as, for example, question answering systems, speech recognition and image recognition.

The lecture gives an introduction to the basic concepts of artificial intelligence. Essential theoretical foundations, methods and their applications are presented and explained.

This lecture aims to provide students with a basic knowledge and understanding of the structure, analysis and application of selected methods and technologies on artificial intelligence. The topics include, among others, knowledge modeling, machine learning, text mining, uninformed search, and intelligent agents.

**Learning objectives:**

The students

- consider current research topics in the field of artificial intelligence and in particular learn about the topics of knowledge modeling, machine learning, text mining and uninformed search.
- interdisciplinary thinking.
- technological approaches to current problems.

**Workload:**

- The total workload for this course is approximately 135 hours
- Time of presentness: 45 hours
- Time of preparation and postprocessing: 60 hours
- Exam and exam preparation: 30 hours

**Exercises to Applied Informatics – Applications of Artificial Intelligence**

2511315, WS 19/20, 1 SWS, Language: German, [Open in study portal](#)

Practice (Ü)

**Notes**

The exercises are oriented on the lecture applications of AI.

Multiple exercises are held that capture the topics, held in the lecture Applications of AI and discuss them in detail. Thereby, practical examples are given to the students in order to transfer theoretical aspects into practical implementation.

This lecture aims to provide students with a basic knowledge and understanding of the structure, analysis and application of selected methods and technologies on artificial intelligence. The topics include, among others, knowledge modeling, machine learning, text mining, uninformed search, and intelligent agents.

**Learning objectives:**

The students

- consider current research topics in the field of artificial intelligence and in particular learn about the topics of knowledge modeling, machine learning, text mining and uninformed search.
- interdisciplinary thinking.
- technological approaches to current problems.

## T

**6.13 Course: Applied Informatics – Information Security [T-WIWI-110342]**

**Responsible:** Prof. Dr. Melanie Volkamer  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-WIWI-104069 - Information Security](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each summer term	1

Events					
SS 2019	2511550	<a href="#">Information Security</a>	2 SWS	Lecture (V)	Volkamer
SS 2019	2511551	<a href="#">Exercise Information Security</a>	1 SWS	Practice (Ü)	Volkamer, Mayer
Exams					
WS 19/20	7900074	<a href="#">Applied Informatics - Information Security</a>		Prüfung (PR)	Volkamer

**Competence Certificate**

The assessment of this course is a written examination (60 min) according to §4(2), 1 of the examination regulation or an oral exam (30 min) following §4, Abs. 2, 2 of the examination regulation.

The exam takes place every semester and can be repeated at every regular examination date.

**Modeled Conditions**

The following conditions have to be fulfilled:

1. The course [T-WIWI-108387 - Information Security](#) must not have been started.

**Annotation**

Replaces from summer term 2020 T-WIWI-108387 "Information Security".

*Below you will find excerpts from events related to this course:*

## V

**Information Security**

2511550, SS 2019, 2 SWS, [Open in study portal](#)

Lecture (V)

**Description**

- Basics and concepts of information security
- Understanding the protection objectives of information security and various attack models (including associated assumptions)
- introduction of measures to achieve the respective protection goals, taking into account different attack models
- Note: In contrast to the IT Security lecture, measures such as encryption algorithms are treated only abstractly, i. e. the idea of the measure, assumptions to the attacker and the deployment environment.
- Presentation and analysis of problems of information security arising from human-machine interaction and presentation of the Human Centered Security by Design approach.
- Introduction into organisational protective measures and standards to be observed for companies

**Learning Content**

- Basics and concepts of information security
- Understanding the protection objectives of information security and various attack models (including associated assumptions)
- introduction of measures to achieve the respective protection goals, taking into account different attack models
- Note: In contrast to the IT Security lecture, measures such as encryption algorithms are treated only abstractly, i. e. the idea of the measure, assumptions to the attacker and the deployment environment.
- Presentation and analysis of problems of information security arising from human-machine interaction and presentation of the Human Centered Security by Design approach.
- Introduction into organisational protective measures and standards to be observed for companies.

### Literature

- P. Gerber, M. Ghiglieri, B. Henhapl, O. Kulyk, K. Marky, P. Mayer, B. Reinheimer, and M. Volkamer, *Human Factors in Security*. Springer, Jan. 2018, pp. 83–98.
- C. Eckert, *IT-Sicherheit: Konzepte-Verfahren-Protokolle*. Walter de Gruyter, 2013

## T

## 6.14 Course: Applied Informatics – Modelling [T-WIWI-110338]

**Responsible:** Prof. Dr. Andreas Oberweis  
Prof. Dr. York Sure-Vetter

**Organisation:** KIT Department of Economics and Management

**Part of:** [M-WIWI-101430 - Applied Informatics](#)

**Type**  
Written examination

**Credits**  
4

**Recurrence**  
Each winter term

**Version**  
1

Events					
WS 19/20	2511030	<a href="#">Applied Informatics - Modelling</a>	2 SWS	Lecture (V)	Oberweis, Sure-Vetter, Schiefer
WS 19/20	2511031	<a href="#">Exercises to Applied Informatics - Modelling</a>	1 SWS	Practice (Ü)	Oberweis, Sure-Vetter, Schiefer, Käfer
Exams					
WS 19/20	7900003	<a href="#">Applied Informatics - Modelling</a>		Prüfung (PR)	Oberweis, Sure-Vetter

**Competence Certificate**

The assessment consists of a written examination (60 min) in the first week after lecture period (according to Section 4 (2),1 of the examination regulation).

**Prerequisites**

None

**Annotation**

Replaces from winter semester 2019/2020 T-WIWI-102652 "Applied Informatics I - Modeling".

*Below you will find excerpts from events related to this course:*

## V

**Applied Informatics - Modelling**

2511030, WS 19/20, 2 SWS, Language: German, [Open in study portal](#)

**Lecture (V)**

**Notes**

In the context of complex information systems, modelling is of central importance, e.g. – in the context of systems to be developed – for a better understanding of their functionality or in the context of existing systems for supporting maintenance and further development.

Modelling, in particular modelling of information systems, forms the core part of this lecture. The lecture is organized in two parts. The first part mainly covers the modelling of static aspects, the second part covers the modelling of dynamic aspects of information systems.

The lecture sets out with a definition of modelling and the advantages of modelling. After that, advanced aspects of UML, the Entity Relationship model (ER model) and description logics as a means of modelling static aspects will be explained. This will be complemented by the relational data model and the systematic design of databases based on ER models. For modelling dynamic aspects, different types of petri-nets together with their respective analysis techniques will be introduced.

**Learning objectives:**

Students

- explain the strengths and weaknesses of various modeling approaches for Information Systems and choose an appropriate method for a given problem,
- create UML models, ER models and Petri nets for given problems,
- model given problems in Description Logics and apply description logic rules,
- describe the main ontology concepts and languages and explain SPARQL queries,
- create and evaluate a relational database schema and express queries in relational algebra.

**Workload:**

- Total effort: 120-150 hours
- Presence time: 45 hours
- Self study: 75-105 hours

**Exercises to Applied Informatics - Modelling**

2511031, WS 19/20, 1 SWS, Language: German, [Open in study portal](#)

Practice (Ü)

**Notes**

The exercises are related to the lecture Applied Informatics I - Modelling.

Multiple exercises are held that capture the topics, held in the lecture Applied Informatics I - Modelling, and discuss them in detail. Thereby, practical examples are given to the students in order to transfer theoretical aspects into practical implementation.

The lecture sets out with a definition of modelling and the advantages of modelling. After that, advanced aspects of UML, the Entity Relationship model (ER model) and description logics as a means of modelling static aspects will be explained. This will be complemented by the relational data model and the systematic design of databases based on ER models. For modelling dynamic aspects, different types of petri-nets together with their respective analysis techniques will be introduced.

**Learning objectives:**

Students

- explain the strengths and weaknesses of various modeling approaches for Information Systems and choose an appropriate method for a given problem,
- create UML models, ER models and Petri nets for given problems,
- model given problems in Description Logics and apply description logic rules,
- describe the main ontology concepts and languages and explain SPARQL queries,
- create and evaluate a relational database schema and express queries in relational algebra.

## T

**6.15 Course: Applied Informatics – Principles of Internet Computing: Foundations for Emerging Technologies and Future Services [T-WIWI-110339]**

**Responsible:** Prof. Dr. Ali Sunyaev  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-WIWI-101430 - Applied Informatics](#)

Type	Credits	Recurrence	Version
Written examination	4	Each summer term	1

Events					
SS 2019	2511032	<a href="#">Applied Informatics II - Principles of Internet Computing: Foundations for Emerging Technologies and Future Services</a>	2 SWS	Lecture (V)	Sunyaev
SS 2019	2511033	<a href="#">Übungen zu Angewandte Informatik II – Internet Computing</a>	1 SWS	Practice (Ü)	Sunyaev
Exams					
WS 19/20	7900004	<a href="#">Applied Informatics – Principles of Internet Computing: Foundations for Emerging Technologies and Future Services</a>		Prüfung (PR)	Sunyaev

**Competence Certificate**

The assessment consists of a written exam (120 min) according to Section 4(2), 1 of the examination regulation. The successful completion of the exercises is recommended for the written exam, which is offered at the end of the winter semester and at the end of the summer semester.

By successful processing the exercises a bonus can be obtained. If the grade of the written exam is at least 4.0 and at most 1.3, the bonus will improve it by one grade level (i.e. by 0.3 or 0.4).

**Prerequisites**

None

**Recommendation**

Knowledge of content of the modules Basic Notions of Computer Science and Algorithms I is expected.

**Annotation**

Replaces from winter semester 2019/2020 T-WIWI-109445 "Applied Informatics - Internet Computing".

*Below you will find excerpts from events related to this course:*

## V

**Applied Informatics II - Principles of Internet Computing: Foundations for Emerging Technologies and Future Services**

Lecture (V)

2511032, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

**Learning Content**

The lecture Applied Computer Science II provides insights into fundamental concepts and future technologies of distributed systems and Internet computing. Students should be able to select, design and apply the presented concepts and technologies. The course first introduces basic concepts of distributed systems (e.g. design of architectures for distributed systems, internet architectures, web services, middleware).

In the second part of the course, emerging technologies of Internet computing will be examined in depth. These include, among others:

- Cloud Computing
- Edge & Fog Computing
- Internet of Things
- Blockchain
- Artificial Intelligence

**Workload**

The total workload for this course is approximately 150 hours. For further information see German version.

**Literature**

Tba in the lecture.

## T

## 6.16 Course: Auction &amp; Mechanism Design [T-WIWI-102876]

**Responsible:** Prof. Dr. Nora Szech  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101499 - Applied Microeconomics](#)  
[M-WIWI-101501 - Economic Theory](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each summer term	1

Events					
SS 2019	2560550	<a href="#">Auction and Mechanism Design</a>	2 SWS	Lecture (V)	Szech
SS 2019	2560551	<a href="#">Übung zu Auction and Mechanism Design</a>	1 SWS	Practice (Ü)	Szech, Huber
Exams					
SS 2019	7900161	<a href="#">Auction &amp; Mechanism Design</a>		Prüfung (PR)	Szech
SS 2019	7900207	<a href="#">Exam Auction &amp; Mechanism Design (2)</a>		Prüfung (PR)	Szech

**Competence Certificate**

The assessment consists of a written exam (60 minutes) (following §4(2), 1 of the examination regulation). The exam takes place in every semester. Re-examinations are offered at every ordinary examination date.

A bonus can be earned through successful participation in the exercise. If the grade of the written examination is between 4.0 and 1.3, the bonus improves the grade by one grade level (0.3 or 0.4). The exact criteria for awarding a bonus will be announced at the beginning of the course.

**Prerequisites**

None

**Recommendation**

Basic knowledge of microeconomics and statistics are recommended. A background in game theory is helpful, but not absolutely necessary.

**Annotation**

The lecture will be held in English.

*Below you will find excerpts from events related to this course:*

## V

**Auction and Mechanism Design**

2560550, SS 2019, 2 SWS, Language: English, [Open in study portal](#)

Lecture (V)

**Learning Content**

The course starts with the basic theory of equilibrium behavior and revenue management in one object standard auctions. The revenue equivalence theorem for standard auctions is introduced. Thereafter, the course focuses on mechanism design and its applications to one object auctions and bilateral trade.

**Annotation**

The lecture will be held in English.

**Workload**

The total workload for this course is approximately 135.0 hours. For further information see German version.



**Literature**

Krishna, V.: Auction Theory, Academic Press, 2009.

Milgrom, P.: Putting Auction Theory to Work, Cambridge University Press, 2010.

Mathews, S.: A Technical Primer on Auction Theory I: Independent Private Values No. 1096. Northwestern University, Center for Mathematical Studies in Economics and Management Science, 1995.

## T

## 6.17 Course: Bachelor Thesis [T-WIWI-103095]

**Responsible:** Prof. Dr. Sebastian Abeck  
Prof. Dr. Hagen Lindstädt

**Organisation:** KIT Department of Economics and Management

**Part of:** [M-WIWI-101611 - Module Bachelor Thesis](#)

**Type**  
Final Thesis

**Credits**  
12

**Version**  
1

Exams				
SS 2019	2610-10000	<a href="#">Concept and Implementation of a Decision Method for Service Allocation on Edge Devices</a>		Reussner
SS 2019	2610-10001	<a href="#">Discovering data-driven explanations</a>		Böhm
SS 2019	2610-10002	<a href="#">B2B pricing for a high-tech laboratory device</a>		Klarmann
WS 19/20	2610-10003	<a href="#">Representative Road Coverage With Test Drives on the Basis of Digital Map Data Analysis and Classification</a>		Sax
SS 2019	2610-10004	<a href="#">Privacy by Design - Opportunities and Risks of Article 25 I GDPR in its Implementation within the Company</a>		Dreier
SS 2019	2610-10005	<a href="#">Analyse von Zeitreihen-Kompressionsmethoden am Beispiel von Google N-Grams</a>		Böhm

**Competence Certificate**  
see module description

**Prerequisites**  
see module description

**Final Thesis**  
This course represents a final thesis. The following periods have been supplied:

**Submission deadline** 6 months

**Maximum extension period** 1 months

**Correction period** 8 weeks

This thesis requires confirmation by the examination office.

## T

## 6.18 Course: Basic Notions of Computer Science [T-INFO-101964]

**Responsible:** Dr. Sebastian Stüker  
Thomas Worsch

**Organisation:** KIT Department of Informatics

**Part of:** [M-INFO-101170 - Basic Notions of Computer Science](#)  
[M-WIWI-101528 - Orientation Exam](#)

Type	Credits	Recurrence	Version
Written examination	6	Each winter term	1

Events					
WS 19/20	24001	<a href="#">Grundbegriffe der Informatik</a>	3 SWS	Lecture (V)	Worsch
Exams					
SS 2019	75400100	<a href="#">Basic Notions of Computer Science</a>		Prüfung (PR)	Worsch

## T

## 6.19 Course: Basic Notions of Computer Science Pass [T-INFO-101965]

**Responsible:** Dr. Sebastian Stüker  
Thomas Worsch

**Organisation:** KIT Department of Informatics

**Part of:** [M-INFO-101170 - Basic Notions of Computer Science](#)  
[M-WIWI-101528 - Orientation Exam](#)

Type	Credits	Recurrence	Version
Completed coursework	0	Each winter term	1

Events					
WS 19/20	24002	<a href="#">Übungen zu Grundbegriffe der Informatik</a>	1 SWS	Practice (Ü)	Worsch

## T

## 6.20 Course: Basic Principles of Economic Policy [T-WIWI-103213]

**Responsible:** Prof. Dr. Ingrid Ott  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-WIWI-101668 - Economic Policy I](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each summer term	1

Events					
SS 2019	2560280	<a href="#">Basic Principles of Economic Policy</a>	2 SWS	Lecture (V)	Ott
SS 2019	2560281	<a href="#">Exercises of Basic Principles of Economic Policy</a>	1 SWS	Practice (Ü)	Ott, Scheu, Bälz
Exams					
SS 2019	7900106	<a href="#">Basic Principles of Economic Policy</a>		Prüfung (PR)	Ott

**Competence Certificate**

The assessment consists of a written exam (60 min) according to Section 4(2), 1 of the examination regulation. The exam takes place in every semester. Re-examinations are offered at every ordinary examination date.

**Prerequisites**

None

**Recommendation**

Basic knowledge of micro- and macroeconomics is assumed, as taught in the courses Economics I [2610012], and Economics II [2600014].

**Annotation****Description:**

Theory of general economic policy and discussion of current economic policy topics:

- Goals of economic policy,
- Instruments and institutions of economic policy,
- Triad of regional, national and European economic policies,
- special fields of economic policy, in particular growth, employment, provision of public infrastructure and climate policy.

**Learning objectives:**

Students learn:

- To apply basic concepts of micro- and macroeconomic theories to economic policy issues.
- to develop arguments on how state intervention in the market can be legitimized from a welfare economic perspective
- to derive theory-based policy recommendations.

**Learning content:**

- Market interventions: microeconomic perspective
- Market interventions: macroeconomic perspective
- Institutional economic aspects
- Economic policy and welfare economics
- Economic policy makers: Political-economic aspects

**Workload:**

- Total effort at 4.5 LP: approx. 135 hours
- Presence time: approx. 30 hours
- Self-study: approx. 105 hours

**Media:**

See course announcement

**References:**

See course announcement

*Below you will find excerpts from events related to this course:*

**Basic Principles of Economic Policy**

2560280, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

**Lecture (V)**

**Description**

Theory of general economic policy and discussion of current economic policy issues:

- Goals of economic policy,
- Instruments and institutions of economic policy,
- Triad of regional, national and European economic policies,
- special fields of economic policy, in particular growth, employment, provision of public infrastructure and climate policy.

**Learning Content**

- Market interventions: microeconomic and macroeconomic perspective
- Institutional economic aspects
- Economic policy and welfare economics
- Economic policy makers: Political-economic aspects

**Workload**

- Total effort at 4.5 LP: approx. 135 hours
- Presence time: approx. 30 hours
- Self-study: approx. 105 hours

**Literature**

- Klump, Rainer (2013): Wirtschaftspolitik. Pearson Studium
- Baldwin, Richard und Charles Wyplosz (2015): The Economics of European Integration, McGraw-Hill Education, London
- Lecture slides
- Exercises

**Exercises of Basic Principles of Economic Policy**2560281, SS 2019, 1 SWS, Language: German, [Open in study portal](#)**Practice (Ü)****Literature**

- Klump, Rainer (2013): Wirtschaftspolitik. Pearson Studium
- Baldwin, Richard und Charles Wyplosz (2015): The Economics of European Integration, McGraw-Hill Education, London
- Lecture slides
- Exercises

## T

**6.21 Course: Basics of German Company Tax Law and Tax Planning [T-WIWI-108711]**

**Responsible:** Gerd Gutekunst  
Prof. Dr. Berthold Wigger

**Organisation:** KIT Department of Economics and Management

**Part of:** [M-WIWI-101403 - Public Finance](#)  
[M-WIWI-101423 - Topics in Finance II](#)  
[M-WIWI-101465 - Topics in Finance I](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each winter term	2

Events					
WS 19/20	2560134	<a href="#">Basics of German Company Tax Law and Tax Planning</a>	3 SWS	Lecture (V)	Wigger, Gutekunst
Exams					
SS 2019	790unbe	<a href="#">Basics of German Company Tax Law and Tax Planning</a>		Prüfung (PR)	Wigger
WS 19/20	790unbe	<a href="#">Basics of German Company Tax Law and Tax Planning</a>		Prüfung (PR)	Wigger

**Competence Certificate**

The assessment consists of a written exam (90 min.) according to § 4 paragraph 2 Nr. 1 of the examination regulation.

**Prerequisites**

None

**Recommendation**

Knowledge of the collection of public revenues is assumed. Therefore it is recommended to attend the course "Öffentliche Einnahmen" beforehand.



## T

## 6.22 Course: Big Data Analytics [T-INFO-101305]

**Responsible:** Prof. Dr.-Ing. Klemens Böhm  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-101193 - Foundations of Information Systems](#)  
[M-INFO-101193 - Foundations of Information Systems](#)  
[M-INFO-101229 - Database Systems in Theory and Practice](#)  
[M-INFO-101235 - Introduction to Data and Information Management](#)  
[M-INFO-102060 - Further Examinations](#)

**Type**  
Oral examination

**Credits**  
5

**Recurrence**  
Each winter term

**Version**  
1

Events					
WS 19/20	24114	<a href="#">Big Data Analytics</a>	3 SWS	Lecture (V)	Böhm
Exams					
SS 2019	7500078	<a href="#">Big Data Analytics</a>		Prüfung (PR)	Böhm
SS 2019	7500280	<a href="#">Big Data Analytics</a>		Prüfung (PR)	Böhm

## T

## 6.23 Course: Big Data Analytics 2 [T-INFO-105742]

**Responsible:** Prof. Dr.-Ing. Klemens Böhm  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-101193 - Foundations of Information Systems](#)  
[M-INFO-102060 - Further Examinations](#)

**Type**  
Oral examination

**Credits**  
3

**Recurrence**  
Irregular

**Version**  
1

Events					
SS 2019	2400042	<a href="#">Big Data Analytics 2</a>	2 SWS	Lecture (V)	Böhm
Exams					
SS 2019	7500092	<a href="#">Big Data Analytics 2</a>		Prüfung (PR)	Böhm

**Prerequisites**  
none

## T

**6.24 Course: Business Administration: Finance and Accounting [T-WIWI-102819]**

**Responsible:** Prof. Dr. Martin Ruckes  
 Prof. Dr. Marliese Uhrig-Homburg  
 Prof. Dr. Marcus Wouters

**Organisation:** KIT Department of Economics and Management

**Part of:** [M-WIWI-101491 - Foundations in Business Administration](#)

Type	Credits	Recurrence	Version
Written examination	4	Each winter term	1

Events					
WS 19/20	2610026	<a href="#">Business Administration: Finance and Accounting</a>	2 SWS	Lecture (V)	Ruckes, Wouters
WS 19/20	2610027		2 SWS	Tutorial (Tu)	Strych
WS 19/20	2610029		2 SWS	Tutorial (Tu)	Strych
Exams					
SS 2019	7900036	<a href="#">Business Administration: Finance and Accounting</a>		Prüfung (PR)	Ruckes, Wouters

**Competence Certificate**

The assessment consists of a written exam (90 min.) according to Section 4(2), 1 of the examination regulation.  
 The assessment takes place in every semester. Re-examinations are offered at every ordinary examination date.

**Prerequisites**

None

**Annotation**

Key qualifications can be shown in an active participation through presentations of solutions and discussions in the tutorials which accompany the course. Each part of the course is taught by instructors specialised in the field of that part.

*Below you will find excerpts from events related to this course:*

## V

**Business Administration: Finance and Accounting**

2610026, WS 19/20, 2 SWS, Language: German, [Open in study portal](#)

Lecture (V)

**Learning Content**

- **Investment and Finance:**
  - Valuation of Bonds and Stocks
  - Capital Budgeting
  - Portfolio Theory
- **Financial Accounting**
- **Management Accounting**

**Annotation**

Key qualifications can be shown in an active participation through presentations of solutions and discussions in the tutorials which accompany the course. Each part of the course is taught by instructors specialised in the field of that part.

**Workload**

The total workload for this course is approximately 120 hours. For further information see German version.

**Literature**

Extensive bibliographic information will be given in the materials to the lecture.

## T

**6.25 Course: Business Administration: Production Economics and Marketing [T-WIWI-102818]**

**Responsible:** Prof. Dr. Wolf Fichtner  
 Prof. Dr. Martin Klarmann  
 Prof. Dr.-Ing. Thomas Lützkendorf  
 Prof. Dr. Martin Ruckes  
 Prof. Dr. Frank Schultmann

**Organisation:** KIT Department of Economics and Management

**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101492 - Business Administration](#)

Type	Credits	Recurrence	Version
Written examination	4	Each summer term	1

Events					
SS 2019	2500027	<a href="#">Tutorien zu BWL PM</a>	2 SWS	Tutorial (Tu)	Klarmann, Strych, Assistenten
SS 2019	2600024	<a href="#">Business Administration: Production Economics and Marketing</a>	2 SWS	Lecture (V)	Klarmann, Schultmann, Fichtner
Exams					
SS 2019	7900258	<a href="#">Business Administration: Production Economics and Marketing</a>		Prüfung (PR)	Klarmann, Schultmann

**Competence Certificate**

The assessment consists of a written exam (90 minutes) according to Section 4(2), 1 of the examination regulation.

**Prerequisites**

None

*Below you will find excerpts from events related to this course:*

## V

**Business Administration: Production Economics and Marketing**

2600024, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

Lecture (V)

**Description****1. Marketing:**

Marketing is an organizational function to handle situations, activities, and processes for creating, communicating, and delivering value to customers in a best way. (Customer) relationship management comprises collecting, aggregating, and analyzing information (e.g., developments in the society, changing conditions of markets, alterations w.r.t. buying behavior) to benefit different target groups.

Main topics will deal with market research and optimized application of marketing mix instruments with emphasis on 'marketing and the web', 'innovation management', and 'international marketing'.

**2. Production economics**

In the part of production economics the student will learn basics in the field of production theory, procurement and resource acquisitions, production and operations management and industrial engineering.

Aspects of electrical engineering industry, technological foresights, construction industry and real estate markets will be treated.

**3. Information systems**

In today's economy, information is a competitive factor that calls for an interdisciplinary investigation from economics and business administration, informatics and law. In this part of the lecture, selected topics from information engineering and management and their impact in market competition are presented

Topics include: Information in a company, Information processing: From an agent to business networks, social networks, service value networks, market engineering

**Learning Content**

The course is made up of the following topics:

**Marketing**

- Foundations of marketing
- Strategic marketing
- Consumer behaviour
- Product
- Price
- Promotion
- Sales
- Marketing Metrics

**Production economics**

In the part of production economics the student will learn basics in the field of production theory, procurement and resource acquisitions, production and operations management and industrial engineering.

Aspects of energy economics, technological foresights, construction industry and real estate markets will be treated.

**Annotation**

Key qualifications can be shown in an active participation through presentations of solutions and discussions in the tutorials which accompany the course.

Each part of the course is taught by instructors specialised in the field of that part.

**Workload**

The total workload for this course is approximately 120 hours. For further information see German version.

**Literature**

Further literature references are announced in the materials to the lecture.

## T

**6.26 Course: Business Process Modelling [T-WIWI-102697]**

**Responsible:** Prof. Dr. Andreas Oberweis  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101438 - Semantic Knowledge Management](#)  
[M-WIWI-101476 - Business Processes and Information Systems](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each winter term	2

Events					
WS 19/20	2511210	<a href="#">Business Process Modelling</a>	2 SWS	Lecture (V)	Oberweis
WS 19/20	2511211	<a href="#">Exercise Business Process Modelling</a>	1 SWS	Practice (Ü)	Oberweis, Schüler, Schreiber
Exams					
SS 2019	7900047	<a href="#">Business Process Modelling</a>		Prüfung (PR)	Oberweis
WS 19/20	7900015	<a href="#">Business Process Modelling</a>		Prüfung (PR)	Oberweis

**Competence Certificate**

The assessment of this course is a written examination (60 min) according to §4(2), 1 of the examination regulation in the first week after lecture period.

**Prerequisites**

None

*Below you will find excerpts from events related to this course:*

## V

**Business Process Modelling**

2511210, WS 19/20, 2 SWS, Language: German, [Open in study portal](#)

**Lecture (V)**

**Notes**

The proper modeling of relevant aspects of business processes is essential for an efficient and effective design and implementation of processes. This lecture presents different classes of modeling languages and discusses the respective advantages and disadvantages of using actual application scenarios. For that simulative and analytical methods for process analysis are introduced. In the accompanying exercise the use of process modeling tools is practiced.

**Learning objectives:**

Students

- describe goals of business process modeling and apply different modeling languages,
- choose the appropriate modeling language according to a given context,
- use suitable tools for modeling business processes,
- apply methods for analysing and assessing process models to evaluate specific quality characteristics of the process model.

**Recommendations:**

Knowledge of course Applied Informatics I - Modelling is expected.

**Workload:**

- Lecture 30h
- Exercise 15h
- Preparation of lecture 24h
- Preparation of exercises 25h
- Exam preparation 40h
- Exam 1h

## T

**6.27 Course: Business Strategies of Banks [T-WIWI-102626]**

**Responsible:** Prof. Dr. Wolfgang Müller  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101423 - Topics in Finance II](#)  
[M-WIWI-101465 - Topics in Finance I](#)

Type	Credits	Recurrence	Version
Written examination	3	Each winter term	1

Events					
WS 19/20	2530299	<a href="#">Business Strategies of Banks</a>	2 SWS	Lecture (V)	Müller
Exams					
SS 2019	7900079	<a href="#">Business Strategies of Banks</a>		Prüfung (PR)	Müller

**Competence Certificate**

See German version.

**Prerequisites**

None

**Recommendation**

None

*Below you will find excerpts from events related to this course:*

## V

**Business Strategies of Banks**

2530299, WS 19/20, 2 SWS, Language: German, [Open in study portal](#)

Lecture (V)

**Description**

The management of a bank is in charge of the determination and implementation of business policy - taking into account all relevant endogenous and exogenous factors - that assures the bank's success in the long run. In this context, there exists a large body of banking models and theories which are helpful in describing the success and risk of a bank. This course is meant to be the bridging of banking theory and practical implementation. In the course of the lectures students will learn to take on the bank management's perspective.

The first chapter deals with the development of the banking sector. Making use of appropriate assumptions, a banking policy is developed in the second chapter. The design of bank services (ch. 3) and the adequate marketing plan (ch. 4) are then built on this framework. The operational business of banks must be guided by appropriate risk and earnings management (ch. 5 and 6), which are part of the overall (global) bank management (ch. 7). Chapter eight, at last, deals with the requirements and demands of bank supervision as they have significant impact on a bank's corporate policy.

**Learning Content**

The management of a bank is in charge of the determination and implementation of business policy - taking into account all relevant endogenous and exogenous factors - that assures the bank's success in the long run. In this context, there exists a large body of banking models and theories which are helpful in describing the success and risk of a bank. This course is meant to be the bridging of banking theory and practical implementation. In the course of the lectures students will learn to take on the bank management's perspective.

The first chapter deals with the development of the banking sector. Making use of appropriate assumptions, a banking policy is developed in the second chapter. The design of bank services (ch. 3) and the adequate marketing plan (ch. 4) are then built on this framework. The operational business of banks must be guided by appropriate risk and earnings management (ch. 5 and 6), which are part of the overall (global) bank management (ch. 7). Chapter eight, at last, deals with the requirements and demands of bank supervision as they have significant impact on a bank's corporate policy.

**Workload**

The total workload for this course is approximately 90 hours. For further information see German version.

**Literature**

**Elective literature:**

- A script is disseminated chapter by chapter during the course of the lecture.
- Hartmann-Wendels, Thomas; Pfingsten, Andreas; Weber, Martin; 2000, Bankbetriebslehre, 6th edition, Springer



## T

## 6.28 Course: Civil Law for Beginners [T-INFO-103339]

**Responsible:** Prof. Dr. Thomas Dreier  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-101190 - Introduction to Civil Law](#)

Type	Credits	Recurrence	Version
Written examination	4	Each winter term	2

Events					
WS 19/20	24012	<a href="#">Civil Law for Beginners</a>	4 SWS	Lecture (V)	Matz
Exams					
SS 2019	7500041	<a href="#">Civil Law for Beginners</a>		Prüfung (PR)	Dreier, Matz
WS 19/20	7500012	<a href="#">Civil Law for Beginners</a>		Prüfung (PR)	Matz, Dreier

## T

**6.29 Course: Competition in Networks [T-WIWI-100005]****Responsible:** Prof. Dr. Kay Mitusch**Organisation:** KIT Department of Economics and Management**Part of:** [M-INFO-102060 - Further Examinations](#)[M-WIWI-101422 - Specialization in Customer Relationship Management](#)[M-WIWI-101499 - Applied Microeconomics](#)[M-WIWI-101668 - Economic Policy I](#)**Type**  
Written examination**Credits**  
4,5**Recurrence**  
Each winter term**Version**  
3

Events					
WS 19/20	2561204	<a href="#">Competition in Networks</a>	2 SWS	Lecture (V)	Mitusch
WS 19/20	2561205	<a href="#">Übung zu Wettbewerb in Netzen</a>	1 SWS	Practice (Ü)	Wisotzky, Mitusch, Corbo
Exams					
SS 2019	7900274	<a href="#">Competition in Networks</a>		Prüfung (PR)	Mitusch

**Competence Certificate**

Result of success is made by a 60 minutes written examination during the semester break (according to §4(2), 1 ERSC). Examination is offered every semester and can be retried at any regular examination date.

**Prerequisites**

None.

**Recommendation**

Basics of microeconomics obtained within the undergraduate programme (B.Sc) of economics are required.

*Below you will find excerpts from events related to this course:*

## V

**Competition in Networks**2561204, WS 19/20, 2 SWS, Language: German, [Open in study portal](#)**Lecture (V)****Description**

Network or infrastructure industries like telecommunication, transport, and utilities form the backbone of modern economies. The lecture provides an overview of the economic characteristics of network industries. The planning of networks is complicated by the multitude of aspects involved (like spatial differentiation and the like). The interactions of different companies - competition or cooperation or both - are characterized by complex interdependencies within the networks: network effects, economies of scale, effects of vertical integration, switching costs, standardization, compatibility etc. appear increasingly in these sectors and even tend to appear in combination. Additionally, government interventions can often be observed, partly driven by the aims of competition policy and partly driven by the aims industrial policy. All these issues are brought up, analyzed formally (in part) and illustrated by several examples in the lecture.

**Workload**

The total workload for this course is approximately 135.0 hours. For further information see German version.

**Literature**

Will be announced in the lecture.

## T

## 6.30 Course: Computer Architecture [T-INFO-101355]

**Responsible:** Prof. Dr.-Ing. Jörg Henkel  
Prof. Dr. Wolfgang Karl

**Organisation:** KIT Department of Informatics

**Part of:** [M-INFO-100818 - Computer Architecture](#)  
[M-INFO-102060 - Further Examinations](#)

Type	Credits	Recurrence	Version
Written examination	6	Each summer term	1

Events					
SS 2019	2424570	<a href="#">Computer structures</a>	3 SWS	Lecture (V)	Karl
Exams					
SS 2019	7500190	<a href="#">Computer Architecture</a>		Prüfung (PR)	Karl

## T

## 6.31 Course: Computer Organization [T-INFO-103531]

**Responsible:** Prof. Dr. Wolfgang Karl  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-101836 - Computer Engineering](#)  
[M-INFO-102060 - Further Examinations](#)

**Type**  
Written examination

**Credits**  
6

**Version**  
1

Events					
WS 19/20	24502	<a href="#">Computer Organization</a>	3 SWS	Lecture (V)	Henkel, Bauer
WS 19/20	24505	<a href="#">Übungen zu Rechnerorganisation</a>	2 SWS	Practice (Ü)	Henkel
Exams					
SS 2019	7500240	<a href="#">Computer Organization</a>		Prüfung (PR)	Henkel

## T

**6.32 Course: Consulting in Practice [T-INFO-101975]**

**Responsible:** Prof. Dr.-Ing. Klemens Böhm  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-101193 - Foundations of Information Systems](#)  
[M-INFO-101235 - Introduction to Data and Information Management](#)  
[M-INFO-102060 - Further Examinations](#)

Type	Credits	Recurrence	Version
Completed coursework	1,5	Irregular	1

Events					
WS 19/20	24664	<a href="#">Praxis der Unternehmensberatung</a>	2 SWS	Lecture (V)	Böhm, Lang

Below you will find excerpts from events related to this course:

## V

**Praxis der Unternehmensberatung**

24664, WS 19/20, 2 SWS, [Open in study portal](#)

Lecture (V)

**Description**

The market for consulting services grows annually by 20% and is therefore one of the leading growth sectors and professional fields in the future. This trend is in particular driven by the IT industry. Here, widely used standard software moves the focus of the future professional field from software development to consulting. In this context, consulting services have usually a broad definition, reaching from pure IT-focused consulting (e.g., deployment of SAP) to strategic consulting (strategy, organisation etc). In contrast to common rumors, a qualification in business studies is not a must. This opens up a diversified and exciting field with exceptional development perspectives for computer science students. The course deals thematically with the two fields consulting in general and function-specific consulting (with IT consulting as an example).

The structure of the course is oriented along the phases of a consulting project:

- Diagnosis: The consultant as an analytic problem solver.
- Strategic adjustment/redesign of the core processes: Optimisation/redesign of essential business functionality to solve the diagnosed problems in cooperation with the client.
- Implementation: Installation of the solutions in the clients' organisation for assuring the implementation.

Emphasised topics in the course are:

- Elementary problem solving: Problem definition, structuring of problems and focussing through the usage of tools (e.g., logic and hypothesis trees), creative techniques, solution systems etc.
- Obtaining information effectively: Access of information sources, interview techniques etc.
- Effective communication of findings/recommendations. Analysis/planning of communication (media, audience, formats), communication styles (e.g., top-down vs. bottom-up), special topics (e.g., arrangement of complex information) etc.
- Efficient teamwork: Tools for optimising efficient work, collaboration with clients, intellectual and process leadership in the team etc.

## T

**6.33 Course: Customer Relationship Management [T-WIWI-102595]**

**Responsible:** Prof. Dr. Andreas Geyer-Schulz  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101460 - CRM and Service Management](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each winter term	1

Events					
WS 19/20	2540508	<a href="#">Customer Relationship Management</a>	2 SWS	Lecture (V)	Geyer-Schulz
WS 19/20	2540509	<a href="#">Übung zu Customer Relationship Management</a>	1 SWS	Practice (Ü)	Schweigert
Exams					
SS 2019	7900279	<a href="#">Customer Relationship Management</a>		Prüfung (PR)	Geyer-Schulz

**Competence Certificate**

Written examination (60 minutes) according to §4(2), 1 SPO. The exam is considered passed if at least 50 out of a maximum of 100 possible points are achieved. The grades are graded in five steps (best grade 1.0 from 95 points). Details of the grade formation and scale will be announced in the course.

A bonus can be acquired through successful participation in the practice. If the grade of the written examination is between 4.0 and 1.3, the bonus improves the grade by one grade level (0.3 or 0.4). The exact criteria for awarding a bonus will be announced at the beginning of the course.

**Prerequisites**

None

*Below you will find excerpts from events related to this course:*

## V

**Customer Relationship Management**

2540508, WS 19/20, 2 SWS, Language: English, [Open in study portal](#)

**Lecture (V)**

**Learning Content**

The course begins with an introduction into Service Management as the strategic concept which also covers all CRM applications. The course is divided in the basics of Service Management as well as different topics within this concept like external and internal marketing, quality management and organizational requirements.

**Workload**

The total workload for this course is approximately 135 hours (4.5 credits):

Time of attendance

- Attending the lecture: 15 x 90min = 22h 30m
- Attending the exercise classes: 7 x 90min = 10h 30m
- Examination: 1h 00m

Self-study

- Preparation and wrap-up of the lecture: 15 x 180min = 45h 00m
- Preparing the exercises: 25h 00m
- Preparation of the examination: 31h 00m

**Sum: 135h 00m**

**Literature**

Christian Grönroos. Service Management and Marketing: A Customer Relationship Management Approach. Wiley, Chichester, 2nd edition, 2000.

**Elective literature:**

Jill Dyché. The CRM Handbook: A Business Guide to Customer Relationship Management. Addison-Wesley, Boston, 2nd edition, 2002.

Ronald S. Swift. Accelerating Customer Relationships: Using CRM and Relationship Technologies. Prentice Hall, Upper Saddle River, 2001.

Stanley A. Brown. Customer Relationship Management: A Strategic Imperative in the World of E-Business. John Wiley, Toronto, 2000.

## T

## 6.34 Course: Data and Storage Management [T-INFO-101276]

**Responsible:** Prof. Dr. Bernhard Neumair  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101440 - Information Services in Networks](#)

**Type**  
Oral examination

**Credits**  
4

**Recurrence**  
Each winter term

**Version**  
1

Events					
WS 19/20	24074	<a href="#">Data and Storage Management</a>	2 SWS	Lecture (V)	Neumair



## T

**6.35 Course: Data Mining and Applications [T-WIWI-103066]**

**Responsible:** Rheza Nakhaeizadeh  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101599 - Statistics and Econometrics](#)

Type	Credits	Recurrence	Version
Oral examination	4,5	Each summer term	2

Events					
SS 2019	2520375	<a href="#">Data Mining and Applications</a>	2/4 SWS	Lecture (V)	Nakhaeizadeh
Exams					
SS 2019	7900102	<a href="#">Data Mining and Applications (Lecture)</a>		Prüfung (PR)	Nakhaeizadeh

**Competence Certificate**

- Conduction of a larger empirical study in groups
- reporting of milestones
- final presentation (app. 45 minutes)

**Prerequisites**

None

*Below you will find excerpts from events related to this course:*

## V

**Data Mining and Applications**2520375, SS 2019, 2/4 SWS, Language: German, [Open in study portal](#)**Lecture (V)****Learning Content**

Part one: Data Mining

Why Data Mining?

- What is Data Mining?
- History of Data Mining
- Conferences and Journals on Data Mining
- Potential Applications
- Data Mining Process:
- Business Understanding
- Data Understanding
- Data Preparation
- Modeling
- Evaluation
- Deployment
- Interdisciplinary aspects of Data Mining
- Data Mining tasks
- Data Mining Algorithms (Decision Trees, Association Rules, Regression, Clustering, Neural Networks)
- Fuzzy Mining
- OLAP and Data Warehouse
- Data Mining Tools
- Trends in Data Mining

Part two: Examples of application of Data Mining

- Success parameters of Data Mining Projects
- Application in industry
- Application in Commerce

**Workload**

The total workload for this course is approximately 135 hours. For further information see German version.

**Literature**

U. Fayyad, G. Piatetsky-Shapiro, P. Smyth, R. Uthurusamy, editors, Advances in Knowledge Discovery and Data Mining, AAAI/MIT Press, 1996 (order on-line from Amazon.com or from MIT Press).

- Jiawei Han, Micheline Kamber, Data Mining : Concepts and Techniques, 2nd edition, Morgan Kaufmann, ISBN 1558609016, 2006.
- David J. Hand, Heikki Mannila and Padhraic Smyth, Principles of Data Mining , MIT Press, Fall 2000
- Trevor Hastie, Robert Tibshirani, Jerome Friedman, The Elements of Statistical Learning: Data Mining, Inference, and Prediction, Springer Verlag, 2001.
- Pang-Ning Tan, Michael Steinbach, Vipin Kumar, Introduction to Data Mining, Pearson Addison wesley (May, 2005). Hardcover: 769 pages. ISBN: 0321321367
- Ripley, B.D. (1996) Pattern Recognition and Neural Networks, Cambridge: Cambridge University Press.
- Ian witten and Eibe Frank, Data Mining: Practical Machine Learning Tools and Techniques, 2nd Edition, Morgan Kaufmann, ISBN 0120884070, 2005.

## T

## 6.36 Course: Database Systems [T-INFO-101497]

**Responsible:** Prof. Dr.-Ing. Klemens Böhm  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-101178 - Communication and Database Systems](#)  
[M-INFO-101235 - Introduction to Data and Information Management](#)  
[M-INFO-102060 - Further Examinations](#)

Type	Credits	Recurrence	Version
Written examination	4	Each summer term	1

Events					
SS 2019	24516	<a href="#">Datenbanksysteme</a>	2 SWS	Lecture (V)	Böhm, Mülle
Exams					
SS 2019	7500166	<a href="#">Database Systems</a>		Prüfung (PR)	Böhm

## T

**6.37 Course: Decision Theory [T-WIWI-102792]**

**Responsible:** Prof. Dr. Karl-Martin Ehrhart  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101499 - Applied Microeconomics](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each summer term	1

Events					
SS 2019	2520365	<a href="#">Decision Theory</a>	2 SWS	Lecture (V)	Ehrhart
SS 2019	2520366	<a href="#">Übungen zu Entscheidungstheorie</a>	1 SWS	Practice (Ü)	Ehrhart
Exams					
SS 2019	7900254	<a href="#">Decision Theory</a>		Prüfung (PR)	Ehrhart

**Competence Certificate**

The assessment of this course is a written examination (following §4(2), 1 SPO) of 60 mins.  
The exam is offered each semester.

**Prerequisites**

None

**Recommendation**

Knowledge in mathematics and statistics is required.

*Below you will find excerpts from events related to this course:*

## V

**Decision Theory**

2520365, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

Lecture (V)

**Description**

In the first part of the course we deal with problems of decision making under uncertainty and introduce models like expected utility theory, stochastic dominance, risk aversion, and prospect. theory. We also consider the empirical validity of the different approaches.

In the second part the concepts learned in the first part are applied for example to search models and Bayesian games.

**Learning Content**

This course deals with problems of decision making particularly under uncertainty. We introduce the expected utility theory of Neumann/Morgenstern and the prospect theory of Kahnemann/Tversky and discuss the concepts of stochastic dominance, risk aversion, loss aversion, reference points etc. We also consider the empirical validity of the different approaches. Additionally, the lecture provides an introduction to the theory of findings (epistemology), particularly with respect to decision theory.

**Annotation**

The course "Decision Theory" [2520365] will not be offered any more in M.Sc. from winter term 2015/2016 on.

**Workload**

The total workload for this course is approximately 135.0 hours. For further information see German version.

**Literature**

- Ehrhart, K.-M. und S.K. Berninghaus (2012): Decision Theory, Script, KIT.
- Hirshleifer und Riley (1997): The Analytics of Uncertainty and Information. London: Cambridge University Press, 4. Edition.
- Berninghaus, S.K., K.-M. Ehrhart und W. Güth (2006): Strategische Spiele. Berlin u.a.: Springer, 3., Edition

## T

## 6.38 Course: Deployment of Database Systems [T-INFO-101317]

**Responsible:** Prof. Dr.-Ing. Klemens Böhm  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-101193 - Foundations of Information Systems](#)  
[M-INFO-101193 - Foundations of Information Systems](#)  
[M-INFO-101229 - Database Systems in Theory and Practice](#)  
[M-INFO-101235 - Introduction to Data and Information Management](#)  
[M-INFO-102060 - Further Examinations](#)

**Type**  
Oral examination

**Credits**  
5

**Recurrence**  
Each winter term

**Version**  
1

Events					
WS 19/20	2400020	<a href="#">Datenbankeinsatz</a>	3 SWS	Lecture (V)	Schäler
Exams					
SS 2019	7500090	<a href="#">Deployment of Database Systems</a>		Prüfung (PR)	Böhm

## T

**6.39 Course: Derivatives [T-WIWI-102643]**

**Responsible:** Prof. Dr. Marliese Uhrig-Homburg  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101402 - eFinance](#)  
[M-WIWI-101423 - Topics in Finance II](#)  
[M-WIWI-101465 - Topics in Finance I](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each summer term	1

Events					
SS 2019	2530550	<a href="#">Derivatives</a>	2 SWS	Lecture (V)	Uhrig-Homburg
SS 2019	2530551	<a href="#">Übungen zu Derivate</a>	1 SWS	Practice (Ü)	Uhrig-Homburg, Eska
Exams					
SS 2019	7900111	<a href="#">Derivatives</a>		Prüfung (PR)	Uhrig-Homburg

**Competence Certificate**

The assessment takes place in the form of a written examination (75 minutes) according to §4(2), 1 SPO. The examination takes place during the semester break. The examination is offered every semester and can be repeated at any regular examination date. A bonus can be acquired through successful participation in the exercises. If the grade of the written examination is between 4.0 and 1.3, the bonus improves the grade by up to one grade level (0.3 or 0.4). Details will be announced in the lecture.

**Prerequisites**

None

**Recommendation**

None

*Below you will find excerpts from events related to this course:*

## V

**Derivatives**

2530550, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

**Lecture (V)**

**Description**

The lecture deals with the application areas and valuation of financial derivatives. After an overview of the most important derivatives and their relevance, forwards and futures are analysed. Then, an introduction to the Option Pricing Theory follows. The main emphasis is on option valuation in discrete and continuous time models. Finally, construction and usage of derivatives are discussed, e.g. in the context of risk management.

**Learning Content**

The lecture deals with the application areas and valuation of financial derivatives. After an overview of the most important derivatives and their relevance, forwards and futures are analysed. Then, an introduction to the Option Pricing Theory follows. The main emphasis is on option valuation in discrete and continuous time models. Finally, construction and usage of derivatives are discussed, e.g. in the context of risk management.

**Workload**

The total workload for this course is approximately 135.0 hours. For further information see German version.

**Literature**

- Hull (2012): Options, Futures, & Other Derivatives, Prentice Hall, 8th Edition

**Elective literature:**

Cox/Rubinstein (1985): Option Markets, Prentice Hall



## 6.40 Course: Design, Construction and Sustainability Assessment of Buildings I [T-WIWI-102742]

**Responsible:** Prof. Dr.-Ing. Thomas Lützkendorf  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101467 - Design, Construction and Sustainability Assessment of Buildings](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each winter term	1

Events					
WS 19/20	2586404	<a href="#">Design and Construction of Buildings</a>	2 SWS	Lecture (V)	Lützkendorf
WS 19/20	2586405	<a href="#">Übung zu Bauökologie I</a>	1 SWS	Practice (Ü)	Worschech

### Competence Certificate

The assessment consists of a written exam (60 minutes) (following §4(2), 1 of the examination regulation). The exam takes place two times only in the semester in which the lecture is takes place (winter semester). Re-examinations are offered at every ordinary examination date.

### Prerequisites

None

### Recommendation

A combination with the module *Real Estate Management* and with engineering science modules in the area of building physics and structural design is recommended.

Below you will find excerpts from events related to this course:



### Design and Construction of Buildings

2586404, WS 19/20, 2 SWS, Language: German, [Open in study portal](#)

Lecture (V)

### Description

Taking low-energy buildings as an example the course is an introduction to cheap, energy-efficient, resource-saving and health-supporting design, construction and operation of buildings. Questions of the implementation of the principles of a sustainable development within the building sector are discussed on the levels of the whole building, its components, building equipment as well as the materials. Besides technical interrelationships basics dimensioning and various approaches to ecological and economical assessment play a role during the lectures, as well as the different roles of people involved into the building process. Topics are the integration of economical and ecological aspects into the design process, strategies of energy supply, low-energy and passive buildings, active and passive use of solar energy, selection and assessment of construction details, selection and assessment of insulation materials, greened roofs plus health and comfort.

### Learning Content

Taking low-energy buildings as an example the course is an introduction to cheap, energy-efficient, resource-saving and health-supporting design, construction and operation of buildings. Questions of the implementation of the principles of a sustainable development within the building sector are discussed on the levels of the whole building, its components, building equipment as well as the materials. Besides technical interrelationships basics dimensioning and various approaches to ecological and economical assessment play a role during the lectures, as well as the different roles of people involved into the building process. Topics are the integration of economical and ecological aspects into the design process, strategies of energy supply, low-energy and passive buildings, active and passive use of solar energy, selection and assessment of construction details, selection and assessment of insulation materials, greened roofs plus health and comfort.

### Workload

The total workload for this course is approximately 135.0 hours. For further information see German version.

### Literature

#### Elective literature:

See german version.

## T

**6.41 Course: Design, Construction and Sustainability Assessment of Buildings II [T-WIWI-102743]**

**Responsible:** Prof. Dr.-Ing. Thomas Lützkendorf  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101467 - Design, Construction and Sustainability Assessment of Buildings](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each summer term	1

Events					
SS 2019	2585403	<a href="#">Übung zu Bauökologie II</a>	1 SWS	Practice (Ü)	Ströbele
SS 2019	2585404	<a href="#">Sustainability Assessment of Buildings</a>	2 SWS	Lecture (V)	Lützkendorf, Ströbele
Exams					
SS 2019	7900178	<a href="#">Design, Construction and Sustainability Assessment of Buildings II</a>	Prüfung (PR)		Lützkendorf
SS 2019	7900194	<a href="#">Design, Construction and Sustainability Assessment of Buildings II</a>	Prüfung (PR)		Lützkendorf

**Competence Certificate**

The assessment consists of a written exam (60 minutes) (following §4(2), 1 of the examination regulation). The exam takes place two times only in the semester in which the lecture is takes place (summer semester). Re-examinations are offered at every ordinary examination date.

**Prerequisites**

None

**Recommendation**

A combination with the module *Real Estate Management* and with engineering science modules from the areas building physics and structural design is recommended.

Below you will find excerpts from events related to this course:

## V

**Sustainability Assessment of Buildings**

2585404, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

Lecture (V)

**Description**

The course identifies problems concerning the economical and environmental assessment of buildings along their lifecycle and discusses suitable procedures and tools supporting the decision making process. For example, the course addresses topics like operating costs, heat cost allocation, comparisons of heating costs, applied economical assessment methods, life cycle assessment as well as related design and assessment tools (e.g. element catalogues, databases, emblems, tools) and assessment procedures (e.g. carbon footprint, MIPS, KEA), which are currently available.

**Learning Content**

The course identifies problems concerning the economical and environmental assessment of buildings along their lifecycle and discusses suitable procedures and tools supporting the decision making process. For example, the course addresses topics like operating costs, heat cost allocation, comparisons of heating costs, applied economical assessment methods, life cycle assessment as well as related design and assessment tools (e.g. element catalogues, databases, emblems, tools) and assessment procedures (e.g. carbon footprint, MIPS, KEA), which are currently available.

**Workload**

The total workload for this course is approximately 135.0 hours. For further information see German version.



**Literature**

**Elective literature:**

See german version.

## T

## 6.42 Course: Digital Circuits Design [T-INFO-103469]

**Responsible:** Prof. Dr. Wolfgang Karl  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-INFO-102978 - Digital Circuits Design](#)

**Type**  
Written examination

**Credits**  
6

**Recurrence**  
Each summer term

**Version**  
1

Events					
SS 2019	24007	<a href="#">Digitaltechnik und Entwurfsverfahren</a>	3 SWS	Lecture (V)	Hanebeck, Bromberger
Exams					
SS 2019	7500254	<a href="#">Digital Circuits Design</a>		Prüfung (PR)	Henkel, Karl, Tahoori

## T

**6.43 Course: Digital Services [T-WIWI-109938]**

**Responsible:** Prof. Dr. Gerhard Satzger  
Prof. Dr. Christof Weinhardt

**Organisation:** KIT Department of Economics and Management

**Part of:** [M-WIWI-101422 - Specialization in Customer Relationship Management](#)  
[M-WIWI-101434 - eBusiness and Service Management](#)  
[M-WIWI-102752 - Fundamentals of Digital Service Systems](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each summer term	4

Events					
SS 2019	2595466	<a href="#">Digital Services (formerly Foundations of Digital Services A)</a>	2 SWS	Lecture (V)	Satzger, Weinhardt, Sure-Vetter, Kühl
SS 2019	2595467	<a href="#">Exercise Digital Services (formerly Foundations of Digital Services A)</a>	1 SWS	Practice (Ü)	Hirt, Kloker
Exams					
SS 2019	00016	<a href="#">Foundations of Digital Services A</a>		Prüfung (PR)	Satzger

**Competence Certificate**

The assessment consists of a written exam (60 min) (§4(2), 1 of the examination regulations). By successful completion of the exercises (§4(2), 3 SPO 2007 respectively §4(3) SPO 2015) a bonus can be obtained. If the grade of the written exam is at least 4.0 and at most 1.3, the bonus will improve it by one grade level (i.e. by 0.3 or 0.4).

**Prerequisites**

see below

**Annotation**

This course replaces T-WIWI-105771 "Foundations of Digital Services A" as of winter semester 2019/2020.

Students who wish to register for the examination in the summer semester 2019 please select the examination "Foundations of Digital Services A".

*Below you will find excerpts from events related to this course:*

## V

**Digital Services (formerly Foundations of Digital Services A)**

2595466, SS 2019, 2 SWS, Language: English, [Open in study portal](#)

**Lecture (V)**

**Description**

The world is moving more and more towards "service-led" economies: in developed countries services already account for around 70% of gross value added. In order to design, engineer, and manage services, traditional "goods-oriented" models are often inappropriate. In addition, the rapid development of information and communication technology (ICT) pushes the economic importance of services that are rendered electronically (eServices) and, thus, drives competitive changes: increased interaction and individualization open up new dimensions of "value co-creation" between providers and customers; dynamic and scalable service value networks replace static value chains; digital services can be globally delivered and exchanged across today's geographic boundaries; Building on a systematic categorization of (e)Services and on the general notion of "value co-creation", we cover concepts and foundations for engineering and managing IT-based services, allowing for further specialization in subsequent KSRI courses. Topics include service innovation, service economics, service modeling as well as the transformation and coordination of service value networks. In addition, case studies, hands-on exercises and guest lectures will illustrate the applicability of the concepts. English language is used throughout the course to acquaint students with international environments.

**Learning Content**

The world is moving more and more towards "service-led" economies: in developed countries services already account for around 70% of gross value added. In order to design, engineer, and manage services, traditional "goods-oriented" models are often inappropriate. In addition, the rapid development of information and communication technology (ICT) pushes the economic importance of services that are rendered electronically (eServices) and, thus, drives competitive changes: increased interaction and individualization open up new dimensions of "value co-creation" between providers and customers; dynamic and scalable service value networks replace static value chains; digital services can be globally delivered and exchanged across today's geographic boundaries;

Building on a systematic categorization of (e)Services and on the general notion of "value co-creation", we cover concepts and foundations for engineering and managing IT-based services, allowing for further specialization in subsequent KSRI courses. Topics include service innovation, service economics, service modeling as well as the transformation and coordination of service value networks.

In addition, case studies, hands-on exercises and guest lectures will illustrate the applicability of the concepts. English language is used throughout the course to acquaint students with international environments.

**Annotation**

Former title "Foundations of Digital Services A"

**Workload**

The total workload for this course is approximately 135 hours. For further information see German version.

**Literature**

- Anderson, J./ Nirmalya, K. / Narus, J. (2007), Value Merchants.
- Lovelock, C. / Wirtz, J. (2007) Services Marketing, 6th ed.
- Meffert, H./Bruhn, M. (2006), Dienstleistungsmarketing, 5. Auflage,
- Spohrer, J. et al. (2007), Steps towards a science of service systems. In: IEEE Computer, 40 (1), p. 70-77
- Stauss, B. et al. (Hrsg.) (2007), Service Science – Fundamentals Challenges and Future Developments.
- Teboul, (2007), Services is Front Stage.
- Vargo, S./Lusch, R. (2004) Evolving to a New Dominant Logic for Marketing, in: Journal of Marketing 68(1): 1–17.
- Shapiro, C. / Varian, H. (1998), Information Rules - A Strategic Guide to the Network Economy

## T

**6.44 Course: Economics and Behavior [T-WIWI-102892]**

**Responsible:** Prof. Dr. Nora Szech  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101499 - Applied Microeconomics](#)  
[M-WIWI-101501 - Economic Theory](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each winter term	1

Events					
WS 19/20	2560137	<a href="#">Economics and Behavior</a>	2 SWS	Lecture (V)	Ehrlich, Puppe
WS 19/20	2560138	<a href="#">Übung zu Economics and Behavior</a>	1 SWS	Practice (Ü)	Ehrlich

**Competence Certificate**

The assessment consists of a written exam (60 minutes) (following §4(2), 1 of the examination regulation). The exam takes place in every semester. Re-examinations are offered at every ordinary examination date.

A bonus can be earned through successful participation in the exercise. If the grade of the written examination is between 4.0 and 1.3, the bonus improves the grade by one grade level (0.3 or 0.4). The exact criteria for awarding a bonus will be announced at the beginning of the course.

**Prerequisites**

None

**Recommendation**

Basic knowledge of microeconomics and statistics are recommended. A background in game theory is helpful, but not absolutely necessary.

**Annotation**

The lecture will be held in English.

*Below you will find excerpts from events related to this course:*

## V

**Economics and Behavior**

2560137, WS 19/20, 2 SWS, Language: English, [Open in study portal](#)

**Lecture (V)**

**Learning Content**

The course covers topics from behavioral economics with regard to contents and methods. In addition, the students gain insight into the design of economic experiments. Furthermore, the students will become acquainted with reading and critically evaluating current research papers in the field of behavioral economics.

**Annotation**

The lecture will be held in English.

**Workload**

The total workload for this course is approximately 135.0 hours. For further information see German version.

**Literature**

Kahnemann, Daniel: Thinking, Fast and Slow. Farrar, Straus and Giroux, 2011.

Ariely, Dan: Predictably irrational. New York: Harper Collins, 2008.

Ariely, Dan: The Upside of Irrationality. New York: HarperCollins, 2011.

## T

**6.45 Course: Economics I: Microeconomics [T-WIWI-102708]**

**Responsible:** Prof. Dr. Clemens Puppe  
Prof. Dr. Johannes Philipp Reiß

**Organisation:** KIT Department of Economics and Management

**Part of:** [M-WIWI-101431 - Economics](#)  
[M-WIWI-101528 - Orientation Exam](#)

Type	Credits	Recurrence	Version
Written examination	5	Each winter term	1

Events					
WS 19/20	2610012	<a href="#">Economics I: Microeconomics</a>	3 SWS	Lecture (V)	Puppe
WS 19/20	2610013		2 SWS	Tutorial (Tu)	Puppe, Müller

**Competence Certificate**

The assessment consists of a written exam (120 min) following §4, Abs. 2, 1 of the examination regulation.

There may be offered a practice exam in the middle of the semester. The results of this exam may be used to improve the grade of the main exam. If the grade of the written exam is between 4.0 and 1.3, the bonus improves the grade by one grade (0.3 or 0.4). A detailed description of the examination modalities will be given by the respective lecturer.

The main exam takes place subsequent to the lectur. The re-examination is offered at the same examination period. As a rule, only repeating candidates are entitled for taking place the re-examination. For a detailed description on the exam regulations see the information of the respective chair.

**Prerequisites**

None

*Below you will find excerpts from events related to this course:*

## V

**Economics I: Microeconomics**

2610012, WS 19/20, 3 SWS, Language: German, [Open in study portal](#)

**Lecture (V)**

**Description**

The students learn the basic concepts in Microeconomics and some basics in game theory. The student will understand the working of markets in modern economies and the role of decision making. Furthermore, she should be able to understand simple game theoretic argumentation in different fields of Economics.

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.

**Workload**

The total workload for this course is approximately 150 hours.

**Literature**

- H. Varian, Grundzüge der Mikroökonomik, 5. edition (2001), Oldenburg Verlag
- Pindyck, Robert S./Rubinfeld, Daniel L., Mikroökonomie, 6. Aufl., Pearson. Münschen, 2005
- Frank, Robert H., Microeconomics and Behavior, 5. Aufl., McGraw-Hill, New York, 2005

## T

**6.46 Course: Economics III: Introduction in Econometrics [T-WIWI-102736]**

**Responsible:** Prof. Dr. Melanie Schienle  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101499 - Applied Microeconomics](#)  
[M-WIWI-101599 - Statistics and Econometrics](#)

Type	Credits	Recurrence	Version
Written examination	5	Each summer term	1

Events					
SS 2019	2520016	<a href="#">Economics III: Introduction in Econometrics</a>	2 SWS	Lecture (V)	Schienle
SS 2019	2520017	<a href="#">Übungen zu VWL III</a>	2 SWS	Practice (Ü)	Schienle, Buse
Exams					
SS 2019	7900119	<a href="#">Economics III: Introduction in Econometrics</a>		Prüfung (PR)	Schienle
SS 2019	7900225	<a href="#">Economics III: Introduction in Econometrics</a>		Prüfung (PR)	Schienle

**Competence Certificate**

The assessment consists of an 1h written exam according to Section 4(2), 1 of the examination regulation.

**Prerequisites**

None

*Below you will find excerpts from events related to this course:*

## V

**Economics III: Introduction in Econometrics**

2520016, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

Lecture (V)

**Learning Content**

Simple and multiple linear regression (estimating parameters, confidence interval, testing, prognosis, testing assumptions)

Multi equation models

Dynamic models

**Workload**

180 hours (6.0 Credits)

**Literature**

- Von Auer: Ökonometrie ISBN 3-540-00593-5
- Goldberger: A course in Econometrics ISBN 0-674-17544-1
- Gujarati. Basic Econometrics ISBN 0-07-113964-8
- Schneeweiß: Ökonometrie ISBN 3-7908-0008-2

**Elective literature:**

Additional literature will be suggested in course

## T

**6.47 Course: eFinance: Information Systems for Securities Trading [T-WIWI-109941]**

**Responsible:** Prof. Dr. Christof Weinhardt  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-WIWI-101402 - eFinance](#)  
[M-WIWI-101423 - Topics in Finance II](#)  
[M-WIWI-101434 - eBusiness and Service Management](#)  
[M-WIWI-101465 - Topics in Finance I](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each winter term	2

Events					
WS 19/20	2540454	<a href="#">eFinance: Information Systems for Securities Trading</a>	2 SWS	Lecture (V)	Weinhardt, Notheisen
WS 19/20	2540455	<a href="#">Übungen zu eFinance: Wirtschaftsinformatik für den Wertpapierhandel</a>	1 SWS	Practice (Ü)	Jaquart, Soufi

**Competence Certificate**

Success is monitored by means of ongoing elaborations and presentations of tasks and an examination (60 minutes) at the end of the lecture period. The scoring scheme for the overall evaluation will be announced at the beginning of the course.

**Prerequisites**

see below

**Recommendation**

None

*Below you will find excerpts from events related to this course:*

## V

**eFinance: Information Systems for Securities Trading**

2540454, WS 19/20, 2 SWS, Language: English, [Open in study portal](#)

Lecture (V)

**Description**

The theoretical part of the course examines the New Institutions Economics which provides a theoretically found explanation for the existence of markets and intermediaries. Building upon the foundations of the market micro structure, several key parameters and factors of electronic trading are examined. These insights gained along a structured securities trading process are complemented and verified by the analysis of prototypical trading systems developed at the institute as well as selected trading systems used by leading exchanges in the world. In the more practical-oriented second part of the lecture, speakers from practice will give talks about financial trading systems and link the theoretical findings to real-world systems and applications.

**Learning Content**

The theoretical part of the course examines the New Institutions Economics which provides a theoretically found explanation for the existence of markets and intermediaries. Building upon the foundations of the market micro structure, several key parameters and factors of electronic trading are examined. These insights gained along a structured securities trading process are complemented and verified by the analysis of prototypical trading systems developed at the institute as well as selected trading systems used by leading exchanges in the world. In the more practical-oriented second part of the lecture, speakers from practice will give talks about financial trading systems and link the theoretical findings to real-world systems and applications.

**Workload**

The total workload for this course is approximately 135.0 hours. For further information see German version.



**Literature**

- Picot, Arnold, Christine Bortenlänger, Heiner Röhl (1996): "Börsen im Wandel". Knapp, Frankfurt
- Harris, Larry (2003): "Trading and Exchanges - Market Microstructure for Practitioners"". Oxford University Press, New York

**Elective literature:**

- Gomber, Peter (2000): "Elektronische Handelssysteme - Innovative Konzepte und Technologien". Physika Verlag, Heidelberg
- Schwartz, Robert A., Reto Francioni (2004): "Equity Markets in Action - The Fundamentals of Liquidity, Market Structure and Trading". Wiley, Hoboken, NJ



## 6.48 Course: Empirical Finance [T-WIWI-110216]

**Responsible:** Prof. Dr Maxim Ulrich  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-WIWI-105035 - Empirical Finance](#)

Type	Credits	Recurrence	Version
Written examination	6	Each winter term	1

Events					
WS 19/20	2500001	<a href="#">Empirical Finance</a>	4 SWS	Lecture (V)	Ulrich

### Competence Certificate

The assessment consists of a written exam (90 minutes) according to §4(2) of the examination regulation.

### Prerequisites

None.

*Below you will find excerpts from events related to this course:*



### Empirical Finance

2500001, WS 19/20, 4 SWS, Language: English, [Open in study portal](#)

Lecture (V)

### Description

The aim of this course is to introduce the student to empirical data work in financial economics and investments. Students will learn and implement modern portfolio theory and the most important concepts to estimate expected returns and volatility.

### Learning Content

The course covers several topics, among them:

Mean-Variance Portfolio Optimization

Modeling Distribution of Asset Returns: Factor Models, ARMA-GARCH

Monte-Carlo Simulation

Parameter Estimation with Maximum Likelihood and Regressions

### Workload

The total workload for this course is approximately 180 hours.

## T

## 6.49 Course: Energy Policy [T-WIWI-102607]

**Responsible:** Prof. Dr. Martin Wietschel  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101464 - Energy Economics](#)

Type	Credits	Recurrence	Version
Written examination	3,5	Each summer term	3

Events					
SS 2019	2581959	<a href="#">Energy Policy</a>	2 SWS	Lecture (V)	Wietschel
Exams					
SS 2019	7981959	<a href="#">Energy Policy</a>		Prüfung (PR)	Fichtner

**Competence Certificate**

The assessment consists of a written exam (60 minutes) according to Section 4(2), 1 of the examination regulation.

**Prerequisites**

None.

*Below you will find excerpts from events related to this course:*

## V

**Energy Policy**

2581959, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

**Lecture (V)**

**Description**

The course deals with material and energy policy of policy makers and includes the effects of such policies on the economy as well as the involvement of industrial and other stakeholders in the policy design. At the beginning the neoclassical environment policy is discussed. Afterwards the Sustainable Development concept is presented and strategies how to translate the concept in policy decision follows. In the next part of the course an overview about the different environmental instruments classes, evaluation criteria for these instruments and examples of environmental instruments like taxes or certificates will be discussed. The final part deals with implementation strategies of material and energy policy.

**Learning Content**

The course deals with material and energy policy of policy makers and includes the effects of such policies on the economy as well as the involvement of industrial and other stakeholders in the policy design. At the beginning the neoclassical environment policy is discussed. Afterwards the Sustainable Development concept is presented and strategies how to translate the concept in policy decision follows. In the next part of the course an overview about the different environmental instruments classes, evaluation criteria for these instruments and examples of environmental instruments like taxes or certificates will be discussed. The final part deals with implementation strategies of material and energy policy.

**Workload**

The total workload for this course is approximately 105.0 hours. For further information see German version.

**Literature**

Will be announced in the lecture.

## T

**6.50 Course: Enterprise Architecture Management [T-WIWI-102668]**

**Responsible:** Thomas Wolf  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101476 - Business Processes and Information Systems](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each winter term	2

Events					
WS 19/20	2511600	<a href="#">Enterprise Architecture Management</a>	2 SWS	Lecture (V)	Wolf
WS 19/20	2511601	<a href="#">Exercises to Enterprise Architecture Management</a>	1 SWS	Practice (Ü)	Wolf
Exams					
SS 2019	7900043	<a href="#">Enterprise Architecture Management</a>		Prüfung (PR)	Wolf
WS 19/20	7900010	<a href="#">Enterprise Architecture Management</a>		Prüfung (PR)	Oberweis

**Competence Certificate**

Please note that the exam for first writers will be offered for the last time in winter semester 2019/2020. A last examination possibility exists in the summer semester 2020 (only for repeaters).

The assessment of this course is a written (60 min.) or (if necessary) oral examination (30 min.) according to §4(2) of the examination regulation.

**Prerequisites**

None

*Below you will find excerpts from events related to this course:*

## V

**Enterprise Architecture Management**

2511600, WS 19/20, 2 SWS, Language: German, [Open in study portal](#)

**Lecture (V)**

**Notes**

The following topics will be covered: components of enterprise architecture, enterprise strategy including methods to develop strategies, business process (re)engineering, methods to implement changes within enterprises (management of change).

**Learning objectives:**

Students understand the connection between enterprise strategy, business processes and business objects and IT architecture; they know methods to depict these connections and how they can be developed based on each other.

## T

## 6.51 Course: Exercises in Civil Law [T-INFO-102013]

**Responsible:** Prof. Dr. Thomas Dreier  
Dr. Yvonne Matz

**Organisation:** KIT Department of Informatics

**Part of:** [M-INFO-101191 - Commercial Law](#)

**Type**  
Examination of another type

**Credits**  
9

**Recurrence**  
Each term

**Version**  
2

Events					
SS 2019	24504	<a href="#">Advanced Civil Law</a>	2 SWS	Lecture (V)	Matz
SS 2019	24506	<a href="#">Exercises in Civil Law</a>	2 SWS	Lecture (V)	Dreier
SS 2019	24926	<a href="#">Case Studies in Civil Law</a>	2 SWS	Practice (Ü)	Kleiner, Käde
WS 19/20	24011	<a href="#">Commercial and Corporate Law</a>	2 SWS	Lecture (V)	Wiele
Exams					
SS 2019	7500099	<a href="#">Wirtschaftsprivatrecht</a>		Prüfung (PR)	Dreier, Matz
WS 19/20	7500108	<a href="#">Commercial Law</a>		Prüfung (PR)	Dreier, Matz

**T****6.52 Course: Facility Location and Strategic Supply Chain Management [T-WIWI-102704]**

**Responsible:** Prof. Dr. Stefan Nickel  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101413 - Applications of Operations Research](#)  
[M-WIWI-101421 - Supply Chain Management](#)  
[M-WIWI-101936 - Methodical Foundations of OR](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each winter term	4

Exams				
SS 2019	7900233	<a href="#">Facility Location and Strategic Supply Chain Management</a>	Prüfung (PR)	Nickel

**Competence Certificate**

Due to a research semester of Professor Nickel in WS 19/20, the course "Facility Location and Strategic Supply Chain Management" does NOT take place in WS 19/20. In particular, neither WS 19/20 nor SS 20 will offer an exam for the lecture. The follow-up exam to the lecture in WS 18/19 takes place in SS 19 and is exclusively for students in the second examination.

The assessment consists of a written exam (60 min) according to Section 4 (2), 1 of the examination regulation.

The exam takes place in every semester.

Prerequisite for admission to examination is the successful completion of the online assessments.

**Prerequisites**

Prerequisite for admission to examination is the successful completion of the online assessments.

**Recommendation**

None

**Annotation**

The lecture is held in every winter term. The planned lectures and courses for the next three years are announced online.

## T

**6.53 Course: Financial Accounting and Cost Accounting [T-WIWI-102816]**

**Responsible:** Dr. Jan-Oliver Strych  
**Organisation:** KIT Department of Informatics  
 KIT Department of Economics and Management  
**Part of:** [M-WIWI-101492 - Business Administration](#)

Type	Credits	Recurrence	Version
Written examination	4	Each winter term	1

Events					
WS 19/20	2600002		2 SWS	Lecture (V)	Strych
WS 19/20	2600003	<a href="#">Übung zu Rechnungswesen</a>	2 SWS	Practice (Ü)	Strych
Exams					
SS 2019	7900040	<a href="#">Financial Accounting and Cost Accounting</a>		Prüfung (PR)	Ruckes

**Competence Certificate**

The assessment consists of a written exam following §4, Abs. 2, 1 of the examination regulation.  
 The examination takes place in every semester. Re-examinations are offered at every ordinary examination date.

**Prerequisites**

None

*Below you will find excerpts from events related to this course:*

## V

2600002, WS 19/20, 2 SWS, [Open in study portal](#)

Lecture (V)

**Learning Content**

1. Introduction to accounting standards (IFRS, HGB)
2. Annual report and financial statements
3. Selected topics in financial accounting
4. Operational efficiency analysis
5. Financial Statement Analysis
6. Value-based management
7. Taxes
8. Creative accounting and compliance
9. Budgeting and benchmarking
10. Reporting

**Annotation**

It is recommended to have some skills about financial accounting on an introductory level.

**Workload**

The total workload for this course is approximately 120 hours. For further information see German version.

## T

**6.54 Course: Financial Accounting for Global Firms [T-WIWI-107505]**

**Responsible:** Dr. Torsten Luedecke  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101423 - Topics in Finance II](#)  
[M-WIWI-101465 - Topics in Finance I](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each winter term	1

Events					
WS 19/20	2530242	<a href="#">Financial Accounting for Global Firms</a>	2 SWS	Lecture (V)	Luedecke
WS 19/20	2530243	<a href="#">Übung zu Financial Accounting for Global Firms</a>	SWS	Practice (Ü)	Luedecke
Exams					
SS 2019	7900195	<a href="#">Financial Accounting for Global Firms</a>		Prüfung (PR)	Luedecke

**Competence Certificate**

The assessment consists of a written exam (60 min.) according to § 4 paragraph 2 Nr. 1 of the examination regulation.

**Prerequisites**

None

**Recommendation**

Basic knowledge in corporate finance and accounting.

**Annotation**

New lecture in the winter term 2017/18.

*Below you will find excerpts from events related to this course:*

## V

**Financial Accounting for Global Firms**

2530242, WS 19/20, 2 SWS, Language: English, [Open in study portal](#)

Lecture (V)

**Description**

Increasing globalization coupled with related regulations continues to put pressure on moving towards a common global accounting framework - International Financial Reporting Standards (IFRS). Currently, more than 100 countries use IFRS, so if a firm's business include global transactions, it is critical to know about the impact of IFRS on the financial reporting process and business. In the EU, IFRS are compulsory for listed companies' consolidated statements but have also gained factual significance for companies without statutory duty to use IFRS. The course introduces the conceptual framework of IFRS, discuss the primary financial statements according to IFRS and explains the underlying principles, concepts, and methods to prepare the financial statements. Special focus is given to some more complex accounting issues related to revenue recognition from contracts with customers, consolidation of different types of intercorporate investments, and foreign currency translation.



**Learning Content**

The lecture covers the following topics:

- The context of financial accounting for global firms
- The mechanics of financial accounting
- Accounting frameworks and concepts
- Content and presentation of financial statements
- Preparing financial statements
- Revenue recognition from contracts
- Tangible and intangible non-current assets
- Financial assets, liabilities, and equity
- Consolidation and the assessment of control
- Investment in associates and joint arrangements
- Business combinations
- Foreign currency translation

**Literature**

Alexander, D. and C. Nobes (2017): Financial Accounting – An International Introduction, 6th ed., Pearson.

**T****6.55 Course: Financial Econometrics [T-WIWI-103064]**

**Responsible:** Prof. Dr. Melanie Schienle  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101599 - Statistics and Econometrics](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Irregular	2

**Competence Certificate**

The assessment consists of a written exam (90 minutes) (following §4(2), 1 of the examination regulation).

**Prerequisites**

None

**Recommendation**

Knowledge of the contents covered by the course "Economics III: Introduction in Econometrics"[2520016]

**Annotation**

The course takes place each second summer term: 2018/2020....

## T

**6.56 Course: Financial Intermediation [T-WIWI-102623]**

**Responsible:** Prof. Dr. Martin Ruckes  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101423 - Topics in Finance II](#)  
[M-WIWI-101465 - Topics in Finance I](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each winter term	1

Events					
WS 19/20	2530232	<a href="#">Financial Intermediation</a>	2 SWS	Lecture (V)	Ruckes
WS 19/20	2530233	<a href="#">Übung zu Finanzintermediation</a>	1 SWS	Practice (Ü)	Ruckes, Hoang, Benz
Exams					
SS 2019	7900078	<a href="#">Financial Intermediation</a>		Prüfung (PR)	Ruckes

**Competence Certificate**

The assessment of this course is a written examination (following §4(2), 1 SPO) of 60 mins.  
 The exam is offered each semester.

**Prerequisites**

None

**Recommendation**

None

*Below you will find excerpts from events related to this course:*

## V

**Financial Intermediation**

2530232, WS 19/20, 2 SWS, Language: German, [Open in study portal](#)

**Lecture (V)**

**Description**

- Arguments for the existence of financial intermediaries
- Bank loan analysis, relationship lending
- Competition in the banking sector
- Stability of the financial system
- The macroeconomic role of financial intermediation

**Learning Content**

- Arguments for the existence of financial intermediaries
- Bank loan analysis, relationship lending
- Stability of the financial system
- The macroeconomic role of financial intermediation
- Principles of the prudential regulation of banks

**Workload**

The total workload for this course is approximately 135.0 hours. For further information see German version.

**Literature****Elective literature:**

- Hartmann-Wendels/Pfingsten/Weber (2014): Bankbetriebslehre, 6th edition, Springer Verlag.
- Freixas/Rochet (2008): Microeconomics of Banking, 2nd edition, MIT Press.

## T

**6.57 Course: Financial Management [T-WIWI-102605]**

**Responsible:** Prof. Dr. Martin Ruckes  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101435 - Essentials of Finance](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each summer term	1

Events					
SS 2019	2530216	<a href="#">Financial Management</a>	2 SWS	Lecture (V)	Ruckes
SS 2019	2530217	<a href="#">Übung zu Financial Management</a>	1 SWS	Practice (Ü)	Ruckes, Schubert
Exams					
SS 2019	7900074	<a href="#">Financial Management</a>		Prüfung (PR)	Ruckes

**Competence Certificate**

The assessment consists of a written exam (60 min.) according to Section 4 (2), 1 of the examination regulation. The exam takes place at every semester. Re-examinations are offered at every ordinary examination date.

**Prerequisites**

None

**Recommendation**

Knowledge of the content of the course Business Administration: Finance and Accounting [25026/25027] is recommended.

*Below you will find excerpts from events related to this course:*

## V

**Financial Management**

2530216, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

**Lecture (V)**

**Description**

Analytical methods and theories in the field 'Capital investments and financing' with the main focus on:

- Capital Structure
- Dividend policy
- Essentials of valuation
- Investment decisions
- Short term/ long term finance
- Working Capital Management

**Learning Content**

Analytical methods and theories in the field of corporate finance with the main focus on:

- Liquidity and Working Capital Management
- Sources of short term/ long term finance
- Capital Structure
- Dividend policy

**Workload**

The total workload for this course is approximately 135.0 hours. For further information see German version.

**Literature****Elective literature:**

- Ross, Westerfield, Jaffe, Jordan (2009): Modern Financial Management, McGraw-Hill International Edition
- Berk, De Marzo (2016): Corporate Finance, 4th edition, Pearson Addison Wesley

## T

**6.58 Course: Foundations of Interactive Systems [T-WIWI-109816]**

**Responsible:** Prof. Dr. Alexander Mädche  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-WIWI-101434 - eBusiness and Service Management](#)  
[M-WIWI-102752 - Fundamentals of Digital Service Systems](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each summer term	1

Events					
SS 2019	2540560	<a href="#">Foundations of Interactive Systems</a>	3 SWS	Lecture (V)	Mädche
Exams					
SS 2019	7900247	<a href="#">Foundations of Interactive Systems</a>		Prüfung (PR)	Mädche

**Competence Certificate**

The assessment consists of a written exam (60 min.) according to § 4 paragraph 2 Nr. 1 of the examination regulation.

**Prerequisites**

None

**Recommendation**

None

**Annotation**

New course starting summer term 2019.

*Below you will find excerpts from events related to this course:*

## V

**Foundations of Interactive Systems**

2540560, SS 2019, 3 SWS, Language: English, [Open in study portal](#)

**Lecture (V)**

**Description**

Advanced information and communication technologies make interactive systems ever-present in the users' private and business life. They are an integral part of smartphones, devices in the smart home, mobility vehicles as well as at the working place.

With the continuous growing capabilities of computers, the design of the interaction between human and computer becomes even more important. This lecture introduces foundations on design processes and principles for interactive systems.

The lecture focuses on foundational concepts, theories, practices and methods for the design of interactive systems. The students get the foundational knowledge to guide the design of interactive systems in business and private life.

## T

## 6.59 Course: Foundations of Mobile Business [T-WIWI-104679]

**Responsible:** Prof. Dr. Andreas Oberweis  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101476 - Business Processes and Information Systems](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each summer term	4

Events					
SS 2019	2511226	<a href="#">Grundlagen für mobile Business</a>	2 SWS	Lecture (V)	Schiefer
SS 2019	2511227	<a href="#">Übungen zu Grundlagen für mobile Business</a>	1 SWS	Practice (Ü)	Schiefer
Exams					
SS 2019	7900001	<a href="#">Foundations of mobile Business</a>		Prüfung (PR)	Oberweis
WS 19/20	7900118	<a href="#">Foundations of mobile Business</a>		Prüfung (PR)	Oberweis

**Competence Certificate**

The assessment of this course is a written (60 min.) or (if necessary) oral examination according to §4(2) of the examination regulation.

**Prerequisites**

None

**Annotation**

Lecture and exercises are integrated.



## 6.60 Course: Fundamentals of Production Management [T-WIWI-102606]

**Responsible:** Prof. Dr. Frank Schultmann  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101437 - Industrial Production I](#)

Type	Credits	Recurrence	Version
Written examination	5,5	Each summer term	1

Events					
SS 2019	2581950	<a href="#">Fundamentals of Production Management</a>	2 SWS	Lecture (V)	Schultmann
SS 2019	2581951	<a href="#">Übungen Grundlagen der Produktionswirtschaft</a>	2 SWS	Practice (Ü)	Müller, Naber
Exams					
SS 2019	7981950	<a href="#">Fundamentals of Production Management</a>		Prüfung (PR)	Schultmann

### Competence Certificate

The assessment consists of a written exam (90 minutes) (following §4(2), 1 of the examination regulation). The exam takes place in every semester. Re-examinations are offered at every ordinary examination date.

### Prerequisites

None

*Below you will find excerpts from events related to this course:*



## Fundamentals of Production Management

2581950, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

Lecture (V)

### Description

This lecture focuses on strategic production management with respect to various economic aspects. Interdisciplinary approaches of systems theory will be used to describe the challenges of industrial production. This course will emphasize the importance of R&D as the central step in strategic corporate planning to ensure future long-term success.

In the field of site selection and planning for firms and factories, attention will be drawn upon individual aspects of existing and greenfield sites as well as existing distribution and supply centres. Students will obtain knowledge in solving internal and external transport and storage problems with respect to supply chain management and disposal logistics.

Medien und Pflichtliteratur: können aus der alten Fassung übernommen werden.

### Learning Content

This lecture focuses on strategic production management with respect to various economic aspects. Interdisciplinary approaches of systems theory will be used to describe the challenges of industrial production. This course will emphasize the importance of R&D as the central step in strategic corporate planning to ensure future long-term success.

In the field of site selection and planning for firms and factories, attention will be drawn upon individual aspects of existing and greenfield sites as well as existing distribution and supply centres. Students will obtain knowledge in solving internal and external transport and storage problems with respect to supply chain management and disposal logistics.

### Workload

Total effort required will account for approximately 165h (5.5 credits).

### Literature

will be announced in the course

## T

## 6.61 Course: Global Optimization I [T-WIWI-102726]

**Responsible:** Prof. Dr. Oliver Stein  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101413 - Applications of Operations Research](#)  
[M-WIWI-101936 - Methodical Foundations of OR](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each summer term	1

Events					
SS 2019	2550134	<a href="#">Globale Optimierung I</a>	2 SWS	Lecture (V)	Stein
SS 2019	2550135	<a href="#">Übungen zu Globale Optimierung I+II</a>	1 SWS	Practice (Ü)	Stein
Exams					
SS 2019	7900061_SS2019_HK	<a href="#">Global Optimization I</a>		Prüfung (PR)	Stein

**Competence Certificate**

Success is in the form of a written examination (60 min.) (according to § 4(2), 1 SPO) and possibly of a compulsory prerequisite.

The exam is offered in the lecture of semester and the following semester.

The success check can be done also with the success control for "Global optimization II". In this case, the duration of the written exam is 120 min.

**Prerequisites**

None

**Recommendation**

None

**Annotation**

Part I and II of the lecture are held consecutively in the *same* semester.

*Below you will find excerpts from events related to this course:*

## V

## Globale Optimierung I

2550134, SS 2019, 2 SWS, [Open in study portal](#)

Lecture (V)

**Learning Content**

In many optimization problems from economics, engineering and natural sciences, numerical solution methods are only able to efficiently identify *local* optimizers, while it is much harder to find *globally* optimal points. This corresponds to the fact that by local search it is easy to find the summit of the closest mountain, but that the search for the summit of Mount Everest is rather elaborate.

Part I of the lecture treats methods for global optimization of convex functions under convex constraints. It is structured as follows:

- Introduction, examples, and terminology
- Existence results
- Optimality in convex optimization
- Duality, bounds, and constraint qualifications
- Numerical methods

Nonconvex optimization problems are treated in part II of the lecture.

The lecture is accompanied by computer exercises in which you can learn the programming language MATLAB and implement and test some of the methods for practically relevant examples.



**Literature**

- W. Alt *Numerische Verfahren der konvexen, nichtglatten Optimierung* Teubner 2004
- C.A. Floudas *Deterministic Global Optimization* Kluwer 2000
- R. Horst, H. Tuy *Global Optimization* Springer 1996
- A. Neumaier *Interval Methods for Systems of Equations* Cambridge University Press 1990

## T

**6.62 Course: Global Optimization I and II [T-WIWI-103638]**

**Responsible:** Prof. Dr. Oliver Stein  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101936 - Methodical Foundations of OR](#)

Type	Credits	Recurrence	Version
Written examination	9	Each summer term	1

Events					
SS 2019	2550134	<a href="#">Globale Optimierung I</a>	2 SWS	Lecture (V)	Stein
SS 2019	2550136	<a href="#">Globale Optimierung II</a>	2 SWS	Lecture (V)	Stein
Exams					
SS 2019	7900063_SS2019_HK	<a href="#">Global Optimization I and II</a>		Prüfung (PR)	Stein

**Competence Certificate**

The assessment of the lecture is a written examination (120 minutes) according to §4(2), 1 of the examination regulation and possibly of a compulsory prerequisite.

The examination is held in the semester of the lecture and in the following semester.

**Prerequisites**

None

**Recommendation**

None

**Annotation**

Part I and II of the lecture are held consecutively in the *same* semester.

*Below you will find excerpts from events related to this course:*

## V

**Globale Optimierung I**

2550134, SS 2019, 2 SWS, [Open in study portal](#)

Lecture (V)

**Learning Content**

In many optimization problems from economics, engineering and natural sciences, numerical solution methods are only able to efficiently identify *local* optimizers, while it is much harder to find *globally* optimal points. This corresponds to the fact that by local search it is easy to find the summit of the closest mountain, but that the search for the summit of Mount Everest is rather elaborate.

Part I of the lecture treats methods for global optimization of convex functions under convex constraints. It is structured as follows:

- Introduction, examples, and terminology
- Existence results
- Optimality in convex optimization
- Duality, bounds, and constraint qualifications
- Numerical methods

Nonconvex optimization problems are treated in part II of the lecture.

The lecture is accompanied by computer exercises in which you can learn the programming language MATLAB and implement and test some of the methods for practically relevant examples.

## Literature

- W. Alt *Numerische Verfahren der konvexen, nichtglatten Optimierung* Teubner 2004
- C.A. Floudas *Deterministic Global Optimization* Kluwer 2000
- R. Horst, H. Tuy *Global Optimization* Springer 1996
- A. Neumaier *Interval Methods for Systems of Equations* Cambridge University Press 1990

### V

## Globale Optimierung II

2550136, SS 2019, 2 SWS, [Open in study portal](#)

Lecture (V)

## Learning Content

In many optimization problems from economics, engineering and natural sciences, numerical solution methods are only able to efficiently identify *local* optimizers, while it is much harder to find *globally* optimal points. This corresponds to the fact that by local search it is easy to find the summit of the closest mountain, but that the search for the summit of Mount Everest is rather elaborate.

The global solution of convex optimization problems is subject of part I of the lecture.

Part II of the lecture treats methods for global optimization of nonconvex functions under nonconvex constraints. It is structured as follows:

- Introduction and examples
- Convex relaxation
- Interval arithmetic
- Convex relaxation via aBB method
- Branch and bound methods
- Lipschitz optimization

The lecture is accompanied by computer exercises in which you can learn the programming language MATLAB and implement and test some of the methods for practically relevant examples.

## Literature

- W. Alt *Numerische Verfahren der konvexen, nichtglatten Optimierung* Teubner 2004
- C.A. Floudas *Deterministic Global Optimization* Kluwer 2000
- R. Horst, H. Tuy *Global Optimization* Springer 1996
- A. Neumaier *Interval Methods for Systems of Equations* Cambridge University Press 1990

## T

## 6.63 Course: Global Optimization II [T-WIWI-102727]

**Responsible:** Prof. Dr. Oliver Stein  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101936 - Methodical Foundations of OR](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each summer term	2

Events					
SS 2019	2550135	<a href="#">Übungen zu Globale Optimierung I+II</a>	1 SWS	Practice (Ü)	Stein
SS 2019	2550136	<a href="#">Globale Optimierung II</a>	2 SWS	Lecture (V)	Stein
Exams					
SS 2019	7900062_SS2019_HK	<a href="#">Global Optimization II</a>		Prüfung (PR)	Stein

**Competence Certificate**

The assessment of the lecture is a written examination (60 minutes) according to §4(2), 1 of the examination regulation and possibly of a compulsory prerequisite.

The examination is held in the semester of the lecture and in the following semester.

The examination can also be combined with the examination of "Global optimization I". In this case, the duration of the written examination takes 120 minutes.

**Prerequisites**

None

**Annotation**

Part I and II of the lecture are held consecutively in the *same* semester.

*Below you will find excerpts from events related to this course:*

## V

**Globale Optimierung II**

2550136, SS 2019, 2 SWS, [Open in study portal](#)

Lecture (V)

**Learning Content**

In many optimization problems from economics, engineering and natural sciences, numerical solution methods are only able to efficiently identify *local* optimizers, while it is much harder to find *globally* optimal points. This corresponds to the fact that by local search it is easy to find the summit of the closest mountain, but that the search for the summit of Mount Everest is rather elaborate.

The global solution of convex optimization problems is subject of part I of the lecture.

Part II of the lecture treats methods for global optimization of nonconvex functions under nonconvex constraints. It is structured as follows:

- Introduction and examples
- Convex relaxation
- Interval arithmetic
- Convex relaxation via aBB method
- Branch and bound methods
- Lipschitz optimization

The lecture is accompanied by computer exercises in which you can learn the programming language MATLAB and implement and test some of the methods for practically relevant examples.

**Literature**

- W. Alt *Numerische Verfahren der konvexen, nichtglatten Optimierung* Teubner 2004
- C.A. Floudas *Deterministic Global Optimization* Kluwer 2000
- R. Horst, H. Tuy *Global Optimization* Springer 1996
- A. Neumaier *Interval Methods for Systems of Equations* Cambridge University Press 1990

## T

**6.64 Course: Human Resource Management [T-WIWI-102909]**

**Responsible:** Prof. Dr. Petra Nieken  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101513 - Human Resources and Organizations](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each winter term	1

Events					
WS 19/20	2573005	<a href="#">Human Resource Management</a>	2 SWS	Lecture (V)	Nieken
WS 19/20	2573006	<a href="#">Übung zu Human Resource Management</a>	1 SWS	Practice (Ü)	Nieken, Mitarbeiter
Exams					
SS 2019	7900134	<a href="#">Human Resource Management</a>		Prüfung (PR)	Nieken

**Competence Certificate**

The assessment of this course is a written examination (60 min) according to §4(2), 1 of the examination regulation. The exam takes place in every semester. Re-examinations are offered at every ordinary examination date.

In case of a small number of registrations, we might offer an oral exam instead of a written exam.

**Prerequisites**

None

**Recommendation**

Completion of module Business Administration is recommended.  
 Basic knowledge of microeconomics, game theory, and statistics is recommended.

*Below you will find excerpts from events related to this course:*

## V

**Human Resource Management**

2573005, WS 19/20, 2 SWS, Language: German, [Open in study portal](#)

**Lecture (V)**

**Notes**

See Module Handbook

## T

**6.65 Course: Industrial Organization [T-WIWI-102844]**

**Responsible:** Prof. Dr. Johannes Philipp Reiß  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101499 - Applied Microeconomics](#)  
[M-WIWI-101501 - Economic Theory](#)

**Type**  
Written examination

**Credits**  
4,5

**Recurrence**  
Irregular

**Version**  
1

Events					
SS 2019	2560238	<a href="#">Industrial Organization</a>	2 SWS	Lecture (V)	Reiß, Hofmann
SS 2019	2560239	<a href="#">Übung zu Industrieökonomie</a>	2 SWS	Practice (Ü)	Reiß, Hofmann
Exams					
SS 2019	79192IO	<a href="#">Industrial Organization</a>		Prüfung (PR)	Reiß

**Competence Certificate**

The assessment consists of a written exam (60 minutes) (following §4(2), 1 of the examination regulation). The exam takes place in every semester. Re-examinations are offered at every ordinary examination date.

**Prerequisites**

None

**Recommendation**

Completion of the module Economics [WW1VWL] is assumed.

**Annotation**

This course is not given in summer 2017.

*Below you will find excerpts from events related to this course:*

## V

**Industrial Organization**

2560238, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

**Lecture (V)**

**Learning Content**

This course introduces the theory of industrial organization using game theoretical models. The course is divided into two parts: The first part reviews standard market forms (monopoly, oligopoly, perfect competition). The second part discusses more advanced topics including price discrimination, strategic product differentiation, cartel formation, market entry, and research and development.

**Workload**

The total workload for this course is approximately 135.0 hours. For further information see German version.

**Literature****Compulsory Textbook:**

H. Bester (2012): Theorie der Industrieökonomik, Springer-Verlag.

**Additional Literature:**

J. Tirole (1988): Theory of Industrial Organization, MIT Press.

D. Carlton / J. Perloff (2005): Modern Industrial Organization, Pearson.

P. Belleflamme / M. Peitz (2010): Industrial Organization

## T

**6.66 Course: Integrated Network and Systems Management [T-INFO-101284]**

**Responsible:** Prof. Dr. Bernhard Neumair  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101440 - Information Services in Networks](#)

Type	Credits	Recurrence	Version
Oral examination	4	Each summer term	1

Events					
SS 2019	2400004	<a href="#">Integrated Network and Systems Management</a>	2 SWS	Lecture (V)	Neumair
Exams					
SS 2019	7500144	<a href="#">Integrated Network and Systems Management</a>	Prüfung (PR)		Neumair



**T****6.67 Course: Intellectual Property and Data Protection [T-INFO-109840]****Responsible:** Dr. Yvonne Matz**Organisation:** KIT Department of Informatics**Part of:** [M-INFO-101253 - Intellectual Property and Data Protection](#)

Type	Credits	Recurrence	Version
Written examination	6	Each winter term	1

Events					
WS 19/20	24018	<a href="#">Datenschutzrecht</a>	2 SWS	Lecture (V)	Marsch
WS 19/20	24070	<a href="#">Industrial Property and Copyright Law</a>	2 SWS	Lecture (V)	Dreier

## T

**6.68 Course: International Finance [T-WIWI-102646]**

**Responsible:** Prof. Dr. Marliese Uhrig-Homburg  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101402 - eFinance](#)  
[M-WIWI-101423 - Topics in Finance II](#)  
[M-WIWI-101465 - Topics in Finance I](#)

**Type**  
Written examination

**Credits**  
3

**Recurrence**  
Each summer term

**Version**  
1

Events					
SS 2019	2530570	<a href="#">International Finance</a>	2 SWS	Lecture (V)	Walter, Uhrig-Homburg
Exams					
SS 2019	7900097	<a href="#">International Finance</a>		Prüfung (PR)	Uhrig-Homburg

**Competence Certificate**  
See German version.

**Prerequisites**  
None

**Recommendation**  
None

**Annotation**  
See German version.

*Below you will find excerpts from events related to this course:*

## V

**International Finance**

2530570, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

**Lecture (V)**

**Description**

The main aspects of this course are the chances and the risks which are associated with international transactions. We carry out our analysis from two distinct perspectives: First the point of view of an international investor second that, of an international corporation. Several alternatives to the management of foreign exchange risks are shown. Due to the importance of foreign exchange risks, the first part of the course deals with currency markets. Furthermore current exchange rate theories are discussed.

**Learning Content**

The main aspects of this course are the chances and the risks which are associated with international transactions. We carry out our analysis from two distinct perspectives: First the point of view of an international investor second that, of an international corporation. Several alternatives to the management of foreign exchange risks are shown. Due to the importance of foreign exchange risks, the first part of the course deals with currency markets. Furthermore current exchange rate theories are discussed.

**Workload**

The total workload for this course is approximately 90 hours. For further information see German version.

**Literature****Elective literature:**

- Eiteman, D. et al., Multinational Business Finance, 13. edition, 2012.
- Solnik, B. and D. McLeavey, Global Investments, 6. edition, 2008.

## T

**6.69 Course: International Marketing [T-WIWI-102807]**

**Responsible:** Dr. Sven Feurer  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101424 - Foundations of Marketing](#)

Type	Credits	Recurrence	Version
Written examination	1,5	Each winter term	1

Events					
WS 19/20	2572155	<a href="#">International Marketing</a>	1 SWS	Lecture (V)	Feurer
Exams					
SS 2019	7900148	<a href="#">International Marketing</a>		Prüfung (PR)	Klarmann
WS 19/20	7900123	<a href="#">International Marketing</a>		Prüfung (PR)	Klarmann

**Competence Certificate**

The assessment consists of a written exam (60 minutes) (following §4(2), 1 of the examination regulation).

**Prerequisites**

None

**Annotation**

For further information please contact Marketing & Sales Research Group ([marketing.iism.kit.edu](mailto:marketing.iism.kit.edu)).

*Below you will find excerpts from events related to this course:*

## V

**International Marketing**

2572155, WS 19/20, 1 SWS, Language: English, [Open in study portal](#)

**Lecture (V)**

**Learning Content**

Doing marketing abroad creates a number of significant new challenges for firms. This class is intended to prepare you for meeting these challenges. In the first session, we will discuss the peculiarities of international marketing. The next five sessions will then be dedicated to methods that can be used to address them. For instance, we will look at the following issues:

- Internationalization strategies
- Market entry strategies
- Standardization vs. individualization (e.g. regarding products, prices, and communication)
- Measurement equivalence in international market research

In the final session, we will apply this knowledge to the case of Wal Mart. In particular, Wal Mart, despite being the largest retailing company worldwide, failed to successfully enter the German Market. We will discuss Wal Mart's failure using the methods taught in the weeks before.

**Annotation**

For further information please contact Marketing & Sales Research Group ([marketing.iism.kit.edu](mailto:marketing.iism.kit.edu)).

**Workload**

The total workload for this course is approximately 45.0 hours. For further information see German version.

**Literature**

Homburg, Christian (2016), Marketingmanagement, 6. ed., Wiesbaden.

**T****6.70 Course: Internship [T-WIWI-103093]**

**Responsible:** Studiendekan der KIT-Fakultät für Informatik  
Studiendekan der KIT-Fakultät für Wirtschaftswissenschaften

**Organisation:** KIT Department of Economics and Management

**Part of:** [M-WIWI-101433 - Internship](#)

Type	Credits	Version
Completed coursework	8	1

**Competence Certificate**

see module description

**Prerequisites**

see module description

**Annotation**

see module description

## T

## 6.71 Course: Introduction in Computer Networks [T-INFO-102015]

**Responsible:** Prof. Dr. Martina Zitterbart  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-101178 - Communication and Database Systems](#)  
[M-INFO-101194 - Telematics](#)  
[M-INFO-102060 - Further Examinations](#)

Type	Credits	Recurrence	Version
Written examination	4	Each summer term	1

Events					
SS 2019	24519	<a href="#">Einführung in Rechnernetze</a>	2 SWS	Lecture (V)	Friebe, Gerhard, Jung, Zitterbart
SS 2019	24521	<a href="#">Übung zu Einführung in Rechnernetze</a>	1 SWS	Practice (Ü)	Friebe, Gerhard, Jung, Zitterbart
Exams					
SS 2019	7500116	<a href="#">Introduction to Computer Networking</a>		Prüfung (PR)	Zitterbart

## T

**6.72 Course: Introduction to Energy Economics [T-WIWI-102746]**

**Responsible:** Prof. Dr. Wolf Fichtner  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101464 - Energy Economics](#)

Type	Credits	Recurrence	Version
Written examination	5,5	Each summer term	2

Events					
SS 2019	2581010	<a href="#">Introduction to Energy Economics</a>	2 SWS	Lecture (V)	Fichtner, Sandmeier, Lehmann
SS 2019	2581011	<a href="#">Übungen zu Einführung in die Energiewirtschaft</a>	2 SWS	Practice (Ü)	Lehmann, Kleinebrahm, Jochem, Sandmeier
Exams					
SS 2019	7981010	<a href="#">Introduction to Energy Economics</a>		Prüfung (PR)	Fichtner

**Competence Certificate**

The assessment consists of a written exam (90 min.) according to § 4 paragraph 2 Nr. 1 of the examination regulation.

**Prerequisites**

None.

*Below you will find excerpts from events related to this course:*

## V

**Introduction to Energy Economics**

2581010, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

Lecture (V)

**Learning Content**

1. Introduction: terms, units, conversions
2. The energy carrier gas (reserves, resources, technologies)
3. The energy carrier oil (reserves, resources, technologies)
4. The energy carrier hard coal (reserves, resources, technologies)
5. The energy carrier lignite (reserves, resources, technologies)
6. The energy carrier uranium (reserves, resources, technologies)
7. The final carrier source electricity
8. The final carrier source heat
9. Other final energy carriers (cooling energy, hydrogen, compressed air)

**Workload**

The total workload for this course is approximately 165.0 hours. For further information see German version.

**Literature****Complementary literature:**

Pfaffenberger, Wolfgang. Energiewirtschaft. ISBN 3-486-24315-2  
 Feess, Eberhard. Umweltökonomie und Umweltpolitik. ISBN 3-8006-2187-8  
 Müller, Leonhard. Handbuch der Elektrizitätswirtschaft. ISBN 3-540-67637-6  
 Stoft, Steven. Power System Economics. ISBN 0-471-15040-1  
 Erdmann, Georg. Energieökonomik. ISBN 3-7281-2135-5

## T

**6.73 Course: Introduction to Game Theory [T-WIWI-102850]**

**Responsible:** Prof. Dr. Clemens Puppe  
Prof. Dr. Johannes Philipp Reiß

**Organisation:** KIT Department of Economics and Management

**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101499 - Applied Microeconomics](#)  
[M-WIWI-101501 - Economic Theory](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each summer term	1

Events					
SS 2019	2520525	<a href="#">Introduction to Game Theory</a>	2 SWS	Lecture (V)	Reiß
SS 2019	2520526	<a href="#">Übungen zu Einführung in die Spieltheorie</a>	1 SWS	Practice (Ü)	Reiß
Exams					
SS 2019	79192GT	<a href="#">Introduction to Game Theory</a>		Prüfung (PR)	Reiß

**Competence Certificate**

The assessment consists of a written exam (60 minutes) according to Section 4(2),1 of the examination regulation. The exam takes place in the recess period and can be resited at every ordinary examination date.

**Prerequisites**

None

**Recommendation**

Basic knowledge of mathematics and statistics is assumed.

*Below you will find excerpts from events related to this course:*

## V

**Introduction to Game Theory**

2520525, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

Lecture (V)

**Learning Content**

The course focusses on non-cooperative game theory. It discusses models, solution concepts, and applications for simultaneous games as well as sequential games. Various solution concepts, e.g., Nash equilibrium and subgame-perfect equilibrium, are introduced along with more advanced concepts. A short introduction to cooperative game theory is given if there is sufficient time.

**Workload**

The total workload for this course is approximately 135.0 hours. For further information see German version.

**Literature****Compulsory textbook:**

Gibbons (1992): A Primer in Game Theory, Harvester-Wheatsheaf.

**Additional Literature:**

Berninghaus/Ehrhart/Güth (2010): Strategische Spiele, Springer Verlag.

Binmore (1991): Fun and Games, DC Heath.

Fudenberg/Tirole (1991): Game Theory, MIT Press.

Heifetz (2012): Game Theory, Cambridge Univ. Press.

**T****6.74 Course: Introduction to Information Engineering and Management [T-WIWI-102757]**

**Responsible:** Prof. Dr. Andreas Geyer-Schulz  
Prof. Dr. Christof Weinhardt

**Organisation:** KIT Department of Economics and Management

**Part of:** [M-WIWI-101491 - Foundations in Business Administration](#)

**Type**  
Written examination

**Credits**  
4

**Recurrence**  
Each summer term

**Version**  
1

Events					
SS 2019	2540490	<a href="#">Introduction to Information Engineering and Management</a>	2 SWS	Lecture (V)	Geyer-Schulz, Weinhardt
SS 2019	2540491	<a href="#">Tutorien zur Einführung in die Informationswirtschaft</a>	2 SWS	Tutorial (Tu)	Geyer-Schulz, Weinhardt, Schweigert, Peukert
Exams					
SS 2019	7900208	<a href="#">Introduction to Information Engineering and Management</a>		Prüfung (PR)	Weinhardt, Geyer-Schulz
SS 2019	7979758	<a href="#">Introduction to Information Engineering and Management</a>		Prüfung (PR)	Weinhardt, Geyer-Schulz

**Competence Certificate**

The assessment consists of a written exam (60 min) (according to §4(2), 1 of the examination regulation). Details on the formation of the grade will be announced at the beginning of the event.

**Prerequisites**

None

*Below you will find excerpts from events related to this course:*

**V****Introduction to Information Engineering and Management**

2540490, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

**Lecture (V)****Description**

The last years have seen the rise of information companies whose company purpose is the generation and distribution of informations. In these companies, as well as companies of the old economy, the role of information, communication, and their cost is increasing. Some of the problems related with this trend are presented and treated in-depth in the course Introduction to Information Engineering and Management. The goal of this course is to present the foundation of information engineering and management and the necessary linking of the different disciplines in today's information society. The course is completely motivated by authentic, real-world examples. With the help of these examples, the following topics as well as the interdependencies between business administration, economics, information technology, and law, are treated: The foundation of a company: Choosing the legal form and financing Financial planning and investment Information and information technology Outsourcing und horizontale Unternehmensintegration Service Engineering Electronic markets Logistics/SCM Web/Internet-Marketing Production and Procurement



### Learning Content

The last years have seen the rise of information companies whose company purpose is the generation and distribution of informations. In these companies, as well as companies of the old economy, the role of information, communication, and their cost is increasing. Some of the problems related with this trend are presented and treated in-depth in the course *Introduction to Information Engineering and Management*.

The goal of this course is to present the foundation of information engineering and management and the necessary linking of the different disciplines in today's information society. The course is completely motivated by authentic, real-world examples. With the help of these examples, the following topics as well as the interdependencies between business administration, economics, information technology, and law, are treated:

- The foundation of a company: Choosing the legal form and financing
- Information for economic decision support.
- Organizing information flows, valuation of information
- Network Economies
- Service Engineering
- Electronic markets
- Logistics/SCM
- Web/Internet-Marketing
- Production and Procurement

### Workload

The total workload for this course should be 120 hours on average. For more details please consult the german version of the Module Handbook.

### Literature

- Shapiro, C. and Varian, H.R., (1999) Information rules: a strategic guide to the network economy, Harvard Business School Press
- Fensel, D. et al. (2001) Product data integration in B2B e-commerce, IEEE Intelligent Systems, 16(4). Pages 54–59.
- Kotler (1980) Marketing Management - Analysis, Planning and Control. Prentice-Hall, Englewood Cliffs, 4th Edition. Pages 3–92.
- Porter (1998) Competitive Advantage: Creating and Sustaining Superior Performance. Free Press, New York. Pages 33–53.
- Sterman (2000) Business Dynamics: Systems Thinking and Modeling for a Complex World. McGraw-Hill, Boston. Chapters 4, 5.1, 5.2, 5.3, and 5.5. Pages 107–133, 137–159, 169–177.

### Elective literature:

- Geyer-Schulz (1998) Fuzzy Genetic Algorithms. In: Hung T. Nguyen and Michio Sugeno (Eds.) Fuzzy Systems: Modeling and Control, Kluwer Academic Publishers, Boston. Pages 403–460.
- Porter (1998) Competitive Advantage: Creating and Sustaining Superior Performance. Free Press, New York. Pages 62–118.
- Senge (1994) The Fifth Discipline: The Art and Practice of the Learning Organization. Currency/Doubleday, New York. Chapters 2 and 3. Pages 17–54.
- Sterman (1989) Modeling Managerial Behavior: Misperceptions of Feedback in a Dynamic Decision Making Experiment, Management Science, 35(3). Pages 321–339.

## T

**6.75 Course: Introduction to Operations Research I and II [T-WIWI-102758]**

**Responsible:** Prof. Dr. Stefan Nickel  
 Prof. Dr. Steffen Rebennack  
 Prof. Dr. Oliver Stein

**Organisation:** KIT Department of Economics and Management

**Part of:** [M-WIWI-101418 - Introduction to Operations Research](#)

Type	Credits	Recurrence	Version
Written examination	9	see Annotations	1

Events					
SS 2019	2550040	<a href="#">Introduction to Operations Research I</a>	2+2 SWS	Lecture (V)	Stein
WS 19/20	2530043	<a href="#">Introduction to Operations Research II</a>	2 SWS	Lecture (V)	Stein
WS 19/20	2530044		2 SWS	Tutorial (Tu)	Assistenten, Stein
Exams					
SS 2019	7900135	<a href="#">Introduction to Operations Research I and II</a>		Prüfung (PR)	Nickel

**Competence Certificate**

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.

**Prerequisites**

None

**Recommendation**

Mathematics I and 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].

*Below you will find excerpts from events related to this course:*

## V

**Introduction to Operations Research I**

2550040, SS 2019, 2+2 SWS, Language: German, [Open in study portal](#)

**Lecture (V)**

**Description**

Examples for typical OR problems.

Linear Programming: Basic notions, simplex method, duality, special versions of the simplex method (dual simplex method, three phase method), sensitivity analysis, parametric optimization, game theory.

Graphs and Networks: Basic notions of graph theory, shortest paths in networks, project scheduling, maximal and minimal cost flows in networks.

**Learning Content**

Examples for typical OR problems.

Linear Programming: Basic notions, simplex method, duality, special versions of the simplex method (dual simplex method, three phase method), sensitivity analysis, parametric optimization, multicriteria optimization.

Graphs and Networks: Basic notions of graph theory, shortest paths in networks, project scheduling, maximal flows in networks.

**Workload**

Berechnung des Arbeitsaufwands eines durchschnittlichen Studenten um die Lernziele zu erreichen. (Intern)

Eine Vernetzung von learningoutcomes (Wissen (content), Kompetenzen (skills) und levels mit dem dafür geschätzten Arbeitsaufwand eines durchschnittlichen Studenten ist anzustreben.

**Literature**

- Nickel, Stein, Waldmann: Operations Research, 2nd edition, Springer, 2014
- Hillier, Lieberman: Introduction to Operations Research, 8th edition. McGraw-Hill, 2005
- Murty: Operations Research. Prentice-Hall, 1995
- Neumann, Morlock: Operations Research, 2. Auflage. Hanser, 2006
- Winston: Operations Research - Applications and Algorithms, 4th edition. PWS-Kent, 2004



## 6.76 Course: Introduction to Public Finance [T-WIWI-102877]

**Responsible:** Prof. Dr. Berthold Wigger  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-WIWI-101403 - Public Finance](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each winter term	1

Events					
WS 19/20	2560131	<a href="#">Introduction to Public Finance</a>	3 SWS	Lecture (V)	Wigger
Exams					
SS 2019	790fiwi	<a href="#">Introduction to Public Finance</a>		Prüfung (PR)	Wigger
WS 19/20	790fiwi	<a href="#">Introduction to Public Finance</a>		Prüfung (PR)	Wigger

### Competence Certificate

The assessment consists of a written exam (60 min.).

### Prerequisites

None

Below you will find excerpts from events related to this course:



### Introduction to Public Finance

2560131, WS 19/20, 3 SWS, Language: German, [Open in study portal](#)

Lecture (V)

### Learning Content

The course *Introduction to Public Finance* provides an overview of the fundamental issues in public economics. The first part of the course deals with normative theories about the economic role of the state in a market economy. Welfare economics theory is offered as a base model, with which alternative normative theories are compared and contrasted. Within this theoretical framework, arguments concerning efficiency and equity are developed as justification for varying degrees of economic intervention by the state. The second part of the course deals with the positivist theory of public economics. Processes of public decision making are examined and the conditions that lead to market failures resulting from collective action problems are discussed. The third part of the course examines a variety of public spending programs, including social security systems, the public education system, and programs aimed at reducing poverty. The fifth part of the course addresses the key theoretical and political issues associated with fiscal federalism.

### Workload

The total workload for this course is approximately 135.0 hours. For further information see German version.

### Literature

Wigger, B. U. 2006. *Grundzüge der Finanzwissenschaft*. Springer: Berlin.

## T

**6.77 Course: Introduction to Stochastic Optimization [T-WIWI-106546]**

**Responsible:** Prof. Dr. Steffen Rebennack  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-103337 - Optimization under Uncertainty](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each summer term	1

Events					
SS 2019	2550470	<a href="#">Einführung in die Stochastische Optimierung</a>	2 SWS	Lecture (V)	Rebennack
SS 2019	2550471	<a href="#">Übung zur Einführung in die Stochastische Optimierung</a>	1 SWS	Practice (Ü)	Rebennack, Assistenten
Exams					
SS 2019	7900198	<a href="#">Introduction to Stochastic Optimization</a>		Prüfung (PR)	Rebennack

**Competence Certificate**

The assessment consists of a written exam (60 minutes) according to Section 4(2), 1 of the examination regulation. The exam takes place in every the semester.

**Prerequisites**

None.

## T

**6.78 Course: Investments [T-WIWI-102604]**

**Responsible:** Prof. Dr. Marliese Uhrig-Homburg  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101435 - Essentials of Finance](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each summer term	1

Events					
SS 2019	2530575	<a href="#">Investments</a>	2 SWS	Lecture (V)	Uhrig-Homburg
SS 2019	2530576	<a href="#">Übung zu Investments</a>	1 SWS	Practice (Ü)	Uhrig-Homburg, Grauer
Exams					
SS 2019	7900109	<a href="#">Investments</a>		Prüfung (PR)	Uhrig-Homburg

**Competence Certificate**

The assessment consists of a written exam (75 min) according to Section 4(2), 1 of the examination regulation. The examination takes place in every semester. Re-examinations are offered at every ordinary examination date. A bonus can be acquired through successful participation in the practice. If the grade of the written examination is between 4.0 and 1.3, the bonus improves the grade by up to one grade level (0.3 or 0.4). Details will be announced in the lecture.

**Prerequisites**

None

**Recommendation**

Knowledge of Business Administration: Finance and Accounting [2610026] is recommended.

*Below you will find excerpts from events related to this course:*

## V

**Investments**

2530575, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

**Lecture (V)**

**Description**

The lecture deals with investment decisions under uncertainty, where the main emphasis is on investment decisions on stock markets. After a discussion of the basic questions of corporate valuation, the lecture focuses on portfolio theory. After that, risk and return in equilibrium are derived using the Capital Asset Pricing Model and the Arbitrage Pricing Theory, followed by an introduction into derivatives markets, especially forwards and futures. The lecture concludes with investments on bond markets.

**Learning Content**

The lecture deals with investment decisions under uncertainty, where the main emphasis is on investment decisions on stock markets. After a discussion of the basic questions of corporate valuation, the lecture focuses on portfolio theory. After that, risk and return in equilibrium are derived using the Capital Asset Pricing Model and the Arbitrage Pricing Theory. The lecture concludes with investments on bond markets.

**Workload**

The total workload for this course is approximately 135.0 hours. For further information see German version.

**Literature****Elective literature:**

Bodie/Kane/Marcus (2010): Essentials of Investments, Eighth Edition, McGraw-Hill Irwin, Boston

## T

## 6.79 Course: IT-Security Management for Networked Systems [T-INFO-101323]

**Responsible:** Prof. Dr. Hannes Hartenstein  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-100786 - IT-Security Management for Networked Systems](#)  
[M-INFO-102060 - Further Examinations](#)

Type	Credits	Recurrence	Version
Oral examination	5	Each winter term	1

Events					
WS 19/20	24149	<a href="#">IT-Security Management for Networked Systems</a>	3 SWS	Lecture / Practice (VÜ)	Hartenstein, Grashöfer, Neudecker
Exams					
SS 2019	7500599	<a href="#">IT-Security Management for Networked Systems</a>		Prüfung (PR)	Hartenstein

## T

## 6.80 Course: Lab: Working with Database Systems [T-INFO-103552]

**Responsible:** Prof. Dr.-Ing. Klemens Böhm  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-101193 - Foundations of Information Systems](#)  
[M-INFO-101229 - Database Systems in Theory and Practice](#)  
[M-INFO-101235 - Introduction to Data and Information Management](#)  
[M-INFO-102060 - Further Examinations](#)

Type	Credits	Recurrence	Version
Completed coursework	4	Each winter term	2

Events					
WS 19/20	24317	<a href="#">Arbeiten mit Datenbanksystemen</a>	2 SWS	Practical course (P)	Böhm
Exams					
WS 19/20	7500146	<a href="#">Lab: Working with Database Systems</a>		Prüfung (PR)	Böhm



**T****6.81 Course: Logistics - Organisation, Design and Control of Logistic Systems [T-MACH-102089]****Responsible:** Prof. Dr.-Ing. Kai Furmans**Organisation:** KIT Department of Mechanical Engineering**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101421 - Supply Chain Management](#)**Type**  
Written examination**Credits**  
6**Recurrence**  
Each summer term**Version**  
1

Events					
SS 2019	2118078	<a href="#">Logistics - Organisation, Design, and Control of Logistic Systems</a>	3 SWS	Lecture (V)	Furmans
Exams					
SS 2019	76-T-MACH-102089	<a href="#">Logistics - Organisation, Design and Control of Logistic Systems</a>		Prüfung (PR)	Furmans, Mittwollen

**Competence Certificate**

The assessment consists of a 90 minutes written examination (according to §4(2), 1 of the examination regulation).

**Prerequisites**

None

**Recommendation**

Required are lectures on "Linear Algebra" and "Stochastic".

*Below you will find excerpts from events related to this course:***V****Logistics - Organisation, Design, and Control of Logistic Systems**2118078, SS 2019, 3 SWS, Language: German, [Open in study portal](#)**Lecture (V)****Description****Media:**

Blackboard, LCD projector, in exercises also PCs.

**Learning Content**

## Introduction

- historical overview
- lines of development

## Structure of logistics systems

## Distribution logistics

- location planning
- Vehicle Routing Planning
- distribution centers

## Inventory management

- demand forecasting
- Inventory management policies
- Bullwhip effect

## Production logistics

- layout planning
- material handling
- flow control

## Supply Management

- information flow
- transportation organization
- controlling and development of a logistics system
- co-operation mechanisms
- Lean SCM
- SCOR model

## Identification Technologies

**Workload**

180 hrs

**Literature**

- Arnold/Isermann/Kuhn/Tempelmeier. Handbuch Logistik, Springer Verlag, 2002 (Neuaufgabe in Arbeit)
- Domschke. Logistik, Rundreisen und Touren, Oldenbourg Verlag, 1982
- Domschke/Drexel. Logistik, Standorte, Oldenbourg Verlag, 1996
- Gudehus. Logistik, Springer Verlag, 2007
- Neumann-Morlock. Operations-Research, Hanser-Verlag, 1993
- Tempelmeier. Bestandsmanagement in Supply Chains, Books on Demand 2006
- Schönsleben. Integrales Logistikmanagement, Springer, 1998

## T

**6.82 Course: Logistics and Supply Chain Management [T-WIWI-102870]**

**Responsible:** Dr. Marcus Wiens  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101437 - Industrial Production I](#)

Type	Credits	Recurrence	Version
Written examination	3,5	Each summer term	1

Events					
SS 2019	2581996	<a href="#">Logistics and Supply Chain Management</a>	2 SWS	Lecture (V)	Wiens
SS 2019	2581997	<a href="#">Übung zu Logistics and Supply Chain Management</a>	1 SWS	Practice (Ü)	Diehlmann, Lüttenberg
Exams					
SS 2019	7981996	<a href="#">Logistics and Supply Chain Management</a>		Prüfung (PR)	Schultmann

**Competence Certificate**

The assessment consists of an oral (30 minutes) or a written (60 minutes) exam (following §4(2), 1 of the examination regulation). The exam takes place in every semester. Re-examinations are offered at every ordinary examination date.

**Prerequisites**

None

*Below you will find excerpts from events related to this course:*

## V

**Logistics and Supply Chain Management**

2581996, SS 2019, 2 SWS, Language: English, [Open in study portal](#)

**Lecture (V)**

**Learning Content**

- Introduction: Basic Terms and Concepts
- Logistics Systems and Supply Chain Management
- Supply Chain Risk Management
- Extensions and Applications

**Workload**

Total effort required will account for approximately 105h (3.5 credits).

**Literature**

will be announced in the course

## T

## 6.83 Course: Macroeconomic Theory [T-WIWI-109121]

**Responsible:** Prof. Dr. Johannes Brumm  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-WIWI-101501 - Economic Theory](#)  
[M-WIWI-101668 - Economic Policy I](#)

**Type**  
Written examination

**Credits**  
4,5

**Recurrence**  
Each winter term

**Version**  
2

Events					
WS 19/20	2560404	<a href="#">Macroeconomic Theory</a>	2 SWS	Lecture (V)	Scheffel
WS 19/20	2560405	<a href="#">Übung zu Macroeconomic Theory</a>	1 SWS	Practice (Ü)	Pegorari
Exams					
SS 2019	7900232	<a href="#">Macroeconomic Theory</a>		Prüfung (PR)	Scheffel

**Competence Certificate**

The assessment consists of a written exam (60 min.) according to § 4 paragraph 2 Nr. 1 of the examination regulation.

**Prerequisites**

None.

*Below you will find excerpts from events related to this course:*

## V

**Macroeconomic Theory**

2560404, WS 19/20, 2 SWS, Language: English, [Open in study portal](#)

**Lecture (V)**

**Description**

This course introduces a modern approach to macroeconomics by building on microeconomic principles. To be able to rigorously address key macroeconomic questions a general framework based on intertemporal decision making is introduced. Starting by the principles of consumer and firm behavior, this framework is successively expanded by introducing market imperfections, monetary factors as well as international trade. With this framework at hand students are able to analyze labor market policies, government deficits, monetary policy, financial crises, trade policy, and other important macroeconomic problems. Throughout the course, we not only point out the power of theory but also its limitations.

**Workload**

The total workload for this course is approximately 135 hours. For further information see the German version.

**Literature**

Literature and lecture notes are provided during the course.



## 6.84 Course: Management and Strategy [T-WIWI-102629]

**Responsible:** Prof. Dr. Hagen Lindstädt  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101425 - Strategy and Organization](#)

Type	Credits	Recurrence	Version
Written examination	3,5	Each summer term	1

Events					
SS 2019	2577900	<a href="#">Management and Strategy</a>	2 SWS	Lecture (V)	Lindstädt
Exams					
SS 2019	7900067	<a href="#">Management and Strategy</a>		Prüfung (PR)	Lindstädt

### Competence Certificate

The assessment consists of a written exam (60 min) taking place at the beginn of the recess period (according to §4 (2), 1 of the examination regulation). The exam takes place in every semester. Re-examinations are offered at every ordinary examination date.

### Prerequisites

None

*Below you will find excerpts from events related to this course:*



### Management and Strategy

2577900, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

Lecture (V)

### Description

- Corporate management principles
- Strategic management principles
- Strategic analysis
- Competitive strategy: modelling and selection on a divisional level
- Strategies for oligopolies and networks: anticipation of dependencies
- Corporate strategy: modelling and evaluation on a corporate level
- Strategy implementation

### Learning Content

The participants learn about central concepts of strategic management along the ideal-typical strategy process: internal and external strategic analysis, concept and sources of competitive advantages, their importance when establishing competitive and corporate strategies as well as strategy assessment and implementation. This aims in particular to provide a summary of the basic concepts and models of strategic management, i.e. to provide in particular an action-oriented integration. Thereby a focus is on imparting knowledge about how price developments in oligopolistic markets can be understood, modeled and forecasted based on game theory.

### Annotation

The credits for the course "Management and Strategy" have been changed from 4 to 3,5 from summer term 2015 on.

### Workload

The total workload for this course is approximately 105.0 hours. For further information see German version.

### Literature

- Grant, R.M.: *Contemporary Strategy Analysis*. Blackwell, 5. Aufl. Massachusetts 2005.
- Lindstädt, H.; Hauser, R.: *Strategische Wirkungsbereiche von Unternehmen*. Gabler, Wiesbaden 2004.

The relevant excerpts and additional sources are made known during the course.

## T

**6.85 Course: Managing Organizations [T-WIWI-102630]**

**Responsible:** Prof. Dr. Hagen Lindstädt  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101425 - Strategy and Organization](#)  
[M-WIWI-101513 - Human Resources and Organizations](#)

Type	Credits	Recurrence	Version
Written examination	3,5	Each winter term	3

Events					
WS 19/20	2577902	<a href="#">Managing Organizations</a>	2 SWS	Lecture (V)	Lindstädt
Exams					
SS 2019	7900066	<a href="#">Managing Organizations</a>		Prüfung (PR)	Lindstädt

**Competence Certificate**

The assessment will consist of a written exam (60 min) taking place at the beginning of the recess period (according to Section 4 (2), 2 of the examination regulation). The exam takes place in every semester. Re-examinations are offered at every ordinary examination date.

**Prerequisites**

None

Below you will find excerpts from events related to this course:

## V

**Managing Organizations**

2577902, WS 19/20, 2 SWS, Language: German, [Open in study portal](#)

Lecture (V)

**Description**

- Principles of organisational management
- Managing organisational structures and processes: the selection of design parameters
- Ideal-typical organisational structures: choice and effect of parameter combinations
- Managing organisational changes

**Learning Content**

The course should enable the participants to assess the strengths and weaknesses of existing organisational structures and rules using systematic criteria. Here concepts and models for designing organisation structures, regulating organizational processes and managing organisational changes are presented and discussed using case studies. The course is structured to relate to actions and aims to give students a realistic view of the opportunities and limits of rational design approaches.

**Annotation**

The credits for the course "Managing Organizations" have been changed from 4 to 3,5 from summer term 2015 on.

**Workload**

The total workload for this course is approximately 105.0 hours. For further information see German version.

**Literature**

- Laux, H.; Liermann, F.: *Grundlagen der Organisation*, Springer. 6. Aufl. Berlin 2005.
- Lindstädt, H.: *Organisation*, in Scholz, C. (Hrsg.): *Vahlens Großes Personalexikon*, Verlag Franz Vahlen. 1. Aufl. München, 2009.
- Schreyögg, G.: *Organisation. Grundlagen moderner Organisationsgestaltung*, Gabler. 4. Aufl. Wiesbaden 2003.

The relevant excerpts and additional sources are made known during the course.

## T

**6.86 Course: Managing the Marketing Mix [T-WIWI-102805]**

**Responsible:** Prof. Dr. Martin Klarmann  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101424 - Foundations of Marketing](#)

Type	Credits	Recurrence	Version
Examination of another type	4,5	Each summer term	2

Events					
SS 2019	2571152	<a href="#">Managing the Marketing Mix</a>	2 SWS	Lecture (V)	Klarmann
SS 2019	2571153	<a href="#">Übung zu Marketing Mix (Bachelor)</a>	1 SWS	Practice (Ü)	Moosbrugger, Pade
Exams					
SS 2019	7900023	<a href="#">Managing the Marketing Mix</a>		Prüfung (PR)	Klarmann
SS 2019	7900205	<a href="#">Managing the Marketing Mix</a>		Prüfung (PR)	Klarmann

**Competence Certificate**

The assessment is carried out by the preparation and presentation of a case study (max 30 points) as well as a written exam (max 60 points). In total, a maximum of 90 points can be achieved in the event.

**Prerequisites**

None

**Annotation**

The course is compulsory in the module "Foundations of Marketing".  
 For further information please contact Marketing & Sales Research Group ([marketing.iism.kit.edu](mailto:marketing.iism.kit.edu)).

*Below you will find excerpts from events related to this course:*

## V

**Managing the Marketing Mix**

2571152, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

Lecture (V)

**Learning Content**

The content of this course concentrates on the elements of the marketing mix. Therefore the main chapters are:

- Brand management
- Pricing
- Promotion

**Annotation**

For further information please contact Marketing & Sales Research Group ([marketing.iism.kit.edu](mailto:marketing.iism.kit.edu)).

**Workload**

The total workload for this course is approximately 135.0 hours. For further information see German version.

**T****6.87 Course: Mathematics I for Information Engineering and Management - Exam [T-MATH-102266]**

**Responsible:** Prof. Dr. Andreas Rieder  
 Dr. Daniel Weiß  
 Prof. Dr. Christian Wieners

**Organisation:** KIT Department of Mathematics

**Part of:** [M-MATH-101311 - Mathematics I](#)

**Type**  
 Written examination

**Credits**  
 7

**Version**  
 1

Events					
WS 19/20	0136000	<a href="#">Mathematik 1 für die Fachrichtung Wirtschaftsinformatik</a>	4 SWS	Lecture (V)	Rieder
Exams					
SS 2019	7700070	<a href="#">Mathematics I for Information Engineering and Management - Exam</a>		Prüfung (PR)	Weiß



**T****6.88 Course: Mathematics I for Information Engineering and Management - Exercise [T-MATH-102267]**

**Responsible:** Prof. Dr. Andreas Rieder  
 Dr. Daniel Weiß  
 Prof. Dr. Christian Wieners

**Organisation:** KIT Department of Mathematics

**Part of:** [M-MATH-101311 - Mathematics I](#)

Type	Credits	Version
Written examination	1	1

Events					
WS 19/20	0136100	<a href="#">Übungen zu 0136000</a>	2 SWS	Practice (Ü)	Rieder

**T****6.89 Course: Mathematics II for Information Engineering and Management - Exam [T-MATH-102269]**

**Responsible:** Prof. Dr. Andreas Rieder  
 Dr. Daniel Weiß  
 Prof. Dr. Christian Wieners

**Organisation:** KIT Department of Mathematics

**Part of:** [M-MATH-101312 - Mathematics II](#)

Type	Credits	Version
Written examination	7	1

Events					
SS 2019	0187700	<a href="#">Mathematik II für Informationswirtschaft</a>	4 SWS	Lecture (V)	Weiß
Exams					
SS 2019	776700005	<a href="#">Mathematics II for Information Engineering and Management - Exam</a>		Prüfung (PR)	Weiß

**T****6.90 Course: Mathematics II for Information Engineering and Management - Exercise [T-MATH-102268]**

**Responsible:** Prof. Dr. Andreas Rieder  
 Dr. Daniel Weiß  
 Prof. Dr. Christian Wieners

**Organisation:** KIT Department of Mathematics

**Part of:** [M-MATH-101312 - Mathematics II](#)

Type	Credits	Version
Written examination	1	1

Events					
SS 2019	0187800	<a href="#">Übungen zu 0187700</a>	2 SWS	Practice (Ü)	Weiß
Exams					
SS 2019	6700004	<a href="#">Mathematics II for Information Engineering and Management - Exercise</a>		Prüfung (PR)	Weiß

## T

## 6.91 Course: Mechanisms and Applications of Workflow Systems [T-INFO-101257]

**Responsible:** Jutta Mülle

**Organisation:** KIT Department of Informatics

**Part of:** [M-INFO-101193 - Foundations of Information Systems](#)  
[M-INFO-101193 - Foundations of Information Systems](#)  
[M-INFO-101235 - Introduction to Data and Information Management](#)  
[M-INFO-102060 - Further Examinations](#)

Type	Credits	Recurrence	Version
Written examination	5	Each winter term	1

Events					
WS 19/20	24111	<a href="#">Konzepte und Anwendungen von Workflowsystemen</a>	3 SWS	Lecture (V)	Mülle
Exams					
SS 2019	7500094	<a href="#">Mechanisms and Applications of Workflow Systems</a>		Prüfung (PR)	Mülle

## T

**6.92 Course: Mechano-Informatics and Robotics [T-INFO-101294]**

**Responsible:** Prof. Dr.-Ing. Tamim Asfour  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-100757 - Mechano-Informatics and Robotics](#)  
[M-INFO-102060 - Further Examinations](#)

Type	Credits	Recurrence	Version
Written examination	4	Each winter term	1

Events					
WS 19/20	2400077	<a href="#">Mechano-Informatics and Robotics</a>	2 SWS	Lecture (V)	Asfour, Kaul
Exams					
SS 2019	7500217	<a href="#">Nachprüfung: Mechano-Informatics and Robotics</a>		Prüfung (PR)	Asfour
WS 19/20	7500176	<a href="#">Mechano-Informatics and Robotics</a>		Prüfung (PR)	Asfour

Below you will find excerpts from events related to this course:

## V

**Mechano-Informatics and Robotics**

2400077, WS 19/20, 2 SWS, Language: German/English, [Open in study portal](#)

Lecture (V)

**Learning Content**

The lecture addresses various engineering and algorithmic aspects and topics in robotics which are illustrated and explained based on examples originating from current research conducted in the field of humanoid robotics. First, this lecture gives an introduction into the mathematical fundamentals which are needed to describe a robotic system as well as the basic algorithms commonly applied in motion planning.

Subsequently, models and methods are introduced with which dynamical systems can be formalized and which can be used to encode and represent robot actions. To do so, we will discuss linear time-invariant systems in state.

## T

**6.93 Course: Mobile Computing and Internet of Things [T-INFO-102061]****Responsible:** Prof. Dr.-Ing. Michael Beigl**Organisation:** KIT Department of Informatics**Part of:** [M-INFO-101249 - Mobile Computing and Internet of Things](#)  
[M-INFO-102060 - Further Examinations](#)**Type**  
Oral examination**Credits**  
5**Recurrence**  
Each winter term**Version**  
1

Events					
WS 19/20	2400051	<a href="#">Mobile Computing and Internet of Things</a>	2+1 SWS	Lecture / Practice (VÜ)	Beigl, Exler
Exams					
SS 2019	7500107	<a href="#">Mobile Computing and Internet of Things</a>		Prüfung (PR)	Beigl
SS 2019	7500107_190926	<a href="#">Mobile Computing and Internet of Things</a>		Prüfung (PR)	Beigl

Below you will find excerpts from events related to this course:

## V

**Mobile Computing and Internet of Things**2400051, WS 19/20, 2+1 SWS, Language: German, [Open in study portal](#)**Lecture / Practice (VÜ)****Notes**

Lecture: Tue: 9:45-11:15. Exercise will be Tue 8:00-9:30. FIRST EXERCISE WILL BE ANNOUNCED. NO LECTURE AND NO EXERCISE on Tue Oct, 15.

**Literature**

Wird in der Vorlesung bekannt gegeben

## T

**6.94 Course: Mobile Robots – Practical Course [T-INFO-101992]**

**Responsible:** Prof. Dr.-Ing. Tamim Asfour  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-101184 - Mobile Robots – Practical Course](#)  
[M-INFO-102060 - Further Examinations](#)

Type	Credits	Recurrence	Version
Completed coursework	4	Each summer term	2

Events					
SS 2019	24624	<a href="#">Mobile Robots - Practical Course</a>	4 SWS	Practical course (P)	Asfour, Kaul, Beil
Exams					
SS 2019	7500264	<a href="#">Mobile Robots – Practical Course</a>		Prüfung (PR)	Asfour

Below you will find excerpts from events related to this course:

## V

**Mobile Robots - Practical Course**

24624, SS 2019, 4 SWS, Language: German, [Open in study portal](#)

**Practical course (P)**

**Learning Content**

In this practical course, students assemble an ASURO robot in groups of two. Each student will be provided with his own robot, which he has to put into operation. While using the robots, a new set of problems will be solved each week. The students will need to prepare for each week given the provided material. Sets of problem be solved using the C language and focus on controlling the robot's sensors and actuators as well as on the generation of reflex-based behavior. The course ends with a race, where the robots have to tackle an obstacle course.

**Workload**

120 h

## T

**6.95 Course: Modeling and OR-Software: Introduction [T-WIWI-106199]**

**Responsible:** Prof. Dr. Stefan Nickel  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101413 - Applications of Operations Research](#)

Type	Credits	Recurrence	Version
Examination of another type	4,5	Each summer term	2

Events					
SS 2019	2550490	<a href="#">Modellieren und OR-Software: Einführung</a>	3 SWS	Practical course (P)	Nickel, Bakker
Exams					
SS 2019	7900234	<a href="#">Modeling and OR-Software: Introduction</a>		Prüfung (PR)	Nickel

**Competence Certificate**

The assessment is a 120 minutes examination, including a written and a practical part (according to §4(2), 1 of the examination regulation).

The examination is held in the term of the software laboratory and the following term.

**Prerequisites**

None

**Recommendation**

Firm knowledge of the contents from the lecture *Introduction to Operations Research I* [2550040] of the module *Operations Research*.

**Annotation**

Due to capacity restrictions, registration before course start is required. For further information see the webpage of the course.

The lecture is offered in every term. The planned lectures and courses for the next three years are announced online.

*Below you will find excerpts from events related to this course:*

## V

**Modellieren und OR-Software: Einführung**

2550490, SS 2019, 3 SWS, Language: German, [Open in study portal](#)

**Practical course (P)**

**Learning Content**

The task of solving combinatorial and nonlinear optimization problems imposes much higher requirements on suggested solution approaches as in linear programming.

During the course of this software laboratory, students get to know important methods from combinatorial optimization, e.g. Branch & Cut- or Column Generation methods and are enabled to solve problems with the software system IBM ILOG CPLEX Optimization Studio and the corresponding modeling language OPL. In addition, issues of nonlinear optimization, e.g. quadratic optimization, are addressed. As an important part of the software laboratory, students get the possibility to model combinatorial and nonlinear problems and implement solution approaches in the software system.

The software laboratory also introduces some of the most frequently used modelling and programming languages that are used in practice to solve optimization problems.

**Annotation**

Due to capacity restrictions, registration before course start is required. For further information see the webpage of the course.

The lecture is held irregularly. The planned lectures and courses for the next three years are announced online.

**Workload**

The total workload for this course is approximately 135.0 hours. For further information see German version.



## T

**6.96 Course: Nonlinear Optimization I [T-WIWI-102724]**

**Responsible:** Prof. Dr. Oliver Stein  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101936 - Methodical Foundations of OR](#)  
[M-WIWI-103337 - Optimization under Uncertainty](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each winter term	4

Events					
WS 19/20	2550111	<a href="#">Nonlinear Optimization I</a>	2 SWS	Lecture (V)	Stein
WS 19/20	2550112	<a href="#">Exercises Nonlinear Optimization I + II</a>	SWS	Practice (Ü)	Stein
Exams					
SS 2019	7900064_SS2019_NK	<a href="#">Nonlinear Optimization I</a>		Prüfung (PR)	Stein

**Competence Certificate**

The assessment consists of a written exam (60 minutes) according to Section 4(2), 1 of the examination regulation and possibly of a compulsory prerequisite.

The exam takes place in the semester of the lecture and in the following semester.

The examination can also be combined with the examination of *Nonlinear Optimization II* [2550113]. In this case, the duration of the written examination takes 120 minutes.

**Prerequisites**

The module component exam T-WIWI-103637 "Nonlinear Optimization I and II" may not be selected.

**Annotation**

Part I and II of the lecture are held consecutively in the *same* semester.

*Below you will find excerpts from events related to this course:*

## V

**Nonlinear Optimization I**

2550111, WS 19/20, 2 SWS, [Open in study portal](#)

Lecture (V)

**Learning Content**

The lecture treats the minimization of smooth nonlinear functions under nonlinear constraints. For such problems, which occur very often in economics, engineering, and natural sciences, we derive optimality conditions that form the basis for numerical solution methods. The lecture is structured as follows:

- Introduction, examples, and terminology
- Existence results for optimal points
- First and second order optimality conditions for unconstrained problems
- Optimality conditions for unconstrained convex problems
- Numerical methods for unconstrained problems (line search, steepest descent method, variable metric methods, Newton method, Quasi Newton methods, CG method, trust region method)

Constrained problems are the contents of part II of the lecture.

The lecture is accompanied by computer exercises in which you can learn the programming language MATLAB and implement and test some of the methods for practically relevant examples.

**Annotation**

Part I and II of the lecture are held consecutively in the *same* semester.

**Literature****Elective literature:**

- W. Alt, Nichtlineare Optimierung, Vieweg, 2002
- M.S. Bazaraa, H.D. Sherali, C.M. Shetty, Nonlinear Programming, Wiley, 1993
- O. Güler, Foundations of Optimization, Springer, 2010
- H.Th. Jongen, K. Meer, E. Triesch, Optimization Theory, Kluwer, 2004
- J. Nocedal, S. Wright, Numerical Optimization, Springer, 2000



## 6.97 Course: Nonlinear Optimization I and II [T-WIWI-103637]

**Responsible:** Prof. Dr. Oliver Stein  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101936 - Methodical Foundations of OR](#)

Type	Credits	Recurrence	Version
Written examination	9	Each winter term	6

Events					
WS 19/20	2550111	<a href="#">Nonlinear Optimization I</a>	2 SWS	Lecture (V)	Stein
WS 19/20	2550112	<a href="#">Exercises Nonlinear Optimization I + II</a>	SWS	Practice (Ü)	Stein
WS 19/20	2550113	<a href="#">Nonlinear Optimization II</a>	2 SWS	Lecture (V)	Stein
Exams					
SS 2019	7900066_SS2019_NK	<a href="#">Nonlinear Optimization I and II</a>		Prüfung (PR)	Stein

### Competence Certificate

The assessment consists of a written exam (120 minutes) according to Section 4(2), 1 of the examination regulation and possibly of a compulsory prerequisite.

The exam takes place in the semester of the lecture and in the following semester.

### Prerequisites

None.

### Annotation

Part I and II of the lecture are held consecutively in the **same** semester.

*Below you will find excerpts from events related to this course:*



## Nonlinear Optimization I

2550111, WS 19/20, 2 SWS, [Open in study portal](#)

Lecture (V)

### Learning Content

The lecture treats the minimization of smooth nonlinear functions under nonlinear constraints. For such problems, which occur very often in economics, engineering, and natural sciences, we derive optimality conditions that form the basis for numerical solution methods. The lecture is structured as follows:

- Introduction, examples, and terminology
- Existence results for optimal points
- First and second order optimality conditions for unconstrained problems
- Optimality conditions for unconstrained convex problems
- Numerical methods for unconstrained problems (line search, steepest descent method, variable metric methods, Newton method, Quasi Newton methods, CG method, trust region method)

Constrained problems are the contents of part II of the lecture.

The lecture is accompanied by computer exercises in which you can learn the programming language MATLAB and implement and test some of the methods for practically relevant examples.

### Annotation

Part I and II of the lecture are held consecutively in the **same** semester.

**Literature****Elective literature:**

- W. Alt, Nichtlineare Optimierung, Vieweg, 2002
- M.S. Bazaraa, H.D. Sherali, C.M. Shetty, Nonlinear Programming, Wiley, 1993
- O. Güler, Foundations of Optimization, Springer, 2010
- H.Th. Jongen, K. Meer, E. Triesch, Optimization Theory, Kluwer, 2004
- J. Nocedal, S. Wright, Numerical Optimization, Springer, 2000

**Nonlinear Optimization II**2550113, WS 19/20, 2 SWS, [Open in study portal](#)**Lecture (V)****Learning Content**

The lecture treats the minimization of smooth nonlinear functions under nonlinear constraints. For such problems, which occur very often in economics, engineering, and natural sciences, we derive optimality conditions that form the basis for numerical solution methods. Part I of the lecture treats unconstrained optimization problems. Part II of the lecture is structured as follows:

- Topology and first order approximations of the feasible set
- Theorems of the alternative, first and second order optimality conditions for constrained problems
- Optimality conditions for constrained convex problems
- Numerical methods for constrained problems (penalty method, multiplier method, barrier method, interior point method, SQP method, quadratic optimization)

The lecture is accompanied by computer exercises in which you can learn the programming language MATLAB and implement and test some of the methods for practically relevant examples.

**Annotation**

Part I and II of the lecture are held consecutively in the same semester.

**Literature****Elective literature:**

- W. Alt, Nichtlineare Optimierung, Vieweg, 2002
- M.S. Bazaraa, H.D. Sherali, C.M. Shetty, Nonlinear Programming, Wiley, 1993
- O. Güler, Foundations of Optimization, Springer, 2010
- H.Th. Jongen, K. Meer, E. Triesch, Optimization Theory, Kluwer, 2004
- J. Nocedal, S. Wright, Numerical Optimization, Springer, 2000



## 6.98 Course: Nonlinear Optimization II [T-WIWI-102725]

**Responsible:** Prof. Dr. Oliver Stein  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101936 - Methodical Foundations of OR](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each winter term	3

Events					
WS 19/20	2550112	<a href="#">Exercises Nonlinear Optimization I + II</a>	SWS	Practice (Ü)	Stein
WS 19/20	2550113	<a href="#">Nonlinear Optimization II</a>	2 SWS	Lecture (V)	Stein
Exams					
SS 2019	7900065_SS2019_NK	<a href="#">Nonlinear Optimization II</a>		Prüfung (PR)	Stein

### Competence Certificate

The assessment consists of a written exam (60 minutes) according to Section 4(2), 1 of the examination regulation and possibly of a compulsory prerequisite.

The exam takes place in the semester of the lecture and in the following semester.

The exam can also be combined with the examination of *Nonlinear Optimization I* [2550111]. In this case, the duration of the written exam takes 120 minutes.

### Prerequisites

None.

### Annotation

Part I and II of the lecture are held consecutively in the same semester.

*Below you will find excerpts from events related to this course:*



## Nonlinear Optimization II

2550113, WS 19/20, 2 SWS, [Open in study portal](#)

Lecture (V)

### Learning Content

The lecture treats the minimization of smooth nonlinear functions under nonlinear constraints. For such problems, which occur very often in economics, engineering, and natural sciences, we derive optimality conditions that form the basis for numerical solution methods. Part I of the lecture treats unconstrained optimization problems. Part II of the lecture is structured as follows:

- Topology and first order approximations of the feasible set
- Theorems of the alternative, first and second order optimality conditions for constrained problems
- Optimality conditions for constrained convex problems
- Numerical methods for constrained problems (penalty method, multiplier method, barrier method, interior point method, SQP method, quadratic optimization)

The lecture is accompanied by computer exercises in which you can learn the programming language MATLAB and implement and test some of the methods for practically relevant examples.

### Annotation

Part I and II of the lecture are held consecutively in the same semester.

**Literature**

**Elective literature:**

- W. Alt, Nichtlineare Optimierung, Vieweg, 2002
- M.S. Bazaraa, H.D. Sherali, C.M. Shetty, Nonlinear Programming, Wiley, 1993
- O. Güler, Foundations of Optimization, Springer, 2010
- H.Th. Jongen, K. Meer, E. Triesch, Optimization Theory, Kluwer, 2004
- J. Nocedal, S. Wright, Numerical Optimization, Springer, 2000

## T

**6.99 Course: Operative CRM [T-WIWI-102597]**

**Responsible:** Prof. Dr. Andreas Geyer-Schulz  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101422 - Specialization in Customer Relationship Management](#)  
[M-WIWI-101460 - CRM and Service Management](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each winter term	1

Events					
WS 19/20	2540522	<a href="#">Operative CRM</a>	2 SWS	Lecture (V)	Geyer-Schulz
WS 19/20	2540523	<a href="#">Übung Operatives CRM</a>	1 SWS	Practice (Ü)	Schweigert
Exams					
SS 2019	7900281	<a href="#">Operative CRM</a>		Prüfung (PR)	Geyer-Schulz

**Competence Certificate**

Written examination (60 minutes) according to §4(2), 1 SPO. The exam is considered passed if at least 50 out of a maximum of 100 possible points are achieved. The grades are graded in five steps (best grade 1.0 from 95 points). Details of the grade formation and scale will be announced in the course.

A bonus can be acquired through successful participation in the practice. If the grade of the written examination is between 4.0 and 1.3, the bonus improves the grade by one grade level (0.3 or 0.4). The exact criteria for awarding a bonus will be announced at the beginning of the course.

**Prerequisites**

None

**Recommendation**

The attendance of courses Customer Relationship Management and Analytical CRM is advised.

*Below you will find excerpts from events related to this course:*

## V

**Operative CRM**

2540522, WS 19/20, 2 SWS, Language: German, [Open in study portal](#)

Lecture (V)

**Learning Content**

The Student should be able to understand and implement methods and applications within the operative CRM. This includes, but is not limited to the analysis of business processes, as a basis for improvements in CRM, and applications like call centers.

**Workload**

The total workload for this course is approximately 135 hours (4.5 credits):

## Time of attendance

- Attending the lecture: 15 x 90min = 22h 30m
- Attending the exercise classes: 7 x 90min = 10h 30m
- Examination: 1h 00m

## Self-study

- Preparation and wrap-up of the lecture: 15 x 180min = 45h 00m
- Preparing the exercises: 25h 00m
- Preparation of the examination: 31h 00m

**Sum: 135h 00m**

**Literature**

Jill Dyché. The CRM Handbook: A Business Guide to Customer Relationship Management. Addison-Wesley, Boston, 2 edition, 2002.

Ronald S. Swift. Accelerating Customer Relationships: Using CRM and Relationship Technologies. Prentice Hall, Upper Saddle River, 2001.

**Elective literature:**

Alex Berson, Kurt Thearling, and Stephen J. Smith. Building Data Mining Applications for CRM. Mc Graw-Hill, New York, 2000.

Stanley A. Brown. Customer Relationship Management: A Strategic Imperative in the World of E-Business. John Wiley, Toronto, 2000.

Dimitris N. Chorafas. Integrating ERP, CRM, Supply Chain Management, and Smart Materials. Auerbach Publications, Boca Raton, Florida, 2001.

Keith Dawson. Call Center Handbook: The Complete Guide to Starting, Running, and Improving Your Call Center. CMP Books, Gilroy, CA, 4 edition, 2001.

Andreas Eggert and Georg Fassot. eCRM – Electronic Customer Relationship Management: Anbieter von CRM-Software im Vergleich. Schäffer-Poeschel, Stuttgart, 2001.

Seth Godin. Permission Marketing. Kunden wollen wählen können. FinanzBuch Verlag, München, 1999.

Paul Greenberg. CRM at the Speed of Light: Capturing and Keeping Customers in Internet Real Time. Osborne/McGraw-Hill, 3rd ed. edition, Aug 2004.

Philip Kotler. Marketing Management: Millennium Edition. Prentice Hall, Upper Saddle River, 10 edition, 2000.

Don Peppers and Martha Rogers. The One To One Future. Currency Doubleday, New York, 1997.

Duane E. Sharp. Customer Relationship Management Systems Handbook. Auerbach, 2002.

Len Silverston. The Data Model Resource Book: A Library of Universal Data Models for All Enterprises, volume 1. John Wiley & Sons, 2001.

Toby J. Teorey. Database Modeling and Design. Morgan Kaufmann, San Francisco, 3 edition, 1999.

Chris Todman. Designing a Data Warehouse : Supporting Customer Relationship Management. Prentice Hall, Upper Saddle River, 1 edition, 2001.



## T

## 6.100 Course: Optimization under Uncertainty [T-WIWI-106545]

**Responsible:** Prof. Dr. Steffen Rebennack  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101413 - Applications of Operations Research](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each winter term	2

Events					
WS 19/20	2550464	<a href="#">Optimierungsansätze unter Unsicherheit</a>	SWS	Lecture (V)	Rebennack
WS 19/20	2550465	<a href="#">Übungen zu Optimierungsansätze unter Unsicherheit</a>	SWS	Practice (Ü)	Rebennack, Füllner
WS 19/20	2550466		2 SWS	Practice (Ü)	Rebennack, Füllner
Exams					
SS 2019	7900202	<a href="#">Optimization under Uncertainty</a>		Prüfung (PR)	Rebennack

**Competence Certificate**

The assessment consists of a written exam (60 minutes) according to Section 4(2), 1 of the examination regulation. The exam takes place in every the semester.

**Prerequisites**

None.

## T

**6.101 Course: Personnel Policies and Labor Market Institutions [T-WIWI-102908]**

**Responsible:** Prof. Dr. Petra Nieken  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101513 - Human Resources and Organizations](#)  
[M-WIWI-101668 - Economic Policy I](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each summer term	1

Events					
SS 2019	2573001	<a href="#">Personnel Policies and Labor Market Institutions</a>	2 SWS	Lecture (V)	Nieken
SS 2019	2573002	<a href="#">Übungen zu Personalpolitik und Arbeitsmarktinstitutionen</a>	1 SWS	Practice (Ü)	Nieken, Mitarbeiter
Exams					
SS 2019	7900133	<a href="#">Personnel Policies and Labor Market Institutions</a>		Prüfung (PR)	Nieken

**Competence Certificate**

The assessment of this course is a written examination (60 min) according to §4(2), 1 of the examination regulation. The exam takes place in every semester. Re-examinations are offered at every ordinary examination date.  
 In case of a small number of registrations, we might offer an oral exam instead of a written exam.

**Prerequisites**

None

**Recommendation**

Completion of module Business Administration is recommended.  
 Basic knowledge of microeconomics, game theory, and statistics is recommended.

*Below you will find excerpts from events related to this course:*

## V

**Personnel Policies and Labor Market Institutions**

2573001, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

Lecture (V)

**Notes**

See Module Handbook

## T

**6.102 Course: Platform Economy [T-WIWI-109936]**

**Responsible:** Prof. Dr. Christof Weinhardt  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-WIWI-101421 - Supply Chain Management](#)  
[M-WIWI-101434 - eBusiness and Service Management](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each winter term	3

Events					
WS 19/20	2540468	<a href="#">Platform Economy</a>	2 SWS	Lecture (V)	Weinhardt, Dann
WS 19/20	2540469	<a href="#">Übung zu Platform Economy</a>	SWS	Practice (Ü)	Dann, Richter

**Competence Certificate**

The assessment consists of a written exam (60 min.) according to § 4 paragraph 2 Nr. 1 of the examination regulation. Details of the grades will be announced at the beginning of the course.

**Prerequisites**

see below

**Recommendation**

None

*Below you will find excerpts from events related to this course:*

## V

**Platform Economy**

2540468, WS 19/20, 2 SWS, Language: German, [Open in study portal](#)

**Lecture (V)**

**Learning Content**

Apple, Alphabet, Microsoft, Amazon und Facebook; five of the most valuable companies are digital platforms. This lecture provides an overview on how such platforms work, which market mechanisms are effective for achieving certain goals and how users behave on such platforms. The content is exemplified and discussed in several real-world examples and case studies in the field of sharing economy (e.g., airbnb), finance (e.g., social trading) and crowdsourcing (e.g., kickstarter).

## T

**6.103 Course: Practical Course: Lego Mindstorms [T-INFO-107502]**

**Responsible:** Prof. Dr.-Ing. Tamim Asfour  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-INFO-102557 - Lego Mindstorms - Practical Course](#)

Type	Credits	Recurrence	Version
Completed coursework	4	Each winter term	1

Events					
WS 19/20	24306	<a href="#">Lego Mindstorms - Laboratory</a>	3 SWS	Practical course (P)	Asfour, Weiner, Starke, Pohl, Klas
Exams					
WS 19/20	7500179	<a href="#">Lego Mindstorms - Practical Course</a>		Prüfung (PR)	Asfour

**Recommendation**

Basic knowledge in JAVA is necessary for successful completion of this course.

*Below you will find excerpts from events related to this course:*

## V

**Lego Mindstorms - Laboratory**

24306, WS 19/20, 3 SWS, Language: German, [Open in study portal](#)

**Practical course (P)**

**Learning Content**

In this practical course, teams of three students build and program a mobile robot using Lego Mindstorms and the Java programming language. The robots are challenged to complete a versatile parkour including sections like the traversal of a maze, following a line, crossing a bridge or avoiding obstacle. After initial building of the robots, a section of the parkour will be set up each week and tackled by the robots, for which the students have to prepare their code beforehand. A final race of the robots on the entire parkour will be held at the end of the semester.

**Workload**

120 h

## T

**6.104 Course: Practical Seminar Digital Services [T-WIWI-105711]**

**Responsible:** Prof. Dr. Gerhard Satzger  
Prof. Dr. Christof Weinhardt

**Organisation:** KIT Department of Economics and Management

**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-102752 - Fundamentals of Digital Service Systems](#)

Type	Credits	Recurrence	Version
Examination of another type	4,5	Each summer term	1

**Competence Certificate**

The assessment consists of a seminar paper, a presentation of the results and the contribution to the discussion (according to §4(2), 3 of the examination regulation). The final grade is based on the evaluation of each component (seminar paper, oral presentation, and active participation).

**Prerequisites**

None

**Recommendation**

None

**Annotation**

The current range of seminar topics is announced on the KSRI website [www.ksri.kit.edu](http://www.ksri.kit.edu).

## T

**6.105 Course: Problem Solving, Communication and Leadership [T-WIWI-102871]**

**Responsible:** Prof. Dr. Hagen Lindstädt  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101425 - Strategy and Organization](#)  
[M-WIWI-101513 - Human Resources and Organizations](#)

Type	Credits	Recurrence	Version
Written examination	2	Each summer term	1

Events					
SS 2019	2577910	<a href="#">Problem solving, communication and leadership</a>	1 SWS	Lecture (V)	Lindstädt
WS 19/20	2577910	<a href="#">Problem solving, communication and leadership</a>	1 SWS	Lecture (V)	Lindstädt
Exams					
SS 2019	7900068	<a href="#">Problem Solving, Communication and Leadership</a>		Prüfung (PR)	Lindstädt

**Competence Certificate**

The assessment consists of a written exam (30 minutes) (following §4(2), 1 of the examination regulation). The exam takes place in every semester. Re-examinations are offered at every ordinary examination date.

**Prerequisites**

None

*Below you will find excerpts from events related to this course:*

## V

**Problem solving, communication and leadership**

2577910, SS 2019, 1 SWS, Language: German, [Open in study portal](#)

Lecture (V)

**Learning Content**

The course deals with various aspects of problem solving and communication processes and is divided into two parts. The first part of the course addresses the fundamental steps in the problem-solving process; namely, problem identification, problem structuring, problem analysis and communication of solution. Ideas for structuring problem solving processes will be discussed and the prerequisites for and principles of structured communication based on charts and presentations will be explained. The second part of the course addresses important concepts in leadership, including the context-specificity of influence, the choice of leader and the characteristics of employees. The course content reflects current issues in management and communication practice and is oriented toward the practical application of theoretical insights to these issues. In this respect, the course aims to develop interdisciplinary skills.

**Workload**

The total workload for this course is approximately 60 hours. For further information see German version.

**Literature**

The relevant excerpts and additional sources are made known during the course.

## V

**Problem solving, communication and leadership**

2577910, WS 19/20, 1 SWS, Language: German, [Open in study portal](#)

Lecture (V)

**Learning Content**

The course deals with various aspects of problem solving and communication processes and is divided into two parts. The first part of the course addresses the fundamental steps in the problem-solving process; namely, problem identification, problem structuring, problem analysis and communication of solution. Ideas for structuring problem solving processes will be discussed and the prerequisites for and principles of structured communication based on charts and presentations will be explained. The second part of the course addresses important concepts in leadership, including the context-specificity of influence, the choice of leader and the characteristics of employees. The course content reflects current issues in management and communication practice and is oriented toward the practical application of theoretical insights to these issues. In this respect, the course aims to develop interdisciplinary skills.

**Workload**

The total workload for this course is approximately 60 hours. For further information see German version.

**Literature**

The relevant excerpts and additional sources are made known during the course.

## T

**6.106 Course: Process Mining [T-WIWI-109799]**

**Responsible:** Prof. Dr. Andreas Oberweis  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-WIWI-101476 - Business Processes and Information Systems](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each summer term	2

Events					
SS 2019	2511204	<a href="#">Process Mining</a>	2 SWS	Lecture (V)	Oberweis
SS 2019	2511205	<a href="#">Exercise Process Mining</a>	1 SWS	Practice (Ü)	Oberweis, Ullrich
Exams					
SS 2019	7900048	<a href="#">Process Mining</a>		Prüfung (PR)	Oberweis
WS 19/20	7900033	<a href="#">Process Mining</a>		Prüfung (PR)	Oberweis

**Competence Certificate**

The assessment of this course is a written examination (60 min) according to §4(2), 1 of the examination regulation in the first week after lecture period.

**Prerequisites**

None

**Annotation**

Former name (up to winter semester 2018/1019) "Workflow Management".

*Below you will find excerpts from events related to this course:*

## V

**Process Mining**

2511204, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

**Lecture (V)**

**Learning Content**

The area of process mining covers approaches which aim at deducting new knowledge on the basis of logfiles generated by information systems. Such information systems are e.g., workflow-management-systems which are used for an efficient control of processes in enterprises and organisations. The lecture introduces the foundations of processes and respective modeling and analysis techniques. In the following, the foundations of process mining and the three classical types of approaches - discovery, conformance and enhancement - will be taught. In addition to the theoretical basics, tools, application scenarios in practice and open research questions are covered as well.

**Workload**

Lecture 30h  
 Exercise 15h

Preparation of lecture 30h  
 Preparation of exercises 30h  
 Exam preparation 44h  
 Exam 1h

Total: 150h



**Literature**

- W. van der Aalst, H. van Kees: Workflow Management: Models, Methods and Systems, Cambridge, The MIT Press, 2002.
- W. van der Aalst: Process Mining: Data Science in Action. Springer, 2016.
- J. Carmona, B. van Dongen, A. Solti, M. Weidlich: Conformance Checking: Relating Processes and Models. Springer, 2018.
- A. Drescher, A. Koschmider, A. Oberweis: Modellierung und Analyse von Geschäftsprozessen: Grundlagen und Übungsaufgaben mit Lösungen. De Gruyter Studium, 2017.
- A. Oberweis: Modellierung und Ausführung von Workflows mit Petri-Netzen. Teubner-Reihe Wirtschaftsinformatik, B.G. Teubner Verlag, 1996.
- R. Peters, M. Nauroth: Process-Mining: Geschäftsprozesse: smart, schnell und einfach, Springer, 2019.
- F. Schönthaler, G. Vossen, A. Oberweis, T. Karle: Business Processes for Business Communities: Modeling Languages, Methods, Tools. Springer, 2012.
- M. Weske: Business Process Management: Concepts, Languages, Architectures. Springer, 2012.
- 

Further literature is given in the lecture.

## T

**6.107 Course: Production Economics and Sustainability [T-WIWI-102820]**

**Responsible:** Dr. Jérémy Rimbon  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101437 - Industrial Production I](#)

Type	Credits	Recurrence	Version
Written examination	3,5	Each winter term	1

Events					
WS 19/20	2581960	<a href="#">Production Economics and Sustainability</a>	2 SWS	Lecture (V)	Volk
Exams					
SS 2019	7981960	<a href="#">Production Economics and Sustainability</a>		Prüfung (PR)	Schultmann

**Competence Certificate**

The assessment consists of an oral (30 minutes) or a written (60 minutes) exam (following §4(2), 1 of the examination regulation). The exam takes place in every semester. Re-examinations are offered at every ordinary examination date.

*Below you will find excerpts from events related to this course:*

## V

**Production Economics and Sustainability**

2581960, WS 19/20, 2 SWS, Language: German, [Open in study portal](#)

Lecture (V)

**Learning Content**

The analysis and management of material flows on the company level and above will be the focus of this lecture. Herein, the discussion will be about cost-effective and environmentally acceptable steps to avoid, abate and recycle emissions and waste as well as ways of efficient resources handling. As methods material flow analysis (MFA), life cycle assessment (LCA) and OR methods, e.g. for decision support, are introduced.

**Topics:**

- regulations related to materials and substances
- raw materials, reserves and their availabilities/lifetimes
- material and substance flow analysis (MFA/SFA)
- material related ecoprofiles, e.g. Carbon Footprint
- LCA
- resource efficiency
- emission abatement
- waste management and closed-loop recycling
- raw material oriented production systems
- environmental management (EMAS, ISO 14001, Ecoprofit), eco-controlling

**Workload**

Total effort required will account for approximately 105h (3.5 credits).

**Literature**

will be announced in the course

## T

## 6.108 Course: Programming [T-INFO-101531]

**Responsible:** Prof. Dr.-Ing. Anne Kozirolek  
Prof. Dr. Ralf Reussner

**Organisation:** KIT Department of Informatics

**Part of:** [M-INFO-101174 - Programming](#)  
[M-WIWI-101528 - Orientation Exam](#)

Type	Credits	Recurrence	Version
Examination of another type	5	Each winter term	1

Events					
WS 19/20	24004	<a href="#">Programming</a>	4 SWS	Lecture / Practice (VÜ)	Kozirolek
Exams					
SS 2019	7500195	<a href="#">Programming</a>		Prüfung (PR)	Reussner
WS 19/20	7500075	<a href="#">Programming</a>		Prüfung (PR)	Reussner

## T

## 6.109 Course: Programming Pass [T-INFO-101967]

**Responsible:** Prof. Dr.-Ing. Anne Koziolk  
Prof. Dr. Ralf Reussner

**Organisation:** KIT Department of Informatics

**Part of:** [M-INFO-101174 - Programming](#)  
[M-WIWI-101528 - Orientation Exam](#)

**Type**  
Completed coursework

**Credits**  
0

**Recurrence**  
Each term

**Version**  
1

Events					
WS 19/20	24004	<a href="#">Programming</a>	4 SWS	Lecture / Practice (VÜ)	Koziolk
Exams					
SS 2019	7500022	<a href="#">Programming Pass</a>		Prüfung (PR)	Reussner
WS 19/20	7500074	<a href="#">Programming Pass</a>		Prüfung (PR)	Reussner

## T

## 6.110 Course: Project Management in Practice [T-INFO-101976]

**Responsible:** Prof. Dr.-Ing. Klemens Böhm  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-101193 - Foundations of Information Systems](#)  
[M-INFO-101235 - Introduction to Data and Information Management](#)  
[M-INFO-102060 - Further Examinations](#)

Type	Credits	Recurrence	Version
Completed coursework	1,5	Irregular	1

Events					
SS 2019	2400019	<a href="#">Project Management in Practice</a>	2 SWS	Lecture (V)	Böhm, Schnober
Exams					
SS 2019	7500291	<a href="#">Project Management in Practice</a>		Prüfung (PR)	Böhm

Below you will find excerpts from events related to this course:

## V

## Project Management in Practice

2400019, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

Lecture (V)

## Learning Content

- General project conditions
- Project goals / creative methods for identifying project goals and priorities
- Project planning
- Activity planning
- Cost/time/resource planning
- Phase models
- Risk management
- Project control / success control / monitoring
- Crisis management
- Project termination / lessons learned

## T

## 6.111 Course: Public Law I - Basic Principles [T-INFO-101963]

**Responsible:** Prof. Dr. Nikolaus Marsch  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-101192 - Constitutional and Administrative Law](#)

Type	Credits	Recurrence	Version
Written examination	3	Each winter term	2

Events					
WS 19/20	24016	<a href="#">Öffentliches Recht I - Grundlagen</a>	2 SWS	Lecture (V)	Marsch
Exams					
SS 2019	7500100	<a href="#">Public Law I - Basic Principles</a>		Prüfung (PR)	Marsch

## T

## 6.112 Course: Public Law I &amp; II [T-INFO-110300]

**Responsible:** Prof. Dr. Nikolaus Marsch  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-101192 - Constitutional and Administrative Law](#)

**Type**  
Written examination

**Credits**  
6

**Recurrence**  
Each summer term

**Version**  
1

Events					
SS 2019	24520	<a href="#">Öffentliches Recht II - Öffentliches Wirtschaftsrecht</a>	2 SWS	Lecture (V)	Marsch
WS 19/20	24016	<a href="#">Öffentliches Recht I - Grundlagen</a>	2 SWS	Lecture (V)	Marsch
Exams					
SS 2019	7500298	<a href="#">Public Law I &amp; II</a>		Prüfung (PR)	Marsch

**T****6.113 Course: Public Law II - Public Business Law [T-INFO-102042]**

**Responsible:** Prof. Dr. Nikolaus Marsch  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-101192 - Constitutional and Administrative Law](#)

**Type**  
Written examination

**Credits**  
3

**Recurrence**  
Each summer term

**Version**  
1

Events					
SS 2019	24520	<a href="#">Öffentliches Recht II - Öffentliches Wirtschaftsrecht</a>	2 SWS	Lecture (V)	Marsch
Exams					
SS 2019	7500081	<a href="#">Public Law II</a>		Prüfung (PR)	Marsch



## T

**6.114 Course: Public Revenues [T-WIWI-102739]**

**Responsible:** Prof. Dr. Berthold Wigger  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101403 - Public Finance](#)  
[M-WIWI-101499 - Applied Microeconomics](#)  
[M-WIWI-101668 - Economic Policy I](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each summer term	1

Events					
SS 2019	2560120	<a href="#">Public Revenues</a>	2 SWS	Lecture (V)	Wigger
SS 2019	2560121	<a href="#">Übung zu Öffentliche Einnahmen</a>	1 SWS	Practice (Ü)	Wigger
Exams					
SS 2019	790oeff	<a href="#">Public Revenues</a>		Prüfung (PR)	Wigger
WS 19/20	790oeff	<a href="#">Public Revenues</a>		Prüfung (PR)	Wigger

**Competence Certificate**

The assessment consists of an 1h written exam following Art. 4, para. 2, clause 1 of the examination regulation. The grade for this course equals the grade of the written exam.

**Prerequisites**

None

**Recommendation**

Basic knowledge of Public Finance is required.

*Below you will find excerpts from events related to this course:*

## V

**Public Revenues**

2560120, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

**Lecture (V)**

**Description**

The *Public Revenues* lecture is concerned with the theory and policy of taxation and public dept. In the first chapter, fundamental concepts of taxation theory are introduced, whereas the second chapter deals with key elements of the German taxation system. The allocative and distributive effects of different taxation types are examined in chapter three and four. Chapter five integrates both allocative and distributive components in order to derive a theory of optimal taxation. The core of the sixth chapter is represented by international aspects of taxation. The debt part begins with a description of the extent and structure of public dept in chapter seven. In the following chapter, macroeconomic theories of national dept are evolved, while chapter nine is concerned with its long term consequences when employed as a regular instrument of budgeting. Finally, the tenth chapter deals with constitutional limits to public debt-incurring.

**Learning Content**

The *Public Revenues* lecture is concerned with the theory and policy of taxation and public dept. In the first chapter, fundamental concepts of taxation theory are introduced, whereas the second chapter deals with key elements of the German taxation system. The allocative and distributive effects of different taxation types are examined in chapter three and four. Chapter five integrates both allocative and distributive components in order to derive a theory of optimal taxation. The core of the sixth chapter is represented by international aspects of taxation. The debt part begins with a description of the extent and structure of public dept in chapter seven. In the following chapter, macroeconomic theories of national dept are evolved, while chapter nine is concerned with its long term consequences when employed as a regular instrument of budgeting. Finally, the tenth chapter deals with constitutional limits to public debt-incurring.

**Workload**

The total workload for this course is approximately 135.0 hours. For further information see German version.

**Literature**

**Elective literature:**

- Homburg, S.(2000): *Allgemeine Steuerlehre*, Vahlen
- Rosen, H.S.(1995): *Public Finance*; 4th ed., Irwin
- Wellisch, D.(2000): *Finanzwissenschaft I* and *Finanzwissenschaft III*, Vahlen
- Wigger, B. U.(2006): *Grundzüge der Finanzwissenschaft*; 2nd ed., Springer

## T

**6.115 Course: Public Sector Finance [T-WIWI-109590]**

**Responsible:** Prof. Dr. Berthold Wigger  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-WIWI-101403 - Public Finance](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each winter term	2

Events					
WS 19/20	2560136		3 SWS	Lecture (V)	Wigger, Groh
Exams					
SS 2019	790oefi	<a href="#">Public Sector Finance</a>		Prüfung (PR)	Wigger
WS 19/20	790oefi	<a href="#">Public Sector Finance</a>		Prüfung (PR)	Wigger

**Competence Certificate**

The assessment consists of a written exam (60 min.).

**Prerequisites**

T-WIWI-107763 "Municipal Finance" must not be selected.

**Annotation**

Previous title until winter semester 2018/19 "Municipal Finance".

Below you will find excerpts from events related to this course:

## V

2560136, WS 19/20, 3 SWS, Language: German, [Open in study portal](#)

**Lecture (V)**

**Learning Content**

The course *Municipal Finance* addresses the theory and policy of municipal revenues and spending including grants, municipal revenue equalisation, taxation as well as municipal and public enterprises.

At the beginning of the course, fundamental concepts of taxation theory as well as key elements of the German taxation system are introduced. The allocative and distributive effects of different taxation methods are examined thereafter and are combined within the theory of optimal taxation. The following chapter is concerned with municipal borrowing and illustrates ways to acquire additional funding. After addressing the extent, structure and variety of municipal borrowing, macroeconomic theories are introduced and applied to the municipal sector. In the course of this final chapter, special attention will be paid to the long term consequences and the sustainability of municipal borrowing as a means of budgeting.

**Literature**

- Ade, K., Notheis, K. & Schmid, H. (2011). *Kommunales Wirtschaftsrecht in Baden Württemberg*. Boorberg-Verlag.
- Aker, B., Hafner, W. & Notheis, K. (2012). *Gemeindeordnung Baden-Württemberg* (Kommentar). Boorberg-Verlag.
- Groh, M. (1994). Kommunalleasing und Investorenfinanzierung als Private Public Partnership. *Stadt und Gemeinde*, 49. Jahrgang, 09/94.
- Wigger, B. U. (2006). *Grundzüge der Finanzwissenschaft*. Springer-Verlag.
- Several publications of the Ministry of Interior and the Ministry of Finance Baden-Württemberg.

T

**6.116 Course: Python for Empirical Finance [T-WIWI-110217]**

**Responsible:** Prof. Dr Maxim Ulrich  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-WIWI-105035 - Empirical Finance](#)

Type	Credits	Recurrence	Version
Examination of another type	3	Each winter term	1

Events					
WS 19/20	2500014	<a href="#">Python for Empirical Finance</a>	2 SWS	Practical course (P)	Ulrich

**Competence Certificate**

The assessment is carried out in form of six biweekly Python programming tasks and offered each winter term. The grade of this course is determined by the points achieved in the programming tasks.

**Prerequisites**

None.

*Below you will find excerpts from events related to this course:*

V

**Python for Empirical Finance**

2500014, WS 19/20, 2 SWS, Language: English, [Open in study portal](#)

**Practical course (P)**

**Description**

The aim of this course is to provide students with strong knowledge in Python to independently solve real-world data problems related to computational risk and asset management.

**Learning Content**

The course covers several topics from a programming perspective, among them:

Mean-Variance Portfolio Optimization

Modeling Distribution of Asset Returns with Factor Models and ARMA-GARCH

Monte-Carlo Simulation

Parameter Estimation with Maximum Likelihood and Regressions

**Workload**

The total workload for this course is approximately 90 hours.

## T

**6.117 Course: Real Estate Management I [T-WIWI-102744]**

**Responsible:** Prof. Dr.-Ing. Thomas Lützkendorf  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101466 - Real Estate Management](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each winter term	1

Events					
WS 19/20	2586400	<a href="#">Real Estate Management I</a>	2 SWS	Lecture (V)	Lützkendorf, Worschech
WS 19/20	2586401	<a href="#">Übungen zu Real Estate Management I</a>	2 SWS	Practice (Ü)	Worschech

**Competence Certificate**

The assessment consists of a written exam (60 minutes) (following §4(2), 1 of the examination regulation). The exam takes place two times only in the semester in which the lecture is takes place (winter semester). Re-examinations are offered at every ordinary examination date.

**Prerequisites**

None

**Annotation**

The course is replenished by excursions and guest lectures by practitioners out of the real estate business.

*Below you will find excerpts from events related to this course:*

## V

**Real Estate Management I**

2586400, WS 19/20, 2 SWS, Language: German, [Open in study portal](#)

**Lecture (V)**

**Description**

The course Real Estate Management I deals with questions concerning the economy of a single building throughout its lifecycle. Among other topics this includes project development, location and market studies, german federal building codes as well as finance and assessment of economic efficiency.

The tutorial recesses the contents of the course by means of practical examples and, in addition to that, goes into the possible use of software tools.

**Learning Content**

The course Real Estate Management I deals with questions concerning the economy of a single building throughout its lifecycle. Among other topics this includes project development, location and market studies, german federal building codes as well as finance and assessment of economic efficiency.

The tutorial recesses the contents of the course by means of practical examples and, in addition to that, goes into the possible use of software tools.

**Annotation**

The course is replenished by excursions and guest lectures by practitioners out of the real estate business.

**Workload**

The total workload for this course is approximately 135.0 hours. For further information see German version.

**Literature****Elective literature:**

- Gondring (Hrsg.): "Immobilienwirtschaft: Handbuch für Studium und Praxis". ISBN 3-8006-2989-5. Vahlen 2004
- Kühne-Büning (Hrsg.): "Grundlagen der Wohnungs- und Immobilienwirtschaft". ISBN 3-8314-0706-1. Knapp & Hammonia-Verlag 2005
- Schulte (Hrsg.): "Immobilienökonomie Bd. I". ISBN 3-486-25430-8. Oldenbourg 2000

## T

**6.118 Course: Real Estate Management II [T-WIWI-102745]**

**Responsible:** Prof. Dr.-Ing. Thomas Lützkendorf  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101466 - Real Estate Management](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each summer term	1

Events					
SS 2019	2585400	<a href="#">Real Estate Management II</a>	2 SWS	Lecture (V)	Lützkendorf, Worschech
SS 2019	2585401	<a href="#">Übung zu Real Estate Management II</a>	2 SWS	Practice (Ü)	Worschech
Exams					
SS 2019	7900172	<a href="#">Real Estate Management II</a>		Prüfung (PR)	Lützkendorf
SS 2019	7900173	<a href="#">Real Estate Management II</a>		Prüfung (PR)	Lützkendorf

**Competence Certificate**

The assessment consists of a written exam (60 minutes) (following §4(2), 1 of the examination regulation). The exam takes place two times only in the semester in which the lecture is takes place (summer semester). Reexaminations are offered at every ordinary examination date.

**Prerequisites**

None

**Recommendation**

A combination with the module *Design Construction and Assessment of Green Buildings I* is recommended. Furthermore it is recommended to choose courses of the following fields

- Finance and Banking
- Insurance
- Civil Engineering and Architecture (building physics, structural design, facility management)

**Annotation**

The course is replenished by excursions and guest lectures by practitioners out of the real estate business.

*Below you will find excerpts from events related to this course:*

## V

**Real Estate Management II**

2585400, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

**Lecture (V)**

**Description**

The course Real Estate Management II gives special attention to topics in connection to the management of large real estate portfolios. This especially includes property valuation, market and object rating, maintenance and modernization, as well as real estate portfolio and risk management. The tutorial provides examples in order to practice the application of theoretical knowledge to practical problems.

**Notes**

The course is replenished by excursions and guest lectures by practitioners out of the real estate business.

**Learning Content**

The course Real Estate Management II gives special attention to topics in connection to the management of large real estate portfolios. This especially includes property valuation, market and object rating, maintenance and modernization, as well as real estate portfolio and risk management. The tutorial provides examples in order to practice the application of theoretical knowledge to practical problems.

**Annotation**

The course is replenished by excursions and guest lectures by practitioners out of the real estate business.

**Workload**

The total workload for this course is approximately 135.0 hours. For further information see German version.

**Literature**

**Elective literature:**

See german version.

## T

**6.119 Course: Renewable Energy-Resources, Technologies and Economics [T-WIWI-100806]**

**Responsible:** PD Dr. Patrick Jochem  
Prof. Dr. Russell McKenna

**Organisation:** KIT Department of Economics and Management

**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101464 - Energy Economics](#)

Type	Credits	Recurrence	Version
Written examination	3,5	Each winter term	3

Events					
WS 19/20	2581012	<a href="#">Renewable Energy – Resources, Technologies and Economics</a>	2 SWS	Lecture (V)	McKenna, Jochem
Exams					
SS 2019	7981012	<a href="#">Renewable Energy-Resources, Technologies and Economics</a>		Prüfung (PR)	Fichtner

**Competence Certificate**

The assessment consists of a written exam (60 min., in English, answers in English or German).

**Prerequisites**

None.

*Below you will find excerpts from events related to this course:*

## V

**Renewable Energy – Resources, Technologies and Economics**

2581012, WS 19/20, 2 SWS, Language: English, [Open in study portal](#)

Lecture (V)

**Learning Content**

1. General introduction: Motivation, Global situation
2. Basics of renewable energies: Energy balance of the earth, potential definition
3. Hydro
4. Wind
5. Solar
6. Biomass
7. Geothermal
8. Other renewable energies
9. Promotion of renewable energies
10. Interactions in systemic context
11. Excursion to the "Energieberg" in Mühlburg

**Workload**

The total workload for this course is approximately 105.0 hours. For further information see German version.



**Literature****Elective literature:**

- Kaltschmitt, M., 2006, Erneuerbare Energien : Systemtechnik, Wirtschaftlichkeit, Umweltaspekte, aktualisierte, korrigierte und ergänzte Auflage Berlin, Heidelberg : Springer-Verlag Berlin Heidelberg.
- Kaltschmitt, M., Streicher, W., Wiese, A. (eds.), 2007, Renewable Energy: Technology, Economics and Environment, Springer, Heidelberg.
- Quaschnig, V., 2010, Erneuerbare Energien und Klimaschutz : Hintergründe - Techniken - Anlagenplanung - Wirtschaftlichkeit München : Hanser, Ill.2., aktualis. Aufl.
- Harvey, D., 2010, Energy and the New Reality 2: Carbon-Free Energy Supply, Eathscan, London/Washington.
- Boyle, G. (ed.), 2004, Renewable Energy: Power for a Sustainable Future, 2nd Edition, Open University Press, Oxford.

## T

## 6.120 Course: Security [T-INFO-101371]

**Responsible:** Prof. Dr. Dennis Hofheinz  
Prof. Dr. Jörn Müller-Quade

**Organisation:** KIT Department of Informatics

**Part of:** [M-INFO-100834 - Security](#)  
[M-INFO-102060 - Further Examinations](#)

**Type**  
Written examination

**Credits**  
6

**Recurrence**  
Each summer term

**Version**  
1

Events					
SS 2019	24941	<a href="#">Security</a>	3 SWS	Lecture (V)	Müller-Quade
Exams					
SS 2019	7500263	<a href="#">Security</a>		Prüfung (PR)	Müller-Quade
SS 2019	7500292	<a href="#">Security</a>		Prüfung (PR)	Müller-Quade

**T****6.121 Course: Selling IT-Solutions Professionally [T-INFO-101977]**

**Responsible:** Prof. Dr.-Ing. Klemens Böhm  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-101193 - Foundations of Information Systems](#)  
[M-INFO-101235 - Introduction to Data and Information Management](#)  
[M-INFO-102060 - Further Examinations](#)

Type	Credits	Recurrence	Version
Completed coursework	1,5	Irregular	1

## T

**6.122 Course: Semantic Web Technologies [T-WIWI-102874]**

**Responsible:** Prof. Dr. York Sure-Vetter  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101438 - Semantic Knowledge Management](#)  
[M-WIWI-101439 - Semantic Web and Applications](#)  
[M-WIWI-101440 - Information Services in Networks](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each summer term	2

Events					
SS 2019	2511310	<a href="#">Semantic Web Technologies</a>	2 SWS	Lecture (V)	Sure-Vetter, Acosta Deibe, Käfer
SS 2019	2511311	<a href="#">Exercises to Semantic Web Technologies</a>	1 SWS	Practice (Ü)	Sure-Vetter, Acosta Deibe, Käfer
Exams					
SS 2019	7900028	<a href="#">Semantic Web Technologies</a>		Prüfung (PR)	Sure-Vetter
WS 19/20	7900022	<a href="#">Semantic Web Technologies</a>		Prüfung (PR)	Sure-Vetter

**Competence Certificate**

The assessment consists of an 1h written exam following §4, Abs. 2, 1 of the examination regulation or of an oral exam (20 min) following §4, Abs. 2, 2 of the examination regulation.

The exam takes place every semester and can be repeated at every regular examination date.

**Prerequisites**

None

**Recommendation**

Lectures on Informatics of the Bachelor on Information Systems (Semester 1-4) or equivalent are required.

*Below you will find excerpts from events related to this course:*

## V

**Semantic Web Technologies**

2511310, SS 2019, 2 SWS, Language: English, [Open in study portal](#)

Lecture (V)

**Description**

The aim of the Semantic Web is to make the meaning (semantics) of data on the web usable in intelligent systems, e.g. in e-commerce and internet portals

Central concepts are the representation of knowledge in form of RDF and ontologies, the access via Linked Data, as well as querying the data by using SPARQL. This lecture provides the foundations of knowledge representation and processing for the corresponding technologies and presents example applications.

**Learning Content**

The following topics are covered:

- Resource Description Framework (RDF) and RDF Schema (RDFS)
- Web Architecture and Linked Data
- Web Ontology Language (OWL)
- Query language SPARQL
- Rule languages
- Applications

**Workload**

- The total workload for this course is approximately 150 hours
- Time of presentness: 45 hours
- Time of preparation and postprocessing: 67.5 hours
- Exam and exam preparation: 37.5 hours

**Literature**

- Pascal Hitzler, Markus Krötzsch, Sebastian Rudolph, York Sure: Semantic Web – Grundlagen. Springer, 2008.
- John Domingue, Dieter Fensel, James A. Hendler (Editors). Handbook of Semantic Web Technologies. Springer, 2011.

**Additional Literature**

- S. Staab, R. Studer (Editors). Handbook on Ontologies. International Handbooks in Information Systems. Springer, 2003.
- Tim Berners-Lee. Weaving the Web. Harper, 1999 geb. 2000 Taschenbuch.
- Ian Jacobs, Norman Walsh. Architecture of the World Wide Web, Volume One. W3C Recommendation 15 December 2004. <http://www.w3.org/TR/webarch/>
- Dean Allemang. Semantic Web for the Working Ontologist: Effective Modeling in RDFS and OWL. Morgan Kaufmann, 2008.
- Tom Heath and Chris Bizer. Linked Data: Evolving the Web into a Global Data Space. Synthesis Lectures on the Semantic Web: Theory and Technology, 2011.

**Exercises to Semantic Web Technologies**2511311, SS 2019, 1 SWS, Language: English, [Open in study portal](#)**Practice (Ü)****Description**

Multiple exercises are held that capture the topics, held in the lecture Semantic Web Technologies, and discuss them in detail. Thereby, practical examples are given to the students in order to transfer theoretical aspects into practical implementation.

**Learning Content**

The following topics are covered:

- Resource Description Framework (RDF) and RDF Schema (RDFS)
- Web Architecture and Linked Data
- Web Ontology Language (OWL)
- Query language SPARQL
- Rule languages
- Applications

**Workload**

The total workload for the lecture Semantic Web Technologies is given out on the description of the lecture.

**Literature**

- Pascal Hitzler, Markus Krötzsch, Sebastian Rudolph, York Sure: Semantic Web – Grundlagen. Springer, 2008.
- John Domingue, Dieter Fensel, James A. Hendler (Editors). Handbook of Semantic Web Technologies. Springer, 2011.

**Additional Literature**

- S. Staab, R. Studer (Editors). Handbook on Ontologies. International Handbooks in Information Systems. Springer, 2003.
- Tim Berners-Lee. Weaving the Web. Harper, 1999 geb. 2000 Taschenbuch.
- Ian Jacobs, Norman Walsh. Architecture of the World Wide Web, Volume One. W3C Recommendation 15 December 2004. <http://www.w3.org/TR/webarch/>
- Dean Allemang. Semantic Web for the Working Ontologist: Effective Modeling in RDFS and OWL. Morgan Kaufmann, 2008.
- Tom Heath and Chris Bizer. Linked Data: Evolving the Web into a Global Data Space. Synthesis Lectures on the Semantic Web: Theory and Technology, 2011.

## T

**6.123 Course: Seminar in Business Administration (Bachelor) [T-WIWI-103486]****Responsible:** Professorenschaft des Fachbereichs Betriebswirtschaftslehre**Organisation:** KIT Department of Economics and Management**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101826 - Seminar Module Economic Sciences](#)**Type**  
Examination of another type**Credits**  
3**Recurrence**  
Each term**Version**  
1

Events					
SS 2019	2530293	<a href="#">Seminar in Finance (Bachelor, Prof. Ruckes)</a>	2 SWS	Seminar (S)	Ruckes, Hoang, Benz, Strych, Luedecke, Silbereis, Stengel, Schubert
SS 2019	2530580	<a href="#">Seminar in Finance (Master, Prof. Uhrig-Homburg)</a>	2 SWS	Seminar (S)	Uhrig-Homburg, Hofmann, Reichenbacher, Eska
SS 2019	2540524	<a href="#">Bachelor Seminar aus CRM (nur Bachelor)</a>	2 SWS	Seminar (S)	Geyer-Schulz, Schweigert, Schweizer
SS 2019	2571180	<a href="#">Seminar in Marketing und Vertrieb (Bachelor)</a>	2 SWS	Seminar (S)	Klarmann, Assistenten
SS 2019	2573010	<a href="#">Seminar Human Resources and Organizations (Bachelor)</a>	2 SWS	Seminar (S)	Nieken, Mitarbeiter
SS 2019	2573011	<a href="#">Seminar Human Resource Management (Bachelor)</a>	2 SWS	Seminar (S)	Nieken, Mitarbeiter
SS 2019	2579904	<a href="#">Seminar Management Accounting</a>	2 SWS	Seminar (S)	Hammann, Disch
SS 2019	2579905	<a href="#">Special Topics in Management Accounting</a>	2 SWS	Seminar (S)	Mickovic, Riar
SS 2019	2581977	<a href="#">Seminar Produktionswirtschaft und Logistik II</a>	2 SWS	Seminar (S)	Schultmann
WS 19/20	2500028	<a href="#">Seminar in Empirical Finance</a>	2 SWS	Seminar (S)	Ulrich
WS 19/20	2530580	<a href="#">Seminar in Finance</a>	2 SWS	Seminar (S)	Uhrig-Homburg, Mitarbeiter
WS 19/20	2540473	<a href="#">Data Science in Service Management</a>	2 SWS	Seminar (S)	Haubner, Frankenhauser, Gröschel
WS 19/20	2540475	<a href="#">Electronic Markets &amp; User behavior</a>	2 SWS	Seminar (S)	Dorner, Knierim, Dann, Jaquart
WS 19/20	2540477	<a href="#">Digital Experience and Participation</a>	2 SWS	Seminar (S)	Straub, Peukert, Hoffmann, Kloker, Pasmaz, Willrich, Kloepper, Fegert, Greif-Winzrieth
WS 19/20	2540478	<a href="#">Smart Grids and Energy Markets</a>	2 SWS	Seminar (S)	Dinther, Staudt, Richter, Huber, vom Scheidt, Golla
WS 19/20	2540524	<a href="#">Bachelor Seminar aus Data Science</a>	2 SWS	Seminar (S)	Geyer-Schulz, Schweigert, Schweizer, Nazemi
WS 19/20	2540557	<a href="#">Literature Review Seminar: Information Systems and Service Design</a>	3 SWS	Seminar (S)	Mädche
WS 19/20	2545010	<a href="#">Entrepreneurship Basics (Track 1)</a>	2 SWS	Seminar (S)	Terzidis, Ziegler, González
WS 19/20	2545011	<a href="#">Entrepreneurship Basics (Track 2)</a>	2 SWS	Seminar (S)	Böhrer, Terzidis

WS 19/20	2573010	Seminar: Human Resources and Organizations (Bachelor)	2 SWS	Seminar (S)	Nieken, Mitarbeiter
WS 19/20	2573011	Seminar: Human Resource Management (Bachelor)	2 SWS	Seminar (S)	Nieken, Mitarbeiter
WS 19/20	2579919	Seminar Management Accounting - Special Topics	2 SWS	Seminar (S)	Riar
WS 19/20	2581976	Seminar in Production and Operations Management I	2 SWS	Seminar (S)	Glöser-Chahoud, Schultmann
WS 19/20	2581977	Seminar in Production and Operations Management II	2 SWS	Seminar (S)	Volk, Schultmann
WS 19/20	2581978	Seminar in Production and Operations Management III	2 SWS	Seminar (S)	Wiens, Schultmann
WS 19/20	2581980		2 SWS	Seminar (S)	Keles, Fett, Yilmaz
WS 19/20	2581981		2 SWS	Seminar (S)	Ardone, Ruppert, Sandmeier, Slednev
WS 19/20	2581990		2 SWS	Seminar (S)	Schultmann, Schumacher
<b>Exams</b>					
SS 2019	00019	Seminar Digital Service Innovation		Prüfung (PR)	Satzger
SS 2019	7900003	Seminar in Finance (Bachelor, Prof. Ruckes)		Prüfung (PR)	Ruckes
SS 2019	7900013	Bachelor Seminar in CRM		Prüfung (PR)	Geyer-Schulz
SS 2019	7900021	Seminar in Marketing and Sales (Bachelor)		Prüfung (PR)	Klarmann
SS 2019	7900056	Entrepreneurship Basics (Track 1)		Prüfung (PR)	Terzidis
SS 2019	7900057	Entrepreneurship Basics (Track 2)		Prüfung (PR)	Terzidis
SS 2019	7900093	Seminar in Business Administration A		Prüfung (PR)	Weinhardt
SS 2019	7900180	Seminar in Business Administration		Prüfung (PR)	Weinhardt
SS 2019	7900256	Seminar Electronic Markets & User Behavior		Prüfung (PR)	Weinhardt
SS 2019	7900261	Information Systems and Design (ISSD) Seminar		Prüfung (PR)	Mädche
SS 2019	7900262	Practical Seminar: Information Systems and Service Design / Seminarpraktikum: Information Systems und Service Design		Prüfung (PR)	Mädche
SS 2019	7900265	Interactive Analytics Seminar		Prüfung (PR)	Mädche
SS 2019	7900286	Seminar in Business Administration (Bachelor)		Prüfung (PR)	Lützkendorf
SS 2019	7900288	Seminar in Business Administration (Bachelor)		Prüfung (PR)	Lützkendorf
SS 2019	7900294	Seminar in Business Administration (Bachelor)		Prüfung (PR)	Lützkendorf
SS 2019	79-2579904-01	Seminar Management Accounting (Bachelor)		Prüfung (PR)	Wouters
SS 2019	79-2579905-01	Seminar Special Topics in Management Accounting (Bachelor)		Prüfung (PR)	Wouters
SS 2019	7981976	Seminar in Production and Operations Management I		Prüfung (PR)	Schultmann
SS 2019	7981978	Seminar in Production and Operations Management III		Prüfung (PR)	Schultmann
SS 2019	7981979	Seminar Energy Economics I		Prüfung (PR)	Fichtner
SS 2019	7981981	Seminar Energy Economics III		Prüfung (PR)	Fichtner
WS 19/20	7900017	Seminar Smart Grid and Energy Markets		Prüfung (PR)	Weinhardt
WS 19/20	7900085	Entrepreneurship Basics (Track 1)		Prüfung (PR)	Terzidis
WS 19/20	7900087	Entrepreneurship Basics (Track 2)		Prüfung (PR)	Terzidis
WS 19/20	7900157	Seminar Human Resources and Organizations (Bachelor)		Prüfung (PR)	Nieken
WS 19/20	7900161	Seminar Human Resource Management (Bachelor)		Prüfung (PR)	Nieken
WS 19/20	7900165	Seminar Digital Experience and Participation		Prüfung (PR)	Weinhardt

**Competence Certificate**

Alternative exam assessment (§ 4(2), 3 SPO 2015). The following aspects are included:

- Regular participation in the seminar dates
- Preparation of a seminar paper on a partial aspect of the seminar topic according to scientific methods
- Lecture on the topic of the seminar paper.

The point scheme for the assessment is determined by the lecturer of the respective course. It will be announced at the beginning of the course.

**Prerequisites**

None.

**Recommendation**

See seminar description in the course catalogue of the KIT (<https://campus.kit.edu/>)

**Annotation**

The listed seminar titles are placeholders. Currently offered seminars of each semester will be published on the websites of the institutes and in the course catalogue of the KIT. In general, the current seminar topics of each semester are already announced at the end of the previous semester. Furthermore for some seminars there is an application required.

The available places are listed on the internet: <https://portal.wiwi.kit.edu>.

*Below you will find excerpts from events related to this course:*

**Seminar in Finance (Master, Prof. Uhrig-Homburg)**

2530580, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

**Seminar (S)**

**Learning Content**

Within this seminar different topics of current concern are treated. These topics have their foundations in the contents of certain lectures.

The topics of the seminar are published on the website of the involved finance chairs at the end of the foregoing semester.

**Workload**

The total workload for this course is approximately 90 hours. For further information see German version.

**Literature**

Will be announced at the end of the foregoing semester.

**Seminar Human Resources and Organizations (Bachelor)**

2573010, SS 2019, 2 SWS, [Open in study portal](#)

**Seminar (S)**

**Notes**

See Module Handbook

**Seminar Human Resource Management (Bachelor)**

2573011, SS 2019, 2 SWS, [Open in study portal](#)

**Seminar (S)**

**Notes**

See Module Handbook

**Seminar Management Accounting**

2579904, SS 2019, 2 SWS, Language: English, [Open in study portal](#)

**Seminar (S)**

**Notes**

see Module Handbook



**Learning Content**

The course will be a mix of lectures, discussions, and student presentations. Students will write a paper in small groups, and present this in the final week. You are to a large extent free to select your own topic. The seminar course is concentrated in four meetings that are spread throughout the semester.

Meeting 1: Introductory lecture. You need to conduct a first literature search and at the end of the first week you should identify (provisionally) the topic for your paper.

Meeting 2 and 3: The purpose of the second week is to define the topics and research questions in much more detail. Different types of papers may be selected: literature review, research paper, descriptive case study, or teaching case. Students will present their ideas and all participants should ask questions, help each other focus, offer ideas, etc.

Meeting 4: In the third week we are going to present and discuss the final papers.

**Annotation**

Maximum of 24 students.

**Workload**

The total workload for this course is approximately 90 hours. For further information see German version.

**Literature**

Will be announced in the course.

**Special Topics in Management Accounting**

2579905, SS 2019, 2 SWS, Language: English, [Open in study portal](#)

Seminar (S)

**Notes**

see Module Handbook

**Learning Content**

The course will be a mix of lectures, discussions, and student presentations. Students will write a paper in small groups, and present this in the final week. Topics are selectively prediscibed. The seminar course is concentrated in four meetings that are spread throughout the semester.

Meeting 1: Introductory lecture. You need to conduct a first literature search and at the end of the first week you should identify (provisionally) the topic for your paper.

Meeting 2 and 3: The purpose of the second week is to define the topics and research questions in much more detail. Different types of papers may be selected: literature review, research paper, descriptive case study, or teaching case. Students will present their ideas and all participants should ask questions, help each other focus, offer ideas, etc.

Meeting 4: In the third week we are going to present and discuss the final papers.

**Annotation**

Maximum of 24 students.

**Workload**

The total workload for this course is approximately 90 hours. For further information see German version.

**Literature**

Will be announced in the course.

**Seminar in Empirical Finance**

2500028, WS 19/20, 2 SWS, Language: English, [Open in study portal](#)

Seminar (S)

**Description**

The aim of this seminar is to introduce the student to empirical data work in financial economics and investments.

**Data Science in Service Management**

2540473, WS 19/20, 2 SWS, Language: German/English, [Open in study portal](#)

Seminar (S)

**Notes**

wird auf deutsch und englisch gehalten

**Bachelor Seminar aus Data Science**2540524, WS 19/20, 2 SWS, Language: German, [Open in study portal](#)**Seminar (S)****Workload**

The total workload for this course is approximately 90 hours (3 credits):

Time of attendance

- Introductory lessons: 4 x 90min = 6h 00m
- Presentations: 4 x 90min = 6h 00m

Selbststudium

- Preparing the presentation: 8h
- Literature research: 40h
- Writing the seminar paper: 30h

**Summe: 90h 00m****Literature****Elective literature:**

- W. Thomson. A Guide for the Young Economist. The MIT Press, 2001
- D.J. Brauner, H.-U. Vollmer. Erfolgreiches wissenschaftliches Arbeiten. Verlag Wissenschaft & Praxis, 2004
- University of Chicago Press. The Chicago Manual of Style. University of Chicago Press, 13th ed., 1982
- American Psychological Association. Concise of Rules of APA Style. American Psychological Association, 2005
- American Psychological Association. Publication Manual of the American Psychological Association. American Psychological Association, 2001

**Entrepreneurship Basics (Track 2)**2545011, WS 19/20, 2 SWS, Language: German, [Open in study portal](#)**Seminar (S)****Annotation**

Please register on the seminar website.

**Seminar: Human Resources and Organizations (Bachelor)**2573010, WS 19/20, 2 SWS, [Open in study portal](#)**Seminar (S)****Notes**

See Module Handbook

**Seminar: Human Resource Management (Bachelor)**2573011, WS 19/20, 2 SWS, [Open in study portal](#)**Seminar (S)****Notes**

See Module Handbook

**Seminar Management Accounting - Special Topics**2579919, WS 19/20, 2 SWS, Language: English, [Open in study portal](#)**Seminar (S)****Notes**

see Module Handbook

**Learning Content**

The course will be a mix of lectures, discussions, and student presentations. Students will write a paper in small groups, and present this in the final week. Topics are selectively prediscibed. The seminar course is concentrated in four to five meetings that are spread throughout the semester.

**Annotation**

Maximum of 24 students.

**Workload**

The total workload for this course is approximately 90 hours. For further information see German version.

**Literature**

Will be announced in the course.

## T

**6.124 Course: Seminar in Economics (Bachelor) [T-WIWI-103487]****Responsible:** Professorenschaft des Fachbereichs Volkswirtschaftslehre**Organisation:** KIT Department of Economics and Management**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101826 - Seminar Module Economic Sciences](#)

Type	Credits	Recurrence	Version
Examination of another type	3	Each term	1

Events					
SS 2019	2560241	Digital IT Solutions and Services transforming the Field of Public Transportation	2 SWS	Prüfung (PR)	Janoshalmi
SS 2019	2560553	Topics in Political Economics (Bachelor)	2 SWS	Seminar (S)	Szech, Maus
SS 2019	2560555	Morals and Social Behavior (Bachelor)	2 SWS	Seminar (S)	Szech, Huber
WS 19/20	2521310	Topics in Econometrics	2 SWS	Seminar (S)	Schienze, Chen, Görgen
WS 19/20	2560140	Topics on Political Economics (Bachelor)	2 SWS	Seminar (S)	Ehrlich, Huber
WS 19/20	2560141	Morals & Social Behavior (Bachelor & Master)	2 SWS	Seminar (S)	Huber, Ehrlich
WS 19/20	2560142	Topics on Political Economics (Master)	2 SWS	Seminar (S)	Ehrlich, Huber
WS 19/20	2561208	Ausgewählte Aspekte der europäischen Verkehrsplanung und -modellierung	1 SWS	Seminar (S)	Szimba
Exams					
SS 2019	7900130	Seminar in Economics (Bachelor)		Prüfung (PR)	Szech
SS 2019	7900131	Seminar in Economics (Bachelor)		Prüfung (PR)	Szech
SS 2019	7900147	Seminar in Economics (Bachelor)		Prüfung (PR)	Fuchs-Seliger
SS 2019	7900200	Seminar: Behavioral Game Theory		Prüfung (PR)	Puppe
SS 2019	7900222	Seminar in Economics B (Master)		Prüfung (PR)	Melik-Tangian
SS 2019	7900237	Seminar Strategic Decisions		Prüfung (PR)	Ehrhart
SS 2019	7900267	Seminar in Macroeconomics I		Prüfung (PR)	Scheffel
SS 2019	7900271	Seminar in Macroeconomics II		Prüfung (PR)	Scheffel
SS 2019	791192ee	Topics in Experimental Economics		Prüfung (PR)	Reiß
SS 2019	79sefi1	Seminar Infrastructure and Science Networks (Bachelor)		Prüfung (PR)	Wigger
WS 19/20	7900132	Seminar in Economics A (Master)		Prüfung (PR)	Fuchs-Seliger
WS 19/20	79sefi1	Seminar in Economics (Bachelor)		Prüfung (PR)	Wigger

**Competence Certificate**

Alternative exam assessment (§ 4(2), 3 SPO 2015). The following aspects are included:

- Regular participation in the seminar dates
- Preparation of a seminar paper on a partial aspect of the seminar topic according to scientific methods
- Lecture on the topic of the seminar paper.

The point scheme for the assessment is determined by the lecturer of the respective course. It will be announced at the beginning of the course.

**Prerequisites**

None.

**Recommendation**

See seminar description in the course catalogue of the KIT (<https://campus.kit.edu/>)

**Annotation**

The listed seminar titles are placeholders. Currently offered seminars of each semester will be published on the websites of the institutes and in the course catalogue of the KIT. In general, the current seminar topics of each semester are already announced at the end of the previous semester. Furthermore for some seminars there is an application required.

The available places are listed on the internet: <https://portal.wiwi.kit.edu>.

*Below you will find excerpts from events related to this course:*

**Topics in Political Economics (Bachelor)**

2560553, SS 2019, 2 SWS, Language: English, [Open in study portal](#)

**Seminar (S)**

**Description**

In many companies relative reward schemes are used whereby employees earn a bonus if they perform better than their colleagues. Moreover, hierarchical structures mean that in many organizations, employees find themselves in constant competition for promotions. This is meant to provide incentives for higher performance. However, competitive remuneration schemes could also have detrimental effects such that individual workers may view their colleagues as direct competitors generating more selfish and/or less helpful behavior in the workplace. Furthermore, age, gender and culture seem to have impacts on willingness to compete. For example, in western cultures, adult men sometimes enter competition even though their performance level is way too low for success, i.e., they harm themselves by over-competitiveness. In contrast, adult females sometimes compete less than they could do successfully.

Another challenge in contest design, e.g. in sports, is that when competition takes place among workers with mixed abilities it may lead to a discouragement effect, which establishes that lower ability individuals often reduce effort competing against an individual they do not feel up to (e.g. it has been found that average golf players performed significantly worse when competing against a superstar like Tiger Woods). One solution suggested by the economic literature is to level the playing field between advantaged and disadvantaged individuals by favoring weaker individuals through bid-caps, asymmetric tie-breaking rules, or advances. In sports, asymmetric tie-breaking is already common, for instance, in the

Champions League soccer playoffs "away goals" become the decisive factor in determining the winning team in case of a tie.

Contests are not only a well-established mechanism for incentivizing workers but also for encouraging innovation and advancing R&D. Elements of research and innovation contests can be found in the procurement of various goods and services. For instance, the construction of new buildings, proposals in a venture capital firm or TV shows for entertainment companies all flow through a similar innovation process that involves the solicitation of bids from multiple potential suppliers and the preparation of a pilot or a proposal. In other cases, e.g., in lobbying contests, it is often discussed whether investments are beneficial or not. Some authors have argued that investments into lobbying should be capped in order to soften competition among asymmetrically strong interest groups (e.g. the lobbying industry versus consumers' interest groups). Of course, then the question arises whether such caps achieve the respective design goal or not.

In this seminar, we discuss questions like: How can we design workplaces and labor contracts to increase motivation and productivity? How can contests be used to foster innovation? Which role should social preferences play and how could they inspire specific contest designs? How should sport contests be engineered depending on the respective goals? How should we design lobbying contests?

Also related topics are very welcome!

**Notes**

Participation will be limited to 12 students.

**Annotation**

For further questions, please contact Patrick Maus ([Patrick.Maus@kit.edu](mailto:Patrick.Maus@kit.edu)).

**Workload**

About 90 hours

**Literature**

Charness, G., Kuhn, P. (2011) Lab labor: What can labor economists learn from the lab? Handbook of labor economics, 4, 229-330.

Cassar, A., Friedman, D. (2004) Economics lab: an intensive course in experimental economics. Routledge.

Croson, R., Gneezy, U. (2009). Gender differences in preferences. Journal of Economic literature, 47(2), 448-474.

Dechenaux, Emmanuel, Dan Kovenock, and Roman M. Sheremeta. "A survey of experimental research on contests, all-pay auctions and tournaments." Experimental Economics 18.4 (2015): 609-669.

**Morals and Social Behavior (Bachelor)**2560555, SS 2019, 2 SWS, Language: English, [Open in study portal](#)**Seminar (S)****Description**

For a long time, economists studied given markets and mechanisms to predict outcomes, future developments or generally the participants' behavior. In contrast, Market Design uses theory, empirical and experimental work to design markets which incentivize their participants in a way that leads to a "desirable" outcome. In this, the designer can have different objectives, for example: Maximizing efficiency, welfare or minimizing negative externalities.

Prominent applications of Market Design include, quite topical, Germany's auction of 5G mobile licenses and matching markets, where there are two large populations that need to be matched to one another (think of hospitals and interns, students and dorm rooms or kidney donors and receivers). In this seminar, we think about ways to either design new markets or how we could alter existing ones in a socially beneficial way. Alternatively, research ideas could focus on finding failures or shortcomings of ineffectively designed markets.

**Notes**

Participation will be limited to 12 students.

**Annotation**

For further questions, please contact David Huber ([david.huber@kit.edu](mailto:david.huber@kit.edu)).

**Workload**

About 90 hours.

**Topics in Econometrics**2521310, WS 19/20, 2 SWS, Language: German, [Open in study portal](#)**Seminar (S)****Annotation**

In the winter semester 2018/19 the course will be held in English.

**Topics on Political Economics (Bachelor)**2560140, WS 19/20, 2 SWS, Language: English, [Open in study portal](#)**Seminar (S)****Workload**

About 90 hours.

**Topics on Political Economics (Master)**2560142, WS 19/20, 2 SWS, Language: English, [Open in study portal](#)**Seminar (S)****Workload**

About 90 hours.

## T

## 6.125 Course: Seminar in Informatics (Bachelor) [T-WIWI-103485]

**Responsible:** Professorenschaft des Fachbereichs Informatik

**Organisation:** KIT Department of Economics and Management

**Part of:** M-INFO-102058 - Seminar Module Informatics  
M-INFO-102060 - Further Examinations

Type	Credits	Recurrence	Version
Examination of another type	3	Each term	1

Events					
SS 2019	2512300	Knowledge Discovery and Data Mining	3 SWS		Sure-Vetter, Färber, Nguyen, Weller
SS 2019	2513200	Seminar Betriebliche Informationssysteme: Datenschutz und IT-Sicherheit (Bachelor)	2 SWS	Seminar (S)	Oberweis, Raabe, Volkamer, Aldag, Alpers, Fritsch, Mucha, Wagner, Schiefer, Landesberger von Antburg
SS 2019	2513306	Data Science & Real-time Big Data Analytics	2 SWS		Sure-Vetter, Riemer, Zehnder
SS 2019	2513400	Emerging Trends in Critical Information Infrastructures	2 SWS	Seminar (S)	Lins, Sunyaev, Thiebes
SS 2019	2595470	Seminar Service Science, Management & Engineering	2 SWS	Seminar (S)	Weinhardt, Nickel, Fichtner, Satzger, Sure-Vetter, Fromm
WS 19/20	2512301	Linked Data and the Semantic Web	3 SWS		Sure-Vetter, Acosta Deibe, Käfer, Heling
WS 19/20	2512311	Real-World Challenges in Data Science and Analytics	3 SWS		Sure-Vetter, Nickel, Weinhardt, Zehnder, Brandt
WS 19/20	2513200	Seminar Business Information Systems: Programming 3 (Bachelor)	2 SWS	Seminar (S)	Oberweis, Zöllner, Fritsch, Hartmann, Struppek
WS 19/20	2513500	Cognitive Automobiles and Robots	2 SWS	Seminar (S)	Zöllner
WS 19/20	2595470	Seminar Service Science, Management & Engineering	3 SWS	Seminar (S)	Weinhardt, Satzger, Nickel, Fromm, Fichtner, Sure-Vetter
Exams					
SS 2019	7900087	Seminar Business Information Systems: Privacy and IT Security (Bachelor)		Prüfung (PR)	Oberweis
SS 2019	7900090	Data Science & Real-time Big Data Analytics		Prüfung (PR)	Sure-Vetter
SS 2019	7900092	Seminar Service Science, Management & Engineering		Prüfung (PR)	Sure-Vetter
SS 2019	7900094	Knowledge Discovery and Data Mining		Prüfung (PR)	Sure-Vetter
SS 2019	7900187	Emerging Trends in Critical Information Infrastructures		Prüfung (PR)	Sunyaev
WS 19/20	7900038	Linked Data and the Semantic Web		Prüfung (PR)	Sure-Vetter
WS 19/20	7900042	Seminar Betriebliche Informationssysteme: Programmieren 3		Prüfung (PR)	Oberweis
WS 19/20	7900044	Seminar Service Science, Management & Engineering		Prüfung (PR)	Sure-Vetter
WS 19/20	7900129	Security and Privacy Awareness		Prüfung (PR)	Volkamer
WS 19/20	7900187	Real-World Challenges in Data Science und Analytics		Prüfung (PR)	Sure-Vetter

**Competence Certificate**

Alternative exam assessment (§ 4(2), 3 SPO 2015). The following aspects are included:

- Regular participation in the seminar dates
- Preparation of a seminar paper on a partial aspect of the seminar topic according to scientific methods
- Lecture on the topic of the seminar paper.

The point scheme for the assessment is determined by the lecturer of the respective course. It will be announced at the beginning of the course.

**Prerequisites**

None.

**Recommendation**

See seminar description in the course catalogue of the KIT (<https://campus.kit.edu/>)

**Annotation**

Placeholder for seminars offered by the Institute AIFB. Currently offered seminars of each semester will be published on the websites of the institutes and in the course catalogue of the KIT. In general, the current seminar topics of each semester are already announced at the end of the previous semester. Furthermore for some seminars there is an application required.

The available places are listed on the internet: <https://portal.wiwi.kit.edu>.

*Below you will find excerpts from events related to this course:*

**Knowledge Discovery and Data Mining**

2512300, SS 2019, 3 SWS, Language: English, [Open in study portal](#)

**Description**

The seminar includes different methods of machine learning and data mining. Participants of the seminar should have basic knowledge of machine learning and programming skills.

**Notes**

The exact dates and information for registration will be announced at the event page.

**Learning Content**

Domains of interest include, but are not limited to:

- Medicine
- Social Media
- Finance Market

**Literature**

Detailed references are indicated together with the respective subjects. For general background information look up the following textbooks:

- Mitchell, T.; Machine Learning
- McGraw Hill, Cook, D.J. and Holder, L.B. (Editors) Mining Graph Data, ISBN:0-471-73190-0
- Wiley, Manning, C. and Schütze, H.; Foundations of Statistical NLP, MIT Press, 1999.

**Data Science & Real-time Big Data Analytics**

2513306, SS 2019, 2 SWS, Language: German/English, [Open in study portal](#)

**Description**

Event processing and real-time data are everywhere: financial market data, sensors, business intelligence, social media analytics, logistics. Many applications collect large volumes of data in real time and are increasingly faced with the challenge of being able to process them quickly and react promptly. The challenges of this real-time processing are currently also receiving a great deal of attention under the term "Big Data". The complex processing of real-time data requires both knowledge of methods for data analysis (data science) and their processing (real-time analytics). Seminar papers are offered on both of these areas as well as on interface topics, the input of own ideas is explicitly desired.



**Seminar Service Science, Management & Engineering**2595470, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

Seminar (S)

**Learning Content**

Each Semester, the seminar will cover topics from a different selected subfield of Service Science, Management & Engineering. Topics include service innovation, service economics, service computing, transformation and coordination of service value networks as well as collaboration for knowledge intensive services.

See the KSRI website for more information about this seminar: [www.ksri.kit.edu](http://www.ksri.kit.edu)

**Workload**

The total workload for this course is approximately 90 hours. For further information see German version.

**Literature**

The student will receive the necessary literature for his research topic.

**Linked Data and the Semantic Web**2512301, WS 19/20, 3 SWS, Language: German/English, [Open in study portal](#)**Notes**

Linked Data is a way of publishing data on the web in a machine-understandable fashion. The aim of this practical seminar is to build applications and devise algorithms that consume, provide, or analyse Linked Data.

The Linked Data principles are a set of practices for data publishing on the web. Linked Data builds on the web architecture and uses HTTP for data access, and RDF for describing data, thus aiming towards web-scale data integration. There is a vast amount of data available published according to those principles: recently, 4.5 billion facts have been counted with information about various domains, including music, movies, geography, natural sciences. Linked Data is also used to make web-pages machine-understandable, corresponding annotations are considered by the big search engine providers. On a smaller scale, devices on the Internet of Things can also be accessed using Linked Data which makes the unified processing of device data and data from the web easy.

In this practical seminar, students will build prototypical applications and devise algorithms that consume, provide, or analyse Linked Data. Those applications and algorithms can also extend existing applications ranging from databases to mobile apps.

For the seminar, programming skills or knowledge about web development tools/technologies are highly recommended. Basic knowledge of RDF and SPARQL are also recommended, but may be acquired during the seminar. Students will work in groups. Seminar meetings will take place as 'Block-Seminar'.

Topics of interest include, but are not limited to:

- Travel Security
- Geo data
- Linked News
- Social Media

The exact dates and information for registration will be announced at the event page.

**Real-World Challenges in Data Science and Analytics**2512311, WS 19/20, 3 SWS, Language: German/English, [Open in study portal](#)**Notes**

In the seminar, various Real-World Challenges in Data Science and Analytics will be worked on.

During this seminar, groups of students work on a case challenge with data provided. Here, the typical process of a data science project is depicted: integration of data, analysis of these, modeling of the decisions and visualization of the results.

During the seminar, solution concepts are worked out, implemented as a software solution and presented in an intermediate and final presentation. The seminar "Real-World Challenges in Data Science and Analytics" is aimed at students in master's programs.

The exact dates and information for registration will be announced at the course page.

**Seminar Business Information Systems: Programming 3 (Bachelor)**2513200, WS 19/20, 2 SWS, [Open in study portal](#)

Seminar (S)

**Notes**

Registration information and the content of the seminar will be announced on the course page. Only bachelor students are allowed to attend this seminar.

**Seminar Service Science, Management & Engineering**

2595470, WS 19/20, 3 SWS, Language: German, [Open in study portal](#)

**Seminar (S)****Notes**

Each Semester, the seminar will cover topics from a different selected subfield of Service Science, Management & Engineering. Topics include service innovation, service economics, service computing, transformation and coordination of service value networks as well as collaboration for knowledge intensive services.

See the KSRI website for more information about this seminar: [www.ksri.kit.edu](http://www.ksri.kit.edu)

The assessment of this course is according to §4(2), 3 SPO in form of an examination of the written seminar thesis (15-20 pages), a presentation and active participation in class.

The final mark is based on the examination of the written seminar thesis but can be upgraded or downgraded according to the quality of the presentation.

**Learning objectives:**

The student

- illustrates and evaluates classic and current research questions in service science, management and engineering,
- applies models and techniques in service science, also with regard to their applicability in practical cases,
- successfully gets in touch with scientific working by an in-depth working on a special scientific topic which makes the student familiar with scientific literature research and argumentation methods,
- acquires good rhetorical and presentation skills.

As a further aspect of scientific work, especially for Master students the emphasis is put on a critical discussion of the seminar topic.

**Recommendations:**

Lecture *eServices* [2595466] is recommended.

**Workload:**

The total workload for this course is approximately 90 hours. For further information see German version.

## T

**6.126 Course: Seminar in Operations Research (Bachelor) [T-WIWI-103488]**

**Responsible:** Prof. Dr. Stefan Nickel  
 Prof. Dr. Steffen Rebennack  
 Prof. Dr. Oliver Stein

**Organisation:** KIT Department of Economics and Management

**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101826 - Seminar Module Economic Sciences](#)

Type	Credits	Recurrence	Version
Examination of another type	3	Each term	1

Events					
SS 2019	2550132	<a href="#">Seminar zur Mathematischen Optimierung (MA)</a>	2 SWS	Seminar (S)	Stein, Mohr, Neumann
SS 2019	2550472	<a href="#">Seminar on Power Systems Optimization (Bachelor)</a>	2 SWS	Seminar (S)	Rebennack, Assistenten
SS 2019	2550491	<a href="#">Seminar zur diskreten Optimierung</a>	SWS	Block (B)	Nickel, Mitarbeiter
WS 19/20	2550131	<a href="#">Seminar zu Methodischen Grundlagen des Operations Research</a>	SWS	Seminar (S)	Stein
WS 19/20	2550472	<a href="#">Seminar on Power Systems Optimization (Bachelor)</a>	2 SWS	Seminar (S)	Rebennack, Sinske
WS 19/20	2550491	<a href="#">Seminar: Modern OR and Innovative Logistics</a>	2 SWS	Seminar (S)	Nickel, Mitarbeiter
Exams					
SS 2019	00024	<a href="#">Seminar in Operations Research (Bachelor)</a>	Prüfung (PR)		Nickel
SS 2019	7900017_SS2019	<a href="#">Seminar in Operations Research (Bachelor)</a>	Prüfung (PR)		Stein
SS 2019	7900249	<a href="#">Seminar in Operations Research (Bachelor)</a>	Prüfung (PR)		Nickel

**Competence Certificate**

Alternative exam assessment (§ 4(2), 3 SPO 2015). The following aspects are included:

- Regular participation in the seminar dates
- Preparation of a seminar paper on a partial aspect of the seminar topic according to scientific methods
- Lecture on the topic of the seminar paper.

The point scheme for the assessment is determined by the lecturer of the respective course. It will be announced at the beginning of the course.

**Prerequisites**

None.

**Recommendation**

See seminar description in the course catalogue of the KIT (<https://campus.kit.edu/>)

**Annotation**

The listed seminar titles are placeholders. Currently offered seminars of each semester will be published on the websites of the institutes and in the course catalogue of the KIT. In general, the current seminar topics of each semester are already announced at the end of the previous semester. Furthermore for some seminars there is an application required.

The available places are listed on the internet: <https://portal.wiwi.kit.edu>.

*Below you will find excerpts from events related to this course:*

**Seminar zur diskreten Optimierung**2550491, SS 2019, SWS, Language: German, [Open in study portal](#)**Block (B)****Learning Content**

The topics of the seminar will be announced at the beginning of the term in a preliminary meeting. Dates will be announced on the internet.

**Annotation**

The seminar is offered in each term.

**Workload**

The total workload for this course is approximately 90 hours. For further information see German version.

**Literature**

Literature and relevant sources will be announced at the beginning of the seminar.

**Seminar zu Methodischen Grundlagen des Operations Research**2550131, WS 19/20, SWS, Language: German, [Open in study portal](#)**Seminar (S)****Learning Content**

The current seminar topics are announced under <http://kop.ior.kit.edu> at the end of the preceding semester.

**Workload**

The total workload for this course is approximately 90 hours. For further information see German version.

**Literature**

References and relevant sources are announced at the beginning of the seminar.

**Seminar: Modern OR and Innovative Logistics**2550491, WS 19/20, 2 SWS, Language: German, [Open in study portal](#)**Seminar (S)****Learning Content**

The topics of the seminar will be announced at the beginning of the term in a preliminary meeting. Dates will be announced on the internet.

**Annotation**

The seminar is offered in each term.

**Workload**

The total workload for this course is approximately 90 hours. For further information see German version.

**Literature**

Literature and relevant sources will be announced at the beginning of the seminar.

## T

**6.127 Course: Seminar in Statistics (Bachelor) [T-WIWI-103489]**

**Responsible:** Prof. Dr. Oliver Grothe  
Prof. Dr. Melanie Schienle

**Organisation:** KIT Department of Economics and Management

**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101826 - Seminar Module Economic Sciences](#)

**Type**  
Examination of another type

**Credits**  
3

**Recurrence**  
Each term

**Version**  
1

Events					
WS 19/20	2521310	<a href="#">Topics in Econometrics</a>	2 SWS	Seminar (S)	Schienle, Chen, Görden
Exams					
SS 2019	7900250	<a href="#">Data Mining and Applications (Projectseminar)</a>	Prüfung (PR)		Nakhaeizadeh

**Competence Certificate**

Alternative exam assessment (§ 4(2), 3 SPO 2015). The following aspects are included:

- Regular participation in the seminar dates
- Preparation of a seminar paper on a partial aspect of the seminar topic according to scientific methods
- Lecture on the topic of the seminar paper.

The point scheme for the assessment is determined by the lecturer of the respective course. It will be announced at the beginning of the course.

**Prerequisites**

None.

**Recommendation**

See seminar description in the course catalogue of the KIT (<https://campus.kit.edu/>)

**Annotation**

The listed seminar titles are placeholders. Currently offered seminars of each semester will be published on the websites of the institutes and in the course catalogue of the KIT. In general, the current seminar topics of each semester are already announced at the end of the previous semester. Furthermore for some seminars there is an application required.

The available places are listed on the internet: <https://portal.wiwi.kit.edu>.

*Below you will find excerpts from events related to this course:*

## V

**Topics in Econometrics**

2521310, WS 19/20, 2 SWS, Language: German, [Open in study portal](#)

**Seminar (S)**

**Annotation**

In the winter semester 2018/19 the course will be held in English.

## T

## 6.128 Course: Seminar Informatics A [T-INFO-104336]

**Responsible:** Prof. Dr. Sebastian Abeck  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-102058 - Seminar Module Informatics](#)  
[M-INFO-102060 - Further Examinations](#)

**Type**  
Examination of another type

**Credits**  
3

**Version**  
1

Events					
SS 2019	2400011	<a href="#">Hot Topics in Bioinformatics</a>	2 SWS	Seminar (S)	Stamatakis
SS 2019	24344	<a href="#">Advanced Methods of Information Fusion</a>	2 SWS	Seminar (S)	Hanebeck, Radtke
WS 19/20	24844	<a href="#">Seminar: Ubiquitous Systems</a>	2 SWS	Seminar (S)	Beigl, Pescara
Exams					
SS 2019	7500013	<a href="#">Advanced Methods of Information Fusion</a>	Prüfung (PR)		Hanebeck, Noack
SS 2019	7500014	<a href="#">Seminar: Hot Topics in Bioinformatics</a>	Prüfung (PR)		Stamatakis
SS 2019	7500040	<a href="#">Seminar Information Systems</a>	Prüfung (PR)		Böhm
SS 2019	7500106	<a href="#">Title not available</a>	Prüfung (PR)		Bless, Hartenstein, Mädche, Zitterbart, Boehm, Sunyaev
SS 2019	7500148	<a href="#">Proseminar: Practical Seminar: Interactive Analytics</a>	Prüfung (PR)		Beigl, Mädche
SS 2019	7500149	<a href="#">Seminar: Designing and Conducting Experimental Studies</a>	Prüfung (PR)		Beigl
SS 2019	7500162	<a href="#">Seminar: Ubiquitous Systems</a>	Prüfung (PR)		Beigl, Riedel
SS 2019	7500198	<a href="#">Seminar in Security</a>	Prüfung (PR)		Geiselmann, Müller-Quade, Hofheinz
SS 2019	7500199	<a href="#">Seminar in Cryptography</a>	Prüfung (PR)		Geiselmann, Müller-Quade, Hofheinz
WS 19/20	7500021	<a href="#">Advanced Methods of Information Fusion</a>	Prüfung (PR)		Hanebeck
WS 19/20	7500220	<a href="#">Seminar Ubiquitous Computing</a>	Prüfung (PR)		Beigl

Below you will find excerpts from events related to this course:

## V

## Advanced Methods of Information Fusion

24344, SS 2019, 2 SWS, Language: German/English, [Open in study portal](#)

Seminar (S)

## Learning Content

- The students will research selected theoretical works of the field of information fusion and data analysis, and present the results to their colleagues.
- The Seminar will prepare the students to write their Master thesis.
- Moreover, the students will learn to work with LaTeX and Powerpoint.

## T

## 6.129 Course: Seminar: Legal Studies I [T-INFO-101997]

**Responsible:** Prof. Dr. Thomas Dreier  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-101218 - Seminar Module Law](#)  
[M-INFO-102060 - Further Examinations](#)

Type	Credits	Recurrence	Version
Examination of another type	3	Each term	1

Events					
SS 2019	2400041	<a href="#">Governance, Risk &amp; Compliance</a>	2 SWS	Seminar (S)	Herzig
SS 2019	2400061	<a href="#">Internet und Gesellschaft - gesellschaftliche Werte und technische Umsetzung</a>	2 SWS	Seminar (S)	Bless, Boehm, Hartenstein, Mädche, Sunyaev, Zitterbart
SS 2019	24820	<a href="#">Current Issues in Patent Law</a>	2 SWS	Seminar (S)	Melullis
WS 19/20	24389	<a href="#">IT-Sicherheit und Recht</a>	2 SWS	Seminar (S)	Schallbruch
Exams					
SS 2019	7500106	<a href="#">Title not available</a>		Prüfung (PR)	Bless, Hartenstein, Mädche, Zitterbart, Boehm, Sunyaev
SS 2019	7500140	<a href="#">Seminar: Legal Studies I</a>		Prüfung (PR)	Dreier, Matz, Boehm
SS 2019	7500159	<a href="#">Seminar: Legal Studies I</a>		Prüfung (PR)	Marsch

Below you will find excerpts from events related to this course:

## V

## Internet und Gesellschaft - gesellschaftliche Werte und technische Umsetzung

Seminar (S)

2400061, SS 2019, 2 SWS, [Open in study portal](#)

## Notes

Registration via <https://portal.wiwi.kit.edu/ys/2708>

## T

**6.130 Course: Services Marketing and B2B Marketing [T-WIWI-102806]**

**Responsible:** Prof. Dr. Martin Klarmann  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101424 - Foundations of Marketing](#)

Type	Credits	Recurrence	Version
Written examination	3	Each winter term	1

Events					
WS 19/20	2572158	<a href="#">Services Marketing and B2B Marketing</a>	2 SWS	Lecture (V)	Klarmann
Exams					
WS 19/20	7900081	<a href="#">Services Marketing and B2B Marketing</a>		Prüfung (PR)	Klarmann

**Competence Certificate**

The assessment consists of a written exam (60 minutes) (following §4(2), 1 of the examination regulation).

**Prerequisites**

None

**Annotation**

For further information please contact Marketing & Sales Research Group ([marketing.iism.kit.edu](mailto:marketing.iism.kit.edu)).

*Below you will find excerpts from events related to this course:*

## V

**Services Marketing and B2B Marketing**

2572158, WS 19/20, 2 SWS, Language: German, [Open in study portal](#)

Lecture (V)

**Learning Content**

The aim of this course is to prepare students for two certain marketing perspectives. The service marketing is concentrated on the particularities coming up when a company sells services instead of products. Subjects in this section are for example:

- Measuring service quality
- Pricing services
- Management of service staff

The second part of the course contains a business-to-business marketing perspective. Topics are below others:

- Management of buying centers
- Competitive Bidding
- B2B-Branding

**Annotation**

For further information please contact Marketing & Sales Research Group ([marketing.iism.kit.edu](mailto:marketing.iism.kit.edu)).

**Workload**

The total workload for this course is approximately 90 hours.

**Literature**

Homburg, Christian (2016), Marketingmanagement, 6. ed., Wiesbaden.





## 6.131 Course: Software Engineering I [T-INFO-101968]

**Responsible:** Prof. Dr.-Ing. Anne Koziolk  
 Prof. Dr. Ralf Reussner  
 Prof. Dr. Walter Tichy

**Organisation:** KIT Department of Informatics

**Part of:** [M-INFO-101175 - Software Engineering I](#)

Type	Credits	Recurrence	Version
Written examination	6	Each summer term	1

Events					
SS 2019	24518	<a href="#">Softwaretechnik I</a>	4 SWS	Lecture / Practice (VÜ)	Tichy, Weigelt, Hey
Exams					
SS 2019	7500152	<a href="#">Software Engineering I</a>		Prüfung (PR)	Tichy
SS 2019	7500153	<a href="#">Software Engineering I</a>		Prüfung (PR)	Tichy

**T****6.132 Course: Software Engineering I Pass [T-INFO-101995]**

**Responsible:** Prof. Dr. Walter Tichy  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-101175 - Software Engineering I](#)

Type	Credits	Recurrence	Version
Completed coursework	0	Each summer term	1

Events					
SS 2019	24518	<a href="#">Softwaretechnik I</a>	4 SWS	Lecture / Practice (VÜ)	Tichy, Weigelt, Hey
Exams					
SS 2019	7500250	<a href="#">Software Engineering I Pass</a>		Prüfung (PR)	Tichy

## T

**6.133 Course: Software Engineering II [T-INFO-101370]**

**Responsible:** Prof. Dr.-Ing. Anne Kozirolek  
 Prof. Dr. Ralf Reussner  
 Prof. Dr. Walter Tichy

**Organisation:** KIT Department of Informatics

**Part of:** [M-INFO-100833 - Software Engineering II](#)  
[M-INFO-102060 - Further Examinations](#)

Type	Credits	Recurrence	Version
Written examination	6	Each winter term	1

Events					
WS 19/20	24076	<a href="#">Software Engineering II</a>	4 SWS	Lecture (V)	Reussner

*Below you will find excerpts from events related to this course:*

## V

**Software Engineering II**

24076, WS 19/20, 4 SWS, Language: German, [Open in study portal](#)

**Lecture (V)**

**Description**

Students learn methods and techniques for systematic software development. Advanced topics of software engineering are covered.

**Literature**

Craig Larman, Applying UML and Patterns, 3rd edition, Prentice Hall, 2004. More references will be provided in the lectures.

## T

**6.134 Course: Special Topics in Information Systems [T-WIWI-109940]**

**Responsible:** Prof. Dr. Christof Weinhardt  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-WIWI-101434 - eBusiness and Service Management](#)

Type	Credits	Recurrence	Version
Examination of another type	4,5	Each term	2

Exams				
SS 2019	7900224	<a href="#">Special Topics in Information Systems</a>	Prüfung (PR)	Weinhardt

**Competence Certificate**

The assessment of this course is according to §4(2), 3 SPO in form of a written documentation, a presentation of the outcome of the conducted practical components and an active participation in class.

Please take into account that, beside the written documentation, also a practical component (such as a survey or an implementation of an application) is part of the course. Please examine the course description for the particular tasks.

The final mark is based on the graded and weighted attainments (such as the written documentation, presentation, practical work and an active participation in class).

**Prerequisites**

see below

**Recommendation**

None

**Annotation**

All the practical seminars offered at the chair of Prof. Dr. Weinhardt can be chosen in the Special Topics in Information Systems course. The current topics of the practical seminars are available at the following homepage: [www.iism.kit.edu/im/lehre](http://www.iism.kit.edu/im/lehre)

The Special Topics Information Systems is equivalent to the practical seminar, as it was only offered for the major in "Information Management and Engineering" so far. With this course students majoring in "Industrial Engineering and Management" and "Economics Engineering" also have the chance of getting practical experience and enhance their scientific capabilities.

The Special Topics Information Systems can be chosen instead of a regular lecture (see module description). Please take into account, that this course can only be accounted once per module.

## T

**6.135 Course: Special Topics of Applied Informatics [T-WIWI-102910]**

**Responsible:** Prof. Dr. Andreas Oberweis  
 Prof. Dr. Harald Sack  
 Prof. Dr. Ali Sunyaev  
 Prof. Dr. York Sure-Vetter  
 Prof. Dr. Melanie Volkamer  
 Prof. Dr.-Ing. Johann Marius Zöllner

**Organisation:** KIT Department of Economics and Management

**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101476 - Business Processes and Information Systems](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each term	6

**Competence Certificate**

The assessment of this course is a written or (if necessary) oral examination according to §4(2) of the examination regulation. Depending on the particular course associated with this placeholder a bonus on the examination grade is possible.

**Prerequisites**

None

**Annotation**

This course can be used in particular for the acceptance of external courses whose content is in the broader area of applied informatics, but is not equivalent to another course of this topic.

**T****6.136 Course: Statistical Modeling of Generalized Regression Models [T-WIWI-103065]**

**Responsible:** apl. Prof. Dr. Wolf-Dieter Heller  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101599 - Statistics and Econometrics](#)

**Type**  
Written examination

**Credits**  
4,5

**Recurrence**  
Each winter term

**Version**  
1

Events					
WS 19/20	2521350	<a href="#">Statistische Modellierung von Allgemeinen Regressionsmodellen</a>	2 SWS	Lecture (V)	Heller

**Competence Certificate**

The assessment of this course is a written examination (60 min) according to §4(2), 1 of the examination regulation.

**Prerequisites**

None

**Recommendation**

Knowledge of the contents covered by the course "Economics III: Introduction in Econometrics" [2520016]

*Below you will find excerpts from events related to this course:*

**V****Statistische Modellierung von Allgemeinen Regressionsmodellen**

2521350, WS 19/20, 2 SWS, [Open in study portal](#)

**Lecture (V)****Annotation**

Knowledge of the contents covered by the course "Economics III: Introduction in Econometrics" [2520016]

**Workload**

The total workload for this course is approximately 135 hours (4.5 credits).

regular attendance: 30 hours

self-study: 65 hours

exam preparation: 40 hours

## T

**6.137 Course: Statistics I [T-WIWI-102737]**

**Responsible:** Prof. Dr. Oliver Grothe  
Prof. Dr. Melanie Schienle

**Organisation:** KIT Department of Economics and Management

**Part of:** [M-WIWI-101432 - Introduction to Statistics](#)

Type	Credits	Recurrence	Version
Written examination	5	Each summer term	1

Events					
SS 2019	2600008	<a href="#">Statistics I</a>	4 SWS	Lecture (V)	Schienle
SS 2019	2600009	<a href="#">Tutorien zu Statistik I</a>	2 SWS	Practice (Ü)	Schienle, Rüter, Bitzer
Exams					
SS 2019	7900230	<a href="#">Statistics I</a>		Prüfung (PR)	Schienle
WS 19/20	7900009	<a href="#">Statistics I</a>		Prüfung (PR)	Schienle

**Competence Certificate**

The assessment consists of a written exam according to Section 4 (2), 1 of the examination regulation.

The exam takes place at the end of the lecture period or at the beginning of the recess period. The re-examination takes place in the following semester.

**Prerequisites**

None

*Below you will find excerpts from events related to this course:*

## V

**Statistics I**

2600008, SS 2019, 4 SWS, Language: German, [Open in study portal](#)

**Lecture (V)**

**Learning Content**

- A. Descriptive Statistics: univariate und bivariate analysis
- B. Probability Theory: probability space, conditional and product probabilities
- C. Random variables: location and shape parameters, dependency measures, concrete distribution models

**Workload**

150 hours (5.0 Credits).

**Literature**

Skriptum: Kurzfassung Statistik I

**Elective literature:**

- Bamberg, G., Baur, F. und Krapp, M.: Statistik, 15. überarb. Auflage. Oldenbourg, München 2009, ISBN 978-3486590883.
- Fahrmeir, L., Heumann, C., Künstler, R., Pigeot, I. und Tutz, G.: Statistik - Der Weg zur Datenanalyse, 8. Auflage. Springer Spektrum. Berlin 2016, ISBN 978-3-662-50371-3.
- Mosler, K. und Schmid, F.: Beschreibende Statistik und Wirtschaftsstatistik, 4. akt. und verb. Auflage, Springer, Berlin 2009, ISBN 978-3642015564.
- Mosler, K. und Schmid, F.: Wahrscheinlichkeitsrechnung und schließende Statistik, 4. verb. Aufl., Springer, Berlin 2011, ISBN 978-3642150098.
- Stock, J.H. und Watson M.W.: Introduction to Econometrics, 3. Auflage, Prentice Hall 2014, ISBN 978-1292071312
- Stocker, T.C. und Steinke I.: Statistik: Grundlagen und Methodik. De Gruyter Oldenbourg, Berlin 2016 ISBN-13: 978-3110353884.

## T

**6.138 Course: Statistics II [T-WIWI-102738]**

**Responsible:** Prof. Dr. Oliver Grothe  
Prof. Dr. Melanie Schienle

**Organisation:** KIT Department of Economics and Management

**Part of:** [M-WIWI-101432 - Introduction to Statistics](#)

Type	Credits	Recurrence	Version
Written examination	5	Each winter term	1

Events					
WS 19/20	2610020	<a href="#">Statistics II</a>	4 SWS	Lecture (V)	Schienle
WS 19/20	2610021		2 SWS	Tutorial (Tu)	Schienle, Rüter, Zerwas
WS 19/20	2610022	<a href="#">PC-Praktikum zu Statistik II</a>	2 SWS		Schienle, Görgen
Exams					
SS 2019	7900029	<a href="#">Statistics II</a>		Prüfung (PR)	Grothe

**Competence Certificate**

The assessment consists of a written exam according to Section 4 (2), 1 of the examination regulation.

The exam takes place at the end of the lecture period or at the beginning of the recess period. The re-examination takes place in the following semester.

**Prerequisites**

None

**Recommendation**

It is recommended to attend the course *Statistics I* [2600008] before the course *Statistics II* [2610020].

Below you will find excerpts from events related to this course:

## V

**Statistics II**

2610020, WS 19/20, 4 SWS, Language: German, [Open in study portal](#)

Lecture (V)

**Learning Content**

D. Sampling and Estimation Theory: Sampling distributions, estimators, point and interval estimation

E. Test Theory: General Principles of Hypothesis Testing, Concrete 1- and 2-Sampling Tests

F. Regression analysis: Simple and multiple linear regression, statistical inference

**Workload**

150 hours (5.0 Credits).

**Literature**

Script: Kurzfassung Statistik II

**Elective literature:**

Bamberg, G., Baur, F. und Krapp, M.: Statistik, 15. überarb. Auflage. Oldenbourg, München 2009, ISBN 978-3486590883.

Fahrmeir, L., Heumann, C., Künstler, R., Pigeot, I. und Tutz, G.: Statistik - Der Weg zur Datenanalyse, 8. Auflage. Springer Spektrum. Berlin 2016, ISBN 978-3-662-50371-3.

Mosler, K. und Schmid, F.: Beschreibende Statistik und Wirtschaftsstatistik, 4. akt. und verb. Auflage, Springer, Berlin 2009, ISBN 978-3642015564.

Mosler, K. und Schmid, F.: Wahrscheinlichkeitsrechnung und schließende Statistik, 4. verb. Aufl., Springer, Berlin 2011, ISBN 978-3642150098.

Stock, J.H. und Watson M.W.: Introduction to Econometrics, 3. Auflage, Prentice Hall 2014, ISBN 978-1292071312

Stocker, T.C. und Steinke I.: Statistik: Grundlagen und Methodik. De Gruyter Oldenbourg, Berlin 2016 ISBN-13: 978-3110353884.



## T

**6.139 Course: Strategic Finance and Technology Change [T-WIWI-110511]**

**Responsible:** Prof. Dr. Martin Ruckes  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-WIWI-101423 - Topics in Finance II](#)  
[M-WIWI-101465 - Topics in Finance I](#)

Type	Credits	Recurrence	Version
Written examination	1,5	Each winter term	1

Events					
WS 19/20	2530214	<a href="#">Strategic Finance and Technology Change</a>	1 SWS	Lecture (V)	N.N.

**Competence Certificate**

The assessment consists of a written exam (60 min.) according to § 4 paragraph 2 Nr. 1 of the examination regulation. The exam is offered each semester. If there are only a small number of participants registered for the exam, we reserve the right to hold an oral examination instead of a written one.

**Prerequisites**

None

**Recommendation**

Attending the lecture "Financial Management" is strongly recommended.

## T

**6.140 Course: Tactical and Operational Supply Chain Management [T-WIWI-102714]**

**Responsible:** Prof. Dr. Stefan Nickel  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101413 - Applications of Operations Research](#)  
[M-WIWI-101421 - Supply Chain Management](#)  
[M-WIWI-103337 - Optimization under Uncertainty](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each summer term	3

Events					
SS 2019	2550486	<a href="#">Taktisches und operatives SCM</a>	2 SWS	Lecture (V)	Nickel
SS 2019	2550487	<a href="#">Übungen zu Taktisches und operatives SCM</a>	1 SWS	Practice (Ü)	Pomes
Exams					
SS 2019	00026	<a href="#">Tactical and Operational Supply Chain Management</a>		Prüfung (PR)	Nickel

**Competence Certificate**

The assessment consists of a written exam (60 minutes) according to Section 4(2), 1 of the examination regulation.

The exam takes place in every the semester.

Prerequisite for admission to examination is the succesful completion of the online assessments.

**Prerequisites**

Prerequisite for admission to examination is the succesful completion of the online assessments.

**Recommendation**

None

**Annotation**

The lecture is held in every summer term. The planned lectures and courses for the next three years are announced online.

*Below you will find excerpts from events related to this course:*

## V

**Taktisches und operatives SCM**

2550486, SS 2019, 2 SWS, Language: German, [Open in study portal](#)

**Lecture (V)**

**Description**

Since the classical work 'Theory of the Location of Industries' of Weber from 1909, the determination of an optimal location of a new facility with respect to existing customers is strongly connected to strategical logistics planning. Strategic decisions concerning the location of facilities as production plants, distribution centers or warehouses are of high importance for the rentability of supply chains. Thoroughly carried out, location planning allows an efficient flow of materials and leads to lower costs and increased customer service.

Subject of the course is an introduction to the most important terms and definitions in location planning as well as the presentation of basic quantitative location planning models. Furthermore, specialized location planning models for Supply Chain Management will be addressed as they are part in many commercial SCM tools for strategic planning tasks.

**Learning Content**

The lecture covers basic quantitative methods in location planning in the context of strategic Supply Chain Planning. Besides the discussion of several criteria for the evaluation of the locations of facilities, the students are acquainted with classical location planning models (planar models, network models and discrete models) and advanced location planning models designed for Supply Chain Management (single-period and multi-period models). The exercises accompanying the lecture offer the possibility to apply the considered models to practical problems.

**Annotation**

The lecture is held in every summer term. The planned lectures and courses for the next three years are announced online.

**Literature****Elective Literature**

- Daskin: Network and Discrete Location: Models, Algorithms, and Applications, Wiley, 1995
- Domschke, Drexl: Logistik: Standorte, 4. Auflage, Oldenbourg, 1996
- Francis, McGinnis, White: Facility Layout and Location: An Analytical Approach, 2nd Edition, Prentice Hall, 1992
- Love, Morris, Wesolowsky: Facilities Location: Models and Methods, North Holland, 1988
- Thonemann: Operations Management - Konzepte, Methoden und Anwendungen, Pearson Studium, 2005

**T****6.141 Course: Technical Conditions Met [T-WIWI-106623]****Organisation:** KIT Department of Economics and Management**Part of:** [M-WIWI-101599 - Statistics and Econometrics](#)

Type	Credits	Recurrence	Version
Completed coursework	0	Each term	1

**Competence Certificate**

This module element is intended to record the Bachelor-examination "Introduction to Game Theory". In the master module M-WIWI-101453 "Applied Strategic Decisions", this means that the obligatory course "Advanced Game Theory" is not required.

**Prerequisites**

None

## T

## 6.142 Course: Telematics [T-INFO-101338]

**Responsible:** Prof. Dr. Martina Zitterbart  
**Organisation:** KIT Department of Informatics  
**Part of:** [M-INFO-101194 - Telematics](#)  
[M-INFO-102060 - Further Examinations](#)

Type	Credits	Recurrence	Version
Written examination	6	Each winter term	1

Events					
WS 19/20	24128	<a href="#">Telematics</a>	3 SWS	Lecture (V)	Bauer, Friebe, Heseding, Hock, Zitterbart
Exams					
SS 2019	7500115	<a href="#">Telematics</a>		Prüfung (PR)	Zitterbart

Below you will find excerpts from events related to this course:

## V

## Telematics

24128, WS 19/20, 3 SWS, Language: German, [Open in study portal](#)

Lecture (V)

**Description**

The lecture covers (i.a.) protocols, architectures, as well as methods and algorithms, for routing and establishing reliable end-to-end connections in the Internet. In addition to various methods for media access control in local area networks, the lecture also covers other communication systems, e.g. circuit-switched systems such as ISDN. Participants should also have understood the possibilities for managing and administering networks

## T

## 6.143 Course: Theoretical Foundations of Computer Science [T-INFO-103235]

**Responsible:** Prof. Dr. Jörn Müller-Quade  
 Prof. Dr. Peter Sanders  
 Prof. Dr. Dorothea Wagner

**Organisation:** KIT Department of Informatics

**Part of:** [M-INFO-101189 - Theoretical Informatics](#)

Type	Credits	Recurrence	Version
Written examination	6	Each winter term	1

Events					
WS 19/20	24005	<a href="#">Theoretical Foundations of Computer Science</a>	3/1 SWS	Lecture (V)	Wagner, Brückner, Sauer
Exams					
SS 2019	7500303	<a href="#">Theoretical Foundations of Computer Science</a>		Prüfung (PR)	Wagner

## T

**6.144 Course: Welfare Economics [T-WIWI-102610]**

**Responsible:** Prof. Dr. Clemens Puppe  
**Organisation:** KIT Department of Economics and Management  
**Part of:** [M-INFO-102060 - Further Examinations](#)  
[M-WIWI-101501 - Economic Theory](#)

Type	Credits	Recurrence	Version
Written examination	4,5	Each summer term	2

Events					
SS 2019	2520517	<a href="#">Welfare Economics</a>	SWS	Lecture (V)	Puppe, Rollmann
SS 2019	2520518	<a href="#">Übung zur Wohlfahrtstheorie</a>	SWS	Practice (Ü)	Puppe, Rollmann
Exams					
SS 2019	7900226	<a href="#">Welfare Economics</a>		Prüfung (PR)	Puppe
SS 2019	7900285	<a href="#">Welfare Economics</a>		Prüfung (PR)	Puppe

**Competence Certificate**

The assessment consists of a written exam at the end of the semester (according to Section 4 (2), 1 or 2 of the examination regulation).

**Prerequisites**

The course *Economics I: Microeconomics* [2610012] has to be completed beforehand.

**Recommendation**

None

Below you will find excerpts from events related to this course:

## V

**Welfare Economics**

2520517, SS 2019, SWS, Language: German, [Open in study portal](#)

**Lecture (V)**

**Learning Content**

The lecture "Welfare economics" deals with the question of efficiency and distributional properties of economic allocations, in particular allocations of market equilibria. The lecture is based on the two welfare theorems: The first welfare theorem (under weak preconditions) says that every competitive equilibrium is efficient.

According to the second welfare theorem (under stronger preconditions), every efficient allocation can be preserved as a competitive equilibrium through adequate choices of initial endowments. Afterwards, the terms and definitions of envy-freeness and the related concept of egalitarian equivalence in the context of the general theory of equilibrium will be discussed.

The second part of the lecture deals with the principle of "social justice" (i.e. distributional justice). The fundamental principles of utilitarianism, Rawls's theory of justice as well as John Roemer's theory of equality of opportunity are explained and critically analyzed.

**Annotation**

The course will be held every two years in the summer.

**Workload**

The total workload for this course is approximately 135 hours. For further information see German version.

**Literature****Elective literature:**

- J. Rawls: *A Theory of Justice*. Harvard University Press (1971)
- J. Roemer: *Theories of Distributive Justice*. Harvard University Press (1996)

**T****6.145 Course: Wildcard eBusiness and Service Management [T-WIWI-109808]****Organisation:** University**Part of:** [M-WIWI-101434 - eBusiness and Service Management](#)

Type	Credits	Version
Examination of another type	4,5	1



**T****6.146 Course: Wildcard Supply Chain Management [T-WIWI-109802]****Organisation:** University**Part of:** [M-WIWI-101421 - Supply Chain Management](#)

Type	Credits	Version
Examination of another type	4,5	1

**T****6.147 Course: Wildcard Supply Chain Management [T-WIWI-109803]****Organisation:** University**Part of:** [M-WIWI-101421 - Supply Chain Management](#)

Type	Credits	Version
Examination of another type	4,5	1