**Inhaltsverzeichnis**

**Table of Contents**

1. Structure of the Bachelor Programme in Business Engineering (B.Sc.)

2. Key Skills

3. Helpful information

4. Actual Changes
   4.1 Changes regarding modules
   4.2 Changes regarding courses

5. Modules (Foundation)
   5.1 All Subjects
   - WI1BWL- Business Administration
   - WI1VWL- Economics
   - WI1INFO- Introduction to Informatics
   - WI1OR- Introduction to Operations Research
   - WI1ING4- Electrical Engineering
   - WI1ING2- Material Science
   - WI1ING3- Engineering Mechanics
   - WI1ING1- Mass and Energy Balances for Reacting Systems
   - WI1MATH- Mathematics
   - WI1STAT- Statistics

6. Modules (Specialization)
   6.1 Business Administration
   - WI3BWLOOW1- Sustainable Construction
   - WI3BWLISM1- eBusiness and Servicemanagement
   - WI3BWLISM2- Supply Chain Management
   - WI3BWLISM3- eFinance
   - WI3BWLISM4- CRM and Service Management
   - WI3BWLISM5- Specialization in Customer Relationship Management
   - WI3BWLFBV1- Essentials of Finance
   - WI3BWLMAR- Foundations of Marketing
   - WI3BWLFBV2- Insurance: Calculation and Control
   - WI3BWLOOW2- Real Estate Management
   - WI3BWLFBV3- Risk and Insurance Management
   - WI3BWLFBV4- Insurance Management
   - WI3BWLUO1- Strategy and Organization
   - WI3BWLFBV5- Topics in Finance I
   - WI3BWLFBV6- Topics in Finance II
   - WI3BWLIIIP- Industrial Production I
   - WI3BWLIIIP2- Energy Economics
   6.2 Economics
   - WI3VWL1- Applied Game Theory
   - WI3VWL4- Strategic Games
   - WI3VWL2- Industrial Organization
   - WI3VWL3- International Economics
   - WI3VWL5- Economic Policy
   - WI3VWL9- Financial Sciences
   - WI3VWL6- Microeconomic Theory
   - WI3VWL8- Macroeconomic Theory

6.3 Informatics

---

For informational use only. For legally binding information please refer to the german version of the handbook.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>W1INFO1</td>
<td>Emphasis Informatics</td>
<td>52</td>
</tr>
<tr>
<td>W1INFO2</td>
<td>Electives in Informatics</td>
<td>53</td>
</tr>
<tr>
<td>W1THESIS</td>
<td>Bachelor Thesis</td>
<td>88</td>
</tr>
<tr>
<td>W1EXPRAK</td>
<td>Internship</td>
<td>87</td>
</tr>
<tr>
<td>W1SEM</td>
<td>Seminar Module</td>
<td>86</td>
</tr>
<tr>
<td>W1SOZ</td>
<td>Sociology/Empirical Social Research</td>
<td>85</td>
</tr>
<tr>
<td>W1INGAPL</td>
<td>Unscheduled Engineering Module</td>
<td>83</td>
</tr>
<tr>
<td>W1INGMB13</td>
<td>Introduction to Technical Logistics</td>
<td>59</td>
</tr>
<tr>
<td>W1INGMB6</td>
<td>Handling Characteristics of Motor Vehicles</td>
<td>60</td>
</tr>
<tr>
<td>W1INGMB14</td>
<td>Automotive Engineering</td>
<td>61</td>
</tr>
<tr>
<td>W1INGMB5</td>
<td>Automotive Engineering</td>
<td>62</td>
</tr>
<tr>
<td>W1INGMB12</td>
<td>Mechanical Modelling for Technical Applications</td>
<td>63</td>
</tr>
<tr>
<td>W1INGMB15</td>
<td>Mobile Machines</td>
<td>64</td>
</tr>
<tr>
<td>W1INGMB17</td>
<td>Engine Development</td>
<td>65</td>
</tr>
<tr>
<td>W1INGMB16</td>
<td>Combustion Engines</td>
<td>66</td>
</tr>
<tr>
<td>W1INGMB10</td>
<td>Production Technology I</td>
<td>67</td>
</tr>
<tr>
<td>W1INGMB4</td>
<td>Production Technology II</td>
<td>68</td>
</tr>
<tr>
<td>W1INGMB7</td>
<td>Production Technology III</td>
<td>69</td>
</tr>
<tr>
<td>W1INGMB8</td>
<td>Specialization in Engineering Science</td>
<td>70</td>
</tr>
<tr>
<td>W1INGMB9</td>
<td>Emphasis Material Science</td>
<td>71</td>
</tr>
<tr>
<td>W1INGMB21</td>
<td>Product Lifecycle Management</td>
<td>72</td>
</tr>
<tr>
<td>W1INGETIT1</td>
<td>Electrical Power Engineering</td>
<td>73</td>
</tr>
<tr>
<td>W1INGETIT2</td>
<td>Control Engineering</td>
<td>74</td>
</tr>
<tr>
<td>W1INGBQG1</td>
<td>Fundamentals of Spatial and Infrastructural Development</td>
<td>75</td>
</tr>
<tr>
<td>W1INGBQG2</td>
<td>Foundations of Guided Systems</td>
<td>76</td>
</tr>
<tr>
<td>W1INGCV1</td>
<td>Principles of Life Science Engineering</td>
<td>77</td>
</tr>
<tr>
<td>W1INGCV2</td>
<td>Reaction Engineering I</td>
<td>78</td>
</tr>
<tr>
<td>W1NINGINTER1</td>
<td>Understanding and Prediction of Disasters I</td>
<td>79</td>
</tr>
<tr>
<td>W1NINGINTER2</td>
<td>Understanding and Prediction of Disasters II</td>
<td>80</td>
</tr>
<tr>
<td>W1NINGINTER3</td>
<td>Safety Science I</td>
<td>81</td>
</tr>
<tr>
<td>W1NINGINTER4</td>
<td>Safety Science II</td>
<td>82</td>
</tr>
<tr>
<td>W1INGAPL2</td>
<td>Unscheduled Engineering Module</td>
<td>83</td>
</tr>
<tr>
<td>W1JURA</td>
<td>Elective Module Law</td>
<td>84</td>
</tr>
<tr>
<td>W1SOZ</td>
<td>Sociology/Empirical Social Research</td>
<td>85</td>
</tr>
<tr>
<td>W1SEM</td>
<td>Seminar Module</td>
<td>86</td>
</tr>
<tr>
<td>W1EXPRAK</td>
<td>Internship</td>
<td>87</td>
</tr>
<tr>
<td>W1THESIS</td>
<td>Bachelor Thesis</td>
<td>88</td>
</tr>
<tr>
<td>25002/25003</td>
<td>Financial Accounting and Cost Accounting</td>
<td>89</td>
</tr>
<tr>
<td>25023</td>
<td>Business Administration and Management Science A</td>
<td>90</td>
</tr>
<tr>
<td>25024/25025</td>
<td>Business Administration and Management Science B</td>
<td>91</td>
</tr>
<tr>
<td>25026/25027</td>
<td>Business Administration and Management Science C</td>
<td>92</td>
</tr>
<tr>
<td>25512</td>
<td>Economics I: Microeconomics</td>
<td>93</td>
</tr>
<tr>
<td>25014</td>
<td>Economics II: Macroeconomics</td>
<td>94</td>
</tr>
<tr>
<td>25030</td>
<td>Introduction to Programming with Java</td>
<td>95</td>
</tr>
<tr>
<td>25074</td>
<td>Foundations of Informatics I</td>
<td>96</td>
</tr>
<tr>
<td>25076</td>
<td>Foundations of Informatics II</td>
<td>97</td>
</tr>
<tr>
<td>25040</td>
<td>Introduction to Operations Research I</td>
<td>98</td>
</tr>
<tr>
<td>25043</td>
<td>Introduction to Operations Research II</td>
<td>99</td>
</tr>
<tr>
<td>01350</td>
<td>Mathematics I</td>
<td>100</td>
</tr>
<tr>
<td>Code</td>
<td>Course</td>
<td>Page</td>
</tr>
<tr>
<td>--------</td>
<td>--------------------------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>01830</td>
<td>Mathematics II</td>
<td>101</td>
</tr>
<tr>
<td>01352</td>
<td>Mathematics III</td>
<td>102</td>
</tr>
<tr>
<td>25008</td>
<td>Statistics I</td>
<td>103</td>
</tr>
<tr>
<td>25020</td>
<td>Statistics II</td>
<td>104</td>
</tr>
<tr>
<td>21755</td>
<td>Introduction in Ceramics</td>
<td>105</td>
</tr>
<tr>
<td>21760</td>
<td>Material Science I</td>
<td>106</td>
</tr>
<tr>
<td>21208</td>
<td>Engineering Mechanics I</td>
<td>107</td>
</tr>
<tr>
<td>23223</td>
<td>Electrical Engineering I</td>
<td>108</td>
</tr>
<tr>
<td>7.2</td>
<td>Specialization</td>
<td>109</td>
</tr>
<tr>
<td>03013</td>
<td>Meteorological Natural Hazards</td>
<td>109</td>
</tr>
<tr>
<td>03071</td>
<td>Climatology for Students of other Faculties</td>
<td>110</td>
</tr>
<tr>
<td>04006</td>
<td>Introduction to General Geophysics</td>
<td>111</td>
</tr>
<tr>
<td>04014</td>
<td>Tectonic Stress in Petroleum Rock Mechanics</td>
<td>112</td>
</tr>
<tr>
<td>11005</td>
<td>Social structures of modern societies</td>
<td>113</td>
</tr>
<tr>
<td>19026</td>
<td>Design Basics in Highway Engineering</td>
<td>114</td>
</tr>
<tr>
<td>19027</td>
<td>Basics in Transport Planning and Traffic Engineering</td>
<td>115</td>
</tr>
<tr>
<td>19028</td>
<td>Spatial Planning and Planning Law</td>
<td>116</td>
</tr>
<tr>
<td>19066</td>
<td>basic of ground born guided systems</td>
<td>117</td>
</tr>
<tr>
<td>19206</td>
<td>Measurement Techniques in Hydrology and Water Resources Management</td>
<td>118</td>
</tr>
<tr>
<td>19216b</td>
<td>Soil Erosion and Soil Conservation</td>
<td>119</td>
</tr>
<tr>
<td>19306</td>
<td>Railway Logistics, Management and Operating Part I</td>
<td>120</td>
</tr>
<tr>
<td>19315</td>
<td>Safety Management in Highway Engineering</td>
<td>121</td>
</tr>
<tr>
<td>20150</td>
<td>GeoInformatics I</td>
<td>122</td>
</tr>
<tr>
<td>20160</td>
<td>GeoInformatics II</td>
<td>123</td>
</tr>
<tr>
<td>20242</td>
<td>Remote Sensing I</td>
<td>124</td>
</tr>
<tr>
<td>20262</td>
<td>Remote Sensing II</td>
<td>125</td>
</tr>
<tr>
<td>21030</td>
<td>Occupational Health and Safety Management and Systems</td>
<td>126</td>
</tr>
<tr>
<td>21037</td>
<td>Industrial Safety and Environmental Management</td>
<td>127</td>
</tr>
<tr>
<td>21051</td>
<td>Materialflow</td>
<td>128</td>
</tr>
<tr>
<td>21056</td>
<td>Airport Logistics</td>
<td>129</td>
</tr>
<tr>
<td>21061</td>
<td>Safety Engineering</td>
<td>130</td>
</tr>
<tr>
<td>21073</td>
<td>Mobile Machines</td>
<td>131</td>
</tr>
<tr>
<td>21078</td>
<td>Logistics</td>
<td>132</td>
</tr>
<tr>
<td>21081</td>
<td>Fundamentals of Technical Logistics</td>
<td>133</td>
</tr>
<tr>
<td>21085</td>
<td>Autotmative Logistics</td>
<td>134</td>
</tr>
<tr>
<td>21086</td>
<td>Warehouse and Distribution Systems</td>
<td>135</td>
</tr>
<tr>
<td>21089</td>
<td>Industrial Application of Material Handling Systems in Sorting and Distribution Systems</td>
<td>136</td>
</tr>
<tr>
<td>21092</td>
<td>CAN-Bus Release Control</td>
<td>137</td>
</tr>
<tr>
<td>21093</td>
<td>Fluid Power Systems</td>
<td>138</td>
</tr>
<tr>
<td>21095</td>
<td>Simulation of coupled systems</td>
<td>139</td>
</tr>
<tr>
<td>21101</td>
<td>Combustion Engines A</td>
<td>140</td>
</tr>
<tr>
<td>21109</td>
<td>Motor Fuels for Combustion Engines and their Verifications</td>
<td>141</td>
</tr>
<tr>
<td>21112</td>
<td>Superchaging of Internal Combustion Engines</td>
<td>142</td>
</tr>
<tr>
<td>21114</td>
<td>Simulation of Spray and Mixture Formation in Internal Combustion Engines</td>
<td>143</td>
</tr>
<tr>
<td>21134</td>
<td>Methods in Analyzing Internal Combustion</td>
<td>144</td>
</tr>
<tr>
<td>21135</td>
<td>Combustion Engines B</td>
<td>145</td>
</tr>
<tr>
<td>21137</td>
<td>Engine Measurement Technologies</td>
<td>146</td>
</tr>
<tr>
<td>21138</td>
<td>Internal Combustion Engines and Exhaust Gas Aftertreatment Technology</td>
<td>147</td>
</tr>
<tr>
<td>21198</td>
<td>Fundamentals in the Development of Commercial Vehicles II</td>
<td>148</td>
</tr>
<tr>
<td>21212</td>
<td>Theory of Mechanical Vibrations</td>
<td>149</td>
</tr>
<tr>
<td>21224</td>
<td>Dynamics of Machines</td>
<td>150</td>
</tr>
<tr>
<td>21226</td>
<td>Engineering Mechanics II</td>
<td>151</td>
</tr>
<tr>
<td>21252</td>
<td>Advanced Course on strength of materials</td>
<td>152</td>
</tr>
<tr>
<td>21252p</td>
<td>Lab Course Experimental Solid Mechanics</td>
<td>153</td>
</tr>
<tr>
<td>21264</td>
<td>Simulation Methods in Product Development Process</td>
<td>154</td>
</tr>
<tr>
<td>21350</td>
<td>Product Lifecycle Management</td>
<td>155</td>
</tr>
<tr>
<td>21366</td>
<td>Product Lifecycle Management in the Manufacturing Industry</td>
<td>156</td>
</tr>
<tr>
<td>21387</td>
<td>Computer Integrated Planning of New Products</td>
<td>157</td>
</tr>
</tbody>
</table>
21553- Material Science III ................................................................. 158
21574- Materials of Lightweight Construction ........................................ 159
21576- Selection and Usage of Material .................................................. 160
21603- Material Science III ................................................................. 161
21626- Material Aspects of Tribology ...................................................... 162
21643- Constitution and Properties of Wear-resistant materials ................. 163
21652- Machine Tools ........................................................................... 164
21657- Manufacturing Technology .......................................................... 165
21660- Integrated Production Planning ..................................................... 166
21692- International Production and Logistics .......................................... 167
21782- Material Science II for Business Engineers ................................... 168
21805- Basics of Automotive Engineering I ............................................. 169
21806- Vehicle Comfort and Acoustics I .................................................... 170
21807- Handling Characteristics of Motor Vehicles I ................................. 171
21810- Fundamentals in the Development of Passenger Vehicles I .............. 172
21812- Fundamentals in the Development of Commercial Vehicles I .......... 173
21814- Fundamentals for Design of Motor-Vehicle Bodies I ....................... 174
21816- Vehicle Mechatronics I ............................................................... 175
21835- Basics of Automotive Engineering II ............................................. 176
21838- Handling Characteristics of Motor Vehicles II ................................ 177
21840- Fundamentals for Design of Motor-Vehicle Bodies II ..................... 178
21842- Fundamentals in the Development of Passenger Vehicles II ............. 179
21843- Basics and Methods for Integration of Tires and Vehicles ............... 180
21845- Project Workshop-Automotive Engineering ................................... 181
21930- Radiation Protection and Nuclear Emergency Protection ................ 182
22114- Reaction Engineering I .............................................................. 183
22220- Life Science Engineering II ........................................................ 184
22319- Cycles and Global Development .................................................. 185
22601- Chemical Technology of Water .................................................... 186
23155- System Dynamics and Control Engineering .................................... 187
23224- Electrical Engineering II ............................................................ 188
23356- Energy Generation ..................................................................... 189
23365- Diagnostics of Electrical Equipment ............................................. 190
23371- Electric Power System Engineering I ............................................. 191
23382- Power Distribution Systems ......................................................... 192
23390- Power Transformations .............................................................. 193
23396- Power Grid Supervisory and Control ............................................. 194
24012- Civil Law for Beginners ............................................................... 195
24016- Public Law I - Basic Principles .................................................... 196
24520- Public Law II - Public Economic Law ........................................... 197
25016- Economics III: Introduction in Econometrics .................................. 198
25033- Applied Informatics II - IT Systems for e-Commerce ....................... 199
25050- Private and Social Insurance ........................................................ 200
25055- Principles of Insurance Management ............................................ 201
25070- Applied Informatics I - Modelling ............................................... 202
25111- Non-linear Optimization ............................................................. 203
25128- Combinatorial Optimization ....................................................... 204
25131- Seminar in Continuous Optimization ............................................ 205
25134- Global Optimization .................................................................. 206
25138- Mixed-integer Optimization ......................................................... 207
25150- Marketing and Consumer Behavior .............................................. 208
25154- Modern Market Research ............................................................ 209
25156- Marketing and Operations Research .............................................. 210
25158- Corporate Planning and Operations Research ............................... 211
25177- Brand Management ................................................................. 212
25191- Bachelor Seminar in Foundations of Marketing ............................... 213
25210- Management Accounting ............................................................ 214
<table>
<thead>
<tr>
<th>Code</th>
<th>Course Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>25216-</td>
<td>Financial Management</td>
<td>216</td>
</tr>
<tr>
<td>25232-</td>
<td>Financial Intermediation</td>
<td>217</td>
</tr>
<tr>
<td>25293-</td>
<td>Seminar in Finance</td>
<td>218</td>
</tr>
<tr>
<td>25296-</td>
<td>Exchanges</td>
<td>219</td>
</tr>
<tr>
<td>25299-</td>
<td>Business Strategies of Banks</td>
<td>220</td>
</tr>
<tr>
<td>25325-</td>
<td>Statistics and Econometrics in Business and Economics</td>
<td>221</td>
</tr>
<tr>
<td>25355-</td>
<td>Bankmanagement und Finanzmärkte, Ökonometrische Anwendungen</td>
<td>222</td>
</tr>
<tr>
<td>25365-</td>
<td>Economics of Uncertainty</td>
<td>223</td>
</tr>
<tr>
<td>25369-</td>
<td>Game Theory II</td>
<td>224</td>
</tr>
<tr>
<td>25371-</td>
<td>Industrial Organization</td>
<td>225</td>
</tr>
<tr>
<td>25373-</td>
<td>Experimental Economics</td>
<td>226</td>
</tr>
<tr>
<td>25375-</td>
<td>Data Mining</td>
<td>227</td>
</tr>
<tr>
<td>25432-</td>
<td>Optimization on Graphs and Networks</td>
<td>228</td>
</tr>
<tr>
<td>25517-</td>
<td>Welfare Economics</td>
<td>229</td>
</tr>
<tr>
<td>25525-</td>
<td>Game Theory I</td>
<td>230</td>
</tr>
<tr>
<td>25527-</td>
<td>Advanced Microeconomic Theory</td>
<td>231</td>
</tr>
<tr>
<td>25543-</td>
<td>Theory of Economic Growth</td>
<td>232</td>
</tr>
<tr>
<td>25549-</td>
<td>Macroeconomic Theory I</td>
<td>233</td>
</tr>
<tr>
<td>25551-</td>
<td>Macroeconomic Theory II</td>
<td>234</td>
</tr>
<tr>
<td>25598-</td>
<td>Operations Management</td>
<td>235</td>
</tr>
<tr>
<td>25662-</td>
<td>Simulation I</td>
<td>236</td>
</tr>
<tr>
<td>25665-</td>
<td>Simulation II</td>
<td>237</td>
</tr>
<tr>
<td>25679-</td>
<td>OR Methods and Models in Information Engineering and Management</td>
<td>238</td>
</tr>
<tr>
<td>25700-</td>
<td>Efficient Algorithms</td>
<td>239</td>
</tr>
<tr>
<td>25702-</td>
<td>Algorithms for Internet Applications</td>
<td>240</td>
</tr>
<tr>
<td>25720-</td>
<td>Datenbanksysteme</td>
<td>241</td>
</tr>
<tr>
<td>25728-</td>
<td>Software Engineering</td>
<td>242</td>
</tr>
<tr>
<td>25740-</td>
<td>Knowledge Management</td>
<td>243</td>
</tr>
<tr>
<td>25748-</td>
<td>Semantic Web Technologies I</td>
<td>244</td>
</tr>
<tr>
<td>25760-</td>
<td>Complexity Management</td>
<td>245</td>
</tr>
<tr>
<td>25762-</td>
<td>Intelligent Systems in Finance</td>
<td>246</td>
</tr>
<tr>
<td>25770-</td>
<td>Service-oriented Computing 1</td>
<td>249</td>
</tr>
<tr>
<td>25772-</td>
<td>Service-oriented Computing 2</td>
<td>250</td>
</tr>
<tr>
<td>25780-</td>
<td>Advanced Programming - Java Network Programming</td>
<td>251</td>
</tr>
<tr>
<td>25886-</td>
<td>Advanced Programming - Application of Business Software</td>
<td>252</td>
</tr>
<tr>
<td>25900-</td>
<td>Management and Strategy</td>
<td>253</td>
</tr>
<tr>
<td>25902-</td>
<td>Managing Organizations</td>
<td>254</td>
</tr>
<tr>
<td>25907-</td>
<td>Special Topics in Management: Management and IT</td>
<td>255</td>
</tr>
<tr>
<td>25915-</td>
<td>Seminar: Management and Organization</td>
<td>256</td>
</tr>
<tr>
<td>25950-</td>
<td>Fundamentals of Production Management</td>
<td>257</td>
</tr>
<tr>
<td>25959-</td>
<td>Energy Policy</td>
<td>258</td>
</tr>
<tr>
<td>25960-</td>
<td>Material and Energy Flows in the Economy</td>
<td>259</td>
</tr>
<tr>
<td>26010-</td>
<td>Introduction to Energy Economics</td>
<td>260</td>
</tr>
<tr>
<td>26012-</td>
<td>Renewable Energy Sources - Technologies and Potentials</td>
<td>261</td>
</tr>
<tr>
<td>26120-</td>
<td>Public Revenues</td>
<td>262</td>
</tr>
<tr>
<td>26121-</td>
<td>Fiscal Policy</td>
<td>263</td>
</tr>
<tr>
<td>26130-</td>
<td>Seminar Financial Sciences</td>
<td>264</td>
</tr>
<tr>
<td>26240-</td>
<td>Competition in Networks</td>
<td>265</td>
</tr>
<tr>
<td>26252-</td>
<td>International Economics</td>
<td>266</td>
</tr>
<tr>
<td>26254-</td>
<td>International Economic Policy</td>
<td>267</td>
</tr>
<tr>
<td>26259-</td>
<td>Management and Organisation of Projects in Developing Countries</td>
<td>268</td>
</tr>
<tr>
<td>26263-</td>
<td>Seminar on Network Economics</td>
<td>269</td>
</tr>
<tr>
<td>26274-</td>
<td>Innovation</td>
<td>270</td>
</tr>
<tr>
<td>26287-</td>
<td>Applying Industrial Organization</td>
<td>271</td>
</tr>
<tr>
<td>26300-</td>
<td>Insurance Models</td>
<td>272</td>
</tr>
<tr>
<td>26323-</td>
<td>Insurance Marketing</td>
<td>273</td>
</tr>
<tr>
<td>26326-</td>
<td>Enterprise Risk Management</td>
<td>274</td>
</tr>
<tr>
<td>26360-</td>
<td>Insurance Contract Law</td>
<td>275</td>
</tr>
</tbody>
</table>
INHALTSVERZEICHNIS

26372- Insurance Game ................................................................. 276
26400- Real Estate Management II .................................................. 277
26400w- Real Estate Management I .................................................. 278
26404- Sustainability Assessment of Construction Works ..................... 279
26404w- Design, Construction and Assessment of Green Buildings I .... 280
26420- Topics of Sustainable Management of Housing and Real Estate ... 281
26452- Management of Business Networks ....................................... 282
26454- eFinance: Information Engineering and Management for Securities Trading .......................................................... 283
26466- eServices ................................................................. 284
26470- Seminar Service Science, Management & Engineering .............. 285
26508- Customer Relationship Management .................................... 286
26520- Operative CRM .............................................................. 287
26522- Analytical CRM .............................................................. 289
26524- Bachelor Seminar in Information Engineering and Management ... 291
26550- Derivatives ................................................................. 292
26570- International Finance .......................................................... 293
26575- Investments ................................................................. 294
909081- Systems for Electrical Energy ............................................ 295
HoC1- Elective “Culture - Policy - Science - Technology” ................. 296
HoC2- Elective “Workshops for Competence and Creativity” ... 297
HoC3- Elective Foreign Languages ................................................. 298
HoC4- Elective “Tutor Programmes” ................................................. 299
HoC5- Elective “Personal Fitness & Emotional Competence” .......... 300
SemAIFB1- Seminar in Enterprise Information Systems ................. 301
SemAIFB2- Seminar Efficient Algorithms ........................................ 302
SemAIFB3- Seminar Complexity Management .................................. 303
SemAIFB4- Seminar Knowledge Management .................................. 304
SemFBV1- Seminar in Insurance Management ................................ 305
SemFBV2- Seminar in Operational Risk Management .................... 306
SemFBV3- Seminar in Risk Theory and Actuarial Science ......................... 307
SemIIP- Seminar in Ergonomics .................................................... 308
SemIIP2- Seminar in Industrial Production ........................................ 309
SemIW- Seminar Information Engineering and Management ............ 310
SemIWW- Seminar in System Dynamics and Innovation ............... 311
SemWIOR1- Seminar Stochastic Models ........................................... 312
SemWIOR2- Seminar Economic Theory ........................................... 313
SemWIOR3- Seminar in Experimental Economics ............................ 314
SemWIOR4- Seminar in Game and Decision Theory ..................... 315
SozSem- Projectseminar .............................................................. 316
VLM1- Modelling and Identification .............................................. 317
VLPP- Production Scheduling ...................................................... 318
spezSoz- Special Sociology ............................................................ 319

8 Appendix: Study- and Examination Regulation (06/03/2007, in German) 321

Index 337
1 Structure of the Bachelor Programme in Business Engineering (B.Sc.)

The bachelor programme in Business Engineering (B.Sc.) has 6 terms and consists of 180 credits (CP) including internship and bachelor thesis. The terms 1 to 3 of the programme are methodologically oriented and provide the student with the foundations of business, economic and engineering science. Terms 4 to 6 aim at the specialization and application of this knowledge.

Figure 1 shows the structure of the subjects and the credits (CP) allocated to the subjects. According to the European Credit Transfer System, one credit corresponds to a workload of 30 hours.

<table>
<thead>
<tr>
<th>Semester</th>
<th>Kernprogramm</th>
<th>Vertiefungsprogramm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fach</td>
<td>BWL</td>
</tr>
<tr>
<td>1</td>
<td>REWE</td>
<td>4 LP</td>
</tr>
<tr>
<td></td>
<td>BWL A</td>
<td>3 LP</td>
</tr>
<tr>
<td>2</td>
<td>BWL B</td>
<td>4 LP</td>
</tr>
<tr>
<td></td>
<td>BWL C</td>
<td>4 LP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Berufspraktikum</td>
<td>8 LP</td>
</tr>
</tbody>
</table>

Abbildung 1: Structure of the Bachelor Programme (Recommendation)

In the specialization studies of the third year of the bachelor programme the student has to choose one elective module of the following disciplines: Informatics, operations research, business science, economics, engineering science, statistics, law and sociology. Furthermore, the student has to attend two seminars with a minimum of six CP within the seminar module. In addition to the key skills gained in the seminars (3 CP), the student has to acquire additional key skills totalling at least 3 credits.

It is left to the student's individual curriculum (taking into account the examination and module regulations), in which terms the chosen modules will be started and completed. However, it is highly recommended to follow the proposed structure and schedule of the first 3 terms and to complete all courses and seminars before beginning the bachelor thesis.
2 Key Skills

The bachelor programme Business Engineering (B.Sc.) at the Faculty of Economics and Business Engineering distinguishes itself by an exceptionally high level of interdisciplinarity. With the combination of business science, economics, informatics, operations research, mathematics as well as engineering and natural science, the integration of knowledge of different disciplines is an inherent element of the programme. As a result, interdisciplinary and connected thinking is encouraged in a natural way. Furthermore, tutor programs with more than 20 semester periods per week contribute significantly to the development of key skills in the bachelor programme. The integrative taught key skills, which are acquired throughout the entire programme, can be classified into the following fields:

Soft skills
1. Team work, social communication and creativity techniques
2. Presentations and presentation techniques
3. Logical and systematical arguing and writing

Enabling skills
1. Decision making in business context
2. Project management competences
3. Fundamentals of business science
4. English as a foreign language

Orientational knowledge
1. Acquisition of interdisciplinary knowledge
2. Institutional knowledge about economic and legal systems
3. Knowledge about international organisations
4. Media, technology and innovation

The integrative acquisition of key skills especially takes place in several compulsory courses during the bachelor programme, namely
1. Basic programme in economics and business science
2. Seminar module
3. Mentoring of the bachelor thesis
4. Internship
5. Business science, economics and informatics modules

Figure 2 shows the classification of key skills within the bachelor programme at a glance. Besides the integrated key skills, the additive acquisition of key skills, which are totalling at least three credits within the seminar module, is scheduled. A list of recommended courses and seminars will be published online for the additive acquisition. This list is coordinated with the House of Competence.
<table>
<thead>
<tr>
<th>Art der Schlüsselqualifikation</th>
<th>Bachelorstudium</th>
<th>Grundprogramm</th>
<th>Vertiefungsprogramm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>REWE BWL A</td>
<td>BWLB, C VWL I,II</td>
<td>Tutorenprogramm</td>
</tr>
<tr>
<td>Basiskompetenzen (soft skills)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teamarbeit, soziale Kommunikation und Kreativitätstechniken</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Präsentationserstellung und -techniken</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Logisches und systematisches Argumentieren und Schreiben</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strukturierte Problemlösung und Kommunikation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Praxisorientierung (enabling skills)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Handlungskompetenz im beruflichen Kontext</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kompetenzen im Projektmanagement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Betriebswirtschaftliche Grundkenntnisse</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Englisch als Fachsprache</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orientierungsmedien</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interdisziplinäres Wissen</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institutionelles Wissen über Wirtschafts- und Rechtssysteme</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wissen über internationale Organisationen</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medien, Technik und Innovation</td>
<td>x</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(x)* ........ist nicht zwingend SQ-vermittelnd; hängt von der Art der Aktivität ab (z.B. Auslandspraktikum, thematische Ausrichtung der Bachelorarbeit)

Abbildung 2: Key Skills
3 Helpful information

Module Handbook

The programme exists of several subjects (e.g. business administration, economics, operations research). Every subject is split into modules and every module itself exists of one or more interrelated courses. The extent of every module is indicated by credit points (CP), which will be credited after the successful completion of the module. Some of the modules are obligatory. According to the interdisciplinary character of the programme, a great variety of individual specialization and deepening possibilities exists for a large number of modules. This enables the student to customize content and time schedule of the programme according to personal needs, interest and job perspective. The module handbook describes the modules belonging to the programme, their structure and extent (in CP), their dependencies, their learning outcomes, their learning control and examinations. Therefore it serves as a necessary orientation and as a helpful guide throughout the studies. The module handbook does not replace the course catalogue, which provides important information concerning each semester and variable course details (e.g. time and location of the course).

Begin and completion of a module

Every module and every course is allowed to be credited only once. The decision whether the course is assigned to one module or the other is made by the student at the time of signing in for the corresponding exam. The module is succeeded, if the general exam of the module and/or if all of its relevant partial exams have been passed (grade min 4.0).

General exams and partial exams

The module exam can be taken in a general exam or several partial exams. If the module exam is offered as a general exam, the entire content of the module will be reviewed in a single exam. If the module exam exists of partial exams, the content of each course will be reviewed in corresponding partial exams. The registration for the examinations in the bachelor programme takes place online via the self-service function for students. The following functions can be accessed on https://zvwgate.zvw.uni-karlsruhe.de/sb/ by means of the access information of the student card (FriCard):

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

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

For students of the master programme the registration currently takes place at the advisory service of the faculty or at the respective institutes. Further information available on http://www.wiwi.uni-karlsruhe.de/studium/pruefung/anabmelden/.

Repeating exams

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

Bonus accomplishments and additional accomplishments

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

**Further information**

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

**Used abbreviations**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>English</th>
<th>German</th>
</tr>
</thead>
<tbody>
<tr>
<td>LP/CP</td>
<td>Credit Points/ECTS</td>
<td>Leistungspunkte/ECTS</td>
</tr>
<tr>
<td>LV</td>
<td>course</td>
<td>Lehrveranstaltung</td>
</tr>
<tr>
<td>RÜ</td>
<td>computing lab</td>
<td>Rechnerübung</td>
</tr>
<tr>
<td>S</td>
<td>summer term</td>
<td>Sommersemester</td>
</tr>
<tr>
<td>Sem.</td>
<td>semester/term</td>
<td>Semester</td>
</tr>
<tr>
<td>SPO</td>
<td>examination regulations</td>
<td>Studien- und Prüfungsordnung</td>
</tr>
<tr>
<td>SQ</td>
<td>key qualifikation</td>
<td>Schlüsselqualifikationen</td>
</tr>
<tr>
<td>SWS</td>
<td>contact hour</td>
<td>Semesterwochenstunde</td>
</tr>
<tr>
<td>Ü</td>
<td>excercise course</td>
<td>Übung</td>
</tr>
<tr>
<td>V</td>
<td>lecture</td>
<td>Vorlesung</td>
</tr>
<tr>
<td>W</td>
<td>winter term</td>
<td>Wintersemester</td>
</tr>
</tbody>
</table>

Modulhandbuch: Stand 13.03.2009
4 Actual Changes

Important changes are pointed out in this section in order to provide a better orientation. Although this process was done with great care, other/minor changes may exist.

4.1 Changes regarding modules

**eBusiness and Servicemanagement [WI3BWLISM1] (S. 28)**

*remarks*

The key of the module has be renamed and ended formerly in BWLIW2.

**Supply Chain Management [WI3BWLISM2] (S. 29)**

*remarks*

This module is offered for the first time in the summer term 2009.

**eFinance [WI3BWLISM3] (S. 30)**

*remarks*

This module is offered for the first time in the summer term 2009.

**CRM and Service Management [WI3BWLISM4] (S. 31)**

*remarks*

The key of the module has be renamed and ended formerly in BWLIW1.

**Specialization in Customer Relationship Management [WI3BWLISM5] (S. 32)**

*remarks*

This module is offered for the first time in the summer term 2009.

**Risk and Insurance Management [WI3BWLFBV3] (S. 37)**

*remarks*

The lecture Principles of Insurance Management [25055] will be held additionally in the summer term 2009.

**Insurance Management [WI3BWLFBV4] (S. 38)**

*remarks*

The lecture Principles of Insurance Management [25055] will be held additionally in the summer term 2009.

**Strategy and Organization [WI3BWLUO1 ] (S. 39)**

*remarks*

This module was formerly named Strategic Management and Organization.

**Topics in Finance I [WI3BWLFBV5] (S. 40)**

*remarks*

The lectures Financial Accounting and Accounting for Tax Purposes [25217] and Taxes and Investment [25216] won’t be offered any longer. Students who already take part in this component examination within the module examination, may complet this modul within this lectures.

**Topics in Finance II [WI3BWLFBV6] (S. 41)**

*remarks*

The lectures Financial Accounting and Accounting for Tax Purposes [25217] and Taxes and Investment [25216] won’t be offered any longer. Students who already take part in this component examination within the module examination, may complet this modul within this lectures.

**Energy Economics [WI3BWLIP2] (S. 43)**

*remarks*

This module is offered for the first time in summersemester 2009.
### Applied Game Theory [WI3VWL1] (S. 44)

**dependencies**

One of the lectures *Game Theory I* [25525] or *Game Theory II* [25369] has to be completed. Overall there has to be absolved examinations at at least 9 Credits.

### Statistical Applications of Financial Risk Management [WI3STAT] (S. 58)

**remarks**

This module is offered for the first time in summer 2009.

### Unscheduled Engineering Module [WI3INGAPL] (S. 83)

**remarks**

The module is newly-offered in summer 2009.

### 4.2 Changes regarding courses

### Principles of Insurance Management [25055] (S. 202)

**remarks**

This lecture will be held additionally in the summer term 2009.
5 Modules (Foundation)

5.1 All Subjects

Module: Business Administration

Module key: [WI1BWL]

Subject: Business Administration

Module coordination: Marliese Uhrig-Homburg, Thomas Burdelski

Credit points (CP): 15

Learning Control / Examinations

Prerequisites
None.

Conditions

It is strongly recommended to attend the courses in the following sequence:


2nd term: Business Administration and Management Science B [25024/25025]

3rd term: Business Administration and Management Science C [25026/25027]

Learning Outcomes

Content

Courses in module Business Administration [WI1BWL]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25002/25003</td>
<td>Financial Accounting and Cost Accounting (S. 89)</td>
<td>2/2</td>
<td>W</td>
<td>4</td>
<td>Burdelski</td>
</tr>
<tr>
<td>25023</td>
<td>Business Administration and Management Science A (S. 90)</td>
<td>2</td>
<td>W</td>
<td>3</td>
<td>Burdelski</td>
</tr>
<tr>
<td>25024/25025</td>
<td>Business Administration and Management Science B (S. 91)</td>
<td>2/0/2</td>
<td>S</td>
<td>4</td>
<td>Gaul, Lützkendorf, Geyer-Schulz, Weinhardt, Burdelski</td>
</tr>
<tr>
<td>25026/25027</td>
<td>Business Administration and Management Science C (S. 92)</td>
<td>2/0/2</td>
<td>W</td>
<td>4</td>
<td>Lindstädt, Ruckes, Uhrig-Homburg, Burdelski</td>
</tr>
</tbody>
</table>
Module: Economics

Subject: Economics
Module coordination: Siegfried Berninghaus
Credit points (CP): 10

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

Notice: The lecture Economics I: Microeconomics [25012] is part of the preliminary examination concerning § 8(1) of the examination regulation. This examination must be passed until the end of the examination period of the second semester. Any Re-examinations has to be passed until the end of the examination period of the third semester. Otherwise the examination claim will be lost.

Prerequisites
None.

Conditions
None.

Learning Outcomes
The student
- knows and understands economic problems,
- understands economic policy in globalized markets,
- is able to develop elementary solution concepts.

The lectures of this module have different focuses: In Economics I economic problems are seen as decision problems, Economics II looks at the dynamics of economic processes.

Content

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25512</td>
<td>Economics I: Microeconomics (S. 93)</td>
<td>3/0/2</td>
<td>W</td>
<td>5</td>
<td>Puppe</td>
</tr>
<tr>
<td>25014</td>
<td>Economics II: Macroeconomics (S. 94)</td>
<td>3/0/2</td>
<td>S</td>
<td>5</td>
<td>Rothengatter, Schaffer</td>
</tr>
</tbody>
</table>

Courses in module Economics [WI1VWL]
Module: Introduction to Informatics

Subject: Informatics
Module coordination: Hartmut Schmeck, Rudi Studer, Detlef Seese
Credit points (CP): 15

Learning Control / Examinations

Prerequisites
None.

Conditions
It is strongly recommended to attend the courses in the following sequence: Introduction to Programming with Java [25030], Foundations of Informatics I [25074] Foundations of Informatics II [25076]

Learning Outcomes

Content

Courses in module Introduction to Informatics [WI1INFO]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>25030</td>
<td>Introduction to Programming with Java (S. 95)</td>
<td>3/1</td>
<td>W</td>
<td>5</td>
<td>Seese</td>
</tr>
<tr>
<td>25074</td>
<td>Foundations of Informatics I (S. 96)</td>
<td>2/2</td>
<td></td>
<td>5</td>
<td>Studer, Agarwal, Cimiano</td>
</tr>
<tr>
<td>25076</td>
<td>Foundations of Informatics II (S. 97)</td>
<td>3/1</td>
<td></td>
<td>5</td>
<td>Schmeck</td>
</tr>
</tbody>
</table>
Module: Introduction to Operations Research

Subject: Operations Research
Module coordination: Oliver Stein, Karl-Heinz Waldmann, Stefan Nickel
Credit points (CP): 9

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

Prerequisites
Mathematics I and II. Programming knowledge for computing exercises.

Conditions
It is strongly recommended to attend the course Introduction to Operations Research I [25040] before attending the course Introduction to Operations Research II [25043].

Learning Outcomes
In this module students learn all the methods and models which are required for quantitative analysis. It forms the basis of a series of advanced lectures with a focus on both theoretical and practical aspects.

Content
This module treats the following topics: linear programming, network models, integer programming, nonlinear programming, dynamic programming, queuing theory, heuristic models.

Courses in module Introduction to Operations Research [WI1OR]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25040</td>
<td>Introduction to Operations Research I (S. 98)</td>
<td>2/2/2</td>
<td>S</td>
<td>4.5</td>
<td>Stein, Waldmann, Nickel</td>
</tr>
<tr>
<td>25043</td>
<td>Introduction to Operations Research II (S. 99)</td>
<td>2/2/2</td>
<td>W</td>
<td>4.5</td>
<td>Stein, Waldmann, Nickel</td>
</tr>
</tbody>
</table>
Module: Electrical Engineering

Subject: Engineering Science
Module coordination: Wolfgang Menesklou
Credit points (CP): 2.5

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content

Courses in module Electrical Engineering [WI1ING4]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>23223</td>
<td>Electrical Engineering I (S. 108)</td>
<td>2/2</td>
<td>W</td>
<td>2.5</td>
<td>Menesklou</td>
</tr>
</tbody>
</table>
Module: Material Science

Subject: Engineering Science
Module coordination: M. J. Hoffmann
Credit points (CP): 2.5

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>21760</td>
<td>Material Science I (S. 106)</td>
<td>2/1</td>
<td>W</td>
<td>2.5</td>
<td>Hoffmann</td>
</tr>
</tbody>
</table>

Courses in module Material Science [WI1ING2]
Module: Engineering Mechanics

Subject: Engineering Science
Module coordination: Carsten Proppe
Credit points (CP): 2.5

Learning Control / Examinations
Prerequisites
None.
Conditions
None.
Learning Outcomes

Content

Courses in module Engineering Mechanics [WI1ING3]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>21208</td>
<td>Engineering Mechanics I (S. 107)</td>
<td>2/1</td>
<td>W</td>
<td>2.5</td>
<td>Proppe</td>
</tr>
</tbody>
</table>
Module: Mass and Energy Balances for Reacting Systems

Subject: Engineering Science
Module coordination: Christian Zwiener, Kruse
Credit points (CP): 2.5

Learning Control / Examinations
Prerequisites
None.
Conditions
None.

Learning Outcomes
Content

Courses in module Mass and Energy Balances for Reacting Systems [WI1ING1]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>22130</td>
<td>Mass and Energy Balances for Reacting Systems (S. ??)</td>
<td>2/0</td>
<td>W</td>
<td>2.5</td>
<td>Zwiener, Kruse</td>
</tr>
</tbody>
</table>
Module: Mathematics

Subject: Mathematics
Module coordination: Günter Last
Credit points (CP): 21

Learning Control / Examinations

Prerequisites
None.

Conditions
It is strongly recommended to attend the courses in the following sequence: Mathematics I [01350], Mathematics II [01830] Mathematics III [01352]

Learning Outcomes

Content

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>01350</td>
<td>Mathematics I (S. 100)</td>
<td>4/2/2</td>
<td>W</td>
<td>7</td>
<td>Last, Folkers, Klar</td>
</tr>
<tr>
<td>01830</td>
<td>Mathematics II (S. 101)</td>
<td>4/2/2</td>
<td>S</td>
<td>7</td>
<td>Last, Folkers, Klar</td>
</tr>
<tr>
<td>01352</td>
<td>Mathematics III (S. 102)</td>
<td>4/2/2</td>
<td>W</td>
<td>7</td>
<td>Last, Folkers, Klar</td>
</tr>
</tbody>
</table>
Module: Statistics

Subject: Statistics
Module coordination: Svetlozar Rachev
Credit points (CP): 9

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

Notice: The lecture Statistics I [25008/25009] is part of the preliminary examination concerning § 8(1) of the examination regulation. This examination must be passed until the end of the examination period of the second semester. Any Re-examinations has to be passed until the end of the examination period of the third semester. Otherwise the examination claim will be lost.

Prerequisites
None.

Conditions
The course Statistics I [25008/25009] has to be attended before the course Statistics II [25020/25021].
To some extend knowledge of the content of the module Mathematics [WW1MATH/WI1MATH] is assumed. Therefore it is recommended to attend the course Mathematics I [01350] before attending the module Statistics [WI1STAT/WW1STAT].

Learning Outcomes

Content

Courses in module Statistics [WI1STAT]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25008/25009</td>
<td>Statistics I (S. 103)</td>
<td>4/0/2</td>
<td>S</td>
<td>4.5</td>
<td>Höchstötter</td>
</tr>
<tr>
<td>25020/25021</td>
<td>Statistics II (S. 104)</td>
<td>4/0/2</td>
<td>W</td>
<td>4.5</td>
<td>Höchstötter</td>
</tr>
</tbody>
</table>
6 Modules (Specialization)

6.1 Business Administration

Module: Sustainable Construction

Subject: Business Administration
Module coordination: Thomas Lützkendorf
Credit points (CP): 9

Learning Control / Examinations
The assessment is carried out as partial assessments (according to §4(2), 1 o. 2 SPO) of the single courses of this module, whose sum of credits must meet the minimum requirement of credits of this module.
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.
It is possible to include the mark of a seminar paper, dealing with a topic from the area of sustainable construction, into the final mark of the module (according to §4(2), 3 SPO). The seminar has a weight of 20%.
The assessment procedures are described for each course of the module separately.

Prerequisites
The module Business Administration [WI1BWL] has to be completed successfully.

Conditions
The combination with the module Real Estate Management [WI3BWLOOW2] is recommended.
Furthermore a combination with courses in the area of

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

is recommended.

Learning Outcomes
The student

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

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

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26404w</td>
<td>Design, Construction and Assessment of Green Buildings I (S. 280)</td>
<td>2/1</td>
<td>W</td>
<td>4,5</td>
<td>Lützkendorf</td>
</tr>
<tr>
<td>26404</td>
<td>Sustainability Assessment of Construction Works (S. 279)</td>
<td>2/1</td>
<td>S</td>
<td>4,5</td>
<td>Lützkendorf</td>
</tr>
</tbody>
</table>
Module: eBusiness and Servicemanagement

Subject: Business Administration
Module coordination: Christof Weinhardt
Credit points (CP): 9

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

Prerequisites
Successful completion of the module Business Administration [WI1BWL].

Conditions
Keine.

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

Content
This module gives an overview of the mutual dependencies of strategic management and information systems. The central role of information is exemplified by the structuring concept of the information life cycle. The single phases of this life cycle from generation over allocation until dissemination and use of the information are analyzed from a business and microeconomic perspective, applying classical and new theories. The state of the art of economic theory on aspects of the information life cycle are presented.

The lecture is complemented by exercise courses.

The courses “Management of Business Networks”, “eFinance: Information engineering and management in finance” and “eServices” constitute three different application domains in which the basic principles of the Internet Economy are deepened. In the course “Management of Business Networks” the focus is set on the strategic aspects of management and information systems. It is held in English and teaches parts of the syllabus with the support of a case study elaborated with Prof Kersten from Concordia University, Montreal, Canada. If it is possible to organize, depending on the start of term in Canada, the case study will be worked on by the students via internet in collaboration with Canadian students. The results will jointly be presented in a telephone conference.

The course “eFinance: information engineering and management 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.

Courses in module eBusiness and Servicemanagement [WI3BWLISM1]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26466</td>
<td>eServices (S. 284)</td>
<td>2/1</td>
<td>S</td>
<td>5</td>
<td>Weinhardt, Satzger</td>
</tr>
<tr>
<td>26454</td>
<td>eFinance: Information Engineering and Manage-</td>
<td>2/1</td>
<td>W</td>
<td>4,5</td>
<td>Weinhardt, Riordan</td>
</tr>
<tr>
<td></td>
<td>ment for Securities Trading (S. 283)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26452</td>
<td>Management of Business Networks (S. 282)</td>
<td>2/1</td>
<td>W</td>
<td>4,5</td>
<td>Weinhardt, Kraemer</td>
</tr>
</tbody>
</table>

Remarks
The key of the module has been renamed and ended formerly in BWLIW2.
Module: Supply Chain Management

Subject: Business Administration
Module coordination: Christof Weinhardt
Credit points (CP): 9

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

Prerequisites
None.

Conditions
The lecture Management of Business Networks has to be attended.

Learning Outcomes
The module “Supply Chain Management” imparts knowledge for strategic and operative designing and control of supply chains spanning several enterprises. The students shall be able to analyze the coordination problems within supply chains, to judge them and to support them providing appropriate information systems. In order to be able to do this it is necessary to understand the coordination and planning mechanisms from the field of Operations Research and, on the other hand, to be familiar with methods from information management. Thus, the module gives an overview of methods and instruments of Supply Chain Management for the organizational, technical and mental-social design of integrated supply chains.

Content
The module “Supply Chain Management” gives an overview of the mutual dependencies of information systems and of supply chains spanning several enterprises. The specifics of supply chains and their information needs set new requirements for the operational information management. In the core lecture “Management of Business Networks” the focus is set on the strategic aspects of management and information systems. The course is held in English and teaches parts of the syllabus with the support of a case study elaborated with Prof Kersten from Concordia University, Montreal, Canada. If it is possible to organize, depending on the start of term in Canada, the case study will be worked on by the students via internet in collaboration with Canadian students. The results will jointly be presented in a telephone conference. The module is completed by an elective course addressing appropriate optimization methods for the Supply Chain Management and for modern logistic approaches.

Courses in module Supply Chain Management [WI3BWLISM2]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26452</td>
<td>Management of Business Networks (S. 282)</td>
<td>2/1</td>
<td>W</td>
<td>4,5</td>
<td>Weinhardt, Kraemer</td>
</tr>
<tr>
<td>21078</td>
<td>Logistics (S. 132)</td>
<td>3/1</td>
<td>S</td>
<td>6</td>
<td>Furmans</td>
</tr>
<tr>
<td>25598</td>
<td>Operations Management (S. 235)</td>
<td>3</td>
<td>W</td>
<td>5</td>
<td>Schön</td>
</tr>
</tbody>
</table>

Remarks
The current seminar courses for this semester, which are complementary to this module, are listed on following webpage: the http://www.im.uni-karlsruhe.de/lehre

This module is offered for the first time in the summer term 2009.
Module: eFinance

Subject: Business Administration
Module coordination: Christof Weinhardt
Credit points (CP): 9

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

Prerequisites
None.

Conditions
The course eFinance: Information Engineering and Management for Securities Trading [26454] has to be attended.

Learning Outcomes
In the module “eFinance: Information engineering and management in finance” the students get an overview of modern approaches of information management in the finance sector. They learn to analyze specific financial problems from the point of view of information management and also to solve these problems by using the tools provided by information management. By doing so, they get to know finance products as information products and learn the state of the art of modern information processing in the finance sector.

Content
The module “eFinance: Information engineering and management in finance” addresses current problems in the finance sector. It investigates 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. 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.

Courses in module eFinance [WI3BWLISM3]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>26454</td>
<td>eFinance: Information Engineering and Management for Securities Trading (S. 283)</td>
<td>2/1</td>
<td>W</td>
<td>4.5</td>
<td>Weinhardt, Riordan</td>
</tr>
<tr>
<td>25762</td>
<td>Intelligent Systems in Finance (S. 247)</td>
<td>2/1</td>
<td>S</td>
<td>5</td>
<td>Seese</td>
</tr>
<tr>
<td>26575</td>
<td>Investments (S. 294)</td>
<td>2/1</td>
<td>S</td>
<td>4.5</td>
<td>Uhrig-Homburg</td>
</tr>
</tbody>
</table>

Remarks
The current seminar courses for this semester, which are complementary to this module, are listed on following webpage: the http://www.im.uni-karlsruhe.de/lehre

This module is offered for the first time in the summer term 2009.
Module: CRM and Service Management

Subject: Business Administration
Module coordination: Andreas Geyer-Schulz
Credit points (CP): 9

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

Prerequisites
None.

Conditions
None.

Learning Outcomes
The student
- understands service management as the managerial foundation of customer relationship management and the resulting implications for strategic management, the organisational structure, and the functional areas of the 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, ...).

Content
In the module CRM and Service Management [WI3BWLISM4] 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, ...).

Courses in module CRM and Service Management [WI3BWLISM4]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26508</td>
<td>Customer Relationship Management (S. 286)</td>
<td>2/1</td>
<td>W</td>
<td>4.5</td>
<td>Geyer-Schulz</td>
</tr>
<tr>
<td>26522</td>
<td>Analytical CRM (S. 289)</td>
<td>2/1</td>
<td>S</td>
<td>4.5</td>
<td>Geyer-Schulz</td>
</tr>
<tr>
<td>26520</td>
<td>Operative CRM (S. 287)</td>
<td>2/1</td>
<td>W</td>
<td>4.5</td>
<td>Geyer-Schulz</td>
</tr>
</tbody>
</table>

Remarks
The lecture Customer Relationship Management [26508] is given in English.
The key of the module has been renamed and ended formerly in BWLIW1.
Module: Specialization in Customer Relationship Management
Module key: [WI3BWLISM5]

Subject: Business Administration
Module coordination: Andreas Geyer-Schulz
Credit points (CP): 9

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

Prerequisites
None.

Conditions
This module has to be taken together with the module Customer Relationship Management and Servicemanagement [WW3BWLCRM1].
Or the course Analytic CRM [26522] or the course Operative CRM [26520] has to be taken.

Learning Outcomes
The student

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

Content
In this module, analsis methods and techniques for the management and improvement of customer relations are presented. Furthermore, modelling, implementation, introduction, change, analysis and valuation of operative CRM processes are treated. Regaring the first part, we teach analysis methods and techniques suitable for the management and improvement of customer relations. For this goal we treat the principles of customer- and service-oriented management as the foundation of successful customer relationship management. In addition, we show how knowledge of the customer can be used for decision-making at an aggregate level (e.g. planning of sortiments, analysis of customer 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 (Extraction / Translation / Loading). The process of modelling a data-warehouse as well as the so-called extraction, translation, and loading process for building and maintaining a data-warehouse are discussed in-depth. The data-warehouse serves as a base for flexible management reporting. In addition, various statistic methods (e.g. cluster analysis, regression analysis, stochastic models, ...) are presented which help in computing suitable key performance indicators or which support decision-making.
Regaring the opervative part, we emphasize the design of operative CRM processes. This includes the modelling, implementation, introduction and change, as well as the analysis and evaluation of operative CRM processes. Petri nets and their extensions are the scientific foundation of process modelling. The link of Petri nets to process models used in industry as e.g. UML activity diagrams is presented. In addition, a framework for process innovation which aims at a radical improvement of key business processes is introduced. The following application areas of operative CRM processes are presented and discussed:

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

Courses in module Specialization in Customer Relationship Management [WI3BWLISM5]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26522</td>
<td>Analytical CRM (S. 289)</td>
<td>2/1</td>
<td>S</td>
<td>4,5</td>
<td>Geyer-Schulz</td>
</tr>
<tr>
<td>26520</td>
<td>Operative CRM (S. 287)</td>
<td>2/1</td>
<td>W</td>
<td>4,5</td>
<td>Geyer-Schulz</td>
</tr>
<tr>
<td>25158</td>
<td>Corporate Planning and Operations Research (S. 212)</td>
<td>2/1</td>
<td>W</td>
<td>5</td>
<td>Gaul</td>
</tr>
<tr>
<td>26240</td>
<td>Competition in Networks (S. 285)</td>
<td>2/1</td>
<td>S</td>
<td>5</td>
<td>Mitsusch</td>
</tr>
<tr>
<td>26466</td>
<td>eServices (S. 284)</td>
<td>2/1</td>
<td>S</td>
<td>5</td>
<td>Weinhardt, Satzger</td>
</tr>
</tbody>
</table>

Remarks
This module is offered for the first time in the summer term 2009.
Module: Essentials of Finance

Subject: Business Administration
Module coordination: Marliese Uhrig-Homburg
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content

Courses in module Essentials of Finance [WI3BWLFBV1]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>26575</td>
<td>Investments (S. 294)</td>
<td>2/1</td>
<td>S</td>
<td>4.5</td>
<td>Uhrig-Homburg</td>
</tr>
<tr>
<td>25216</td>
<td>Financial Management (S. 216)</td>
<td>2/1</td>
<td>S</td>
<td>4.5</td>
<td>Ruckes</td>
</tr>
</tbody>
</table>
Module: Foundations of Marketing  
Module key: [WI3BWLMAR]

Subject: Business Administration  
Module coordination: Wolfgang Gaul  
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
None.

Conditions
The course *Marketing and Consumer Behavior [25150]* has to be attended.

Learning Outcomes

Content

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25150</td>
<td>Marketing and Consumer Behavior (S. 209)</td>
<td>2/1</td>
<td>W</td>
<td>5</td>
<td>Gaul</td>
</tr>
<tr>
<td>25154</td>
<td>Modern Market Research (S. 210)</td>
<td>2/1</td>
<td>S</td>
<td>5</td>
<td>Gaul</td>
</tr>
<tr>
<td>25156</td>
<td>Marketing and Operations Research (S. 211)</td>
<td>2/1</td>
<td>S</td>
<td>5</td>
<td>Gaul</td>
</tr>
<tr>
<td>25177</td>
<td>Brand Management (S. 213)</td>
<td>2</td>
<td>W</td>
<td>4</td>
<td>Neibecker</td>
</tr>
<tr>
<td>25191</td>
<td>Bachelor Seminar in Foundations of Marketing (S. 214)</td>
<td>2</td>
<td>W/S</td>
<td>2</td>
<td>Gaul</td>
</tr>
</tbody>
</table>
Module: Insurance: Calculation and Control

Subject: Business Administration
Module coordination: Christian Hipp
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content

Courses in module Insurance: Calculation and Control [WI3BWLFBV2]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>26300</td>
<td>Insurance Models (S. 272)</td>
<td>2/2</td>
<td>S</td>
<td>5</td>
<td>Hipp</td>
</tr>
<tr>
<td>26372</td>
<td>Insurance Game (S. 276)</td>
<td>2</td>
<td>S</td>
<td>4</td>
<td>Hipp</td>
</tr>
</tbody>
</table>
Module: Real Estate Management

Subject: Business Administration

Module key: [WI3BWLOOW2]

Module coordination: Thomas Lützkendorf

Credit points (CP): 9

Learning Control / Examinations
The assessment is carried out as partial assessments (according to §4(2), 1 o. 2 SPO) of the single courses of this module, whose sum of credits must meet the minimum requirement of credits of this module.

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.

It is possible to include the mark of a seminar paper, dealing with a topic from the area of sustainable construction, into the final mark of the module (according to §4(2), 3 SPO). The seminar has a weight of 20%.

The assessment procedures are described for each course of the module separately.

Prerequisites
Successful completion of the module Business Administration [WI1BWL].

Conditions
The combination with the module Design Constructions and Assessment of Green Buildings [WI3BWLOOW1] is recommended. Furthermore a combination with courses in the area of

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

is recommended.

Learning Outcomes
The student

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

Content
The real estate business offers graduates very interesting jobs and excellent work- and advancement possibilities. This module provides an insight into the macroeconomic importance of this industry, discusses problems concern 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.

Courses in module Real Estate Management [WI3BWLOOW2]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26400w</td>
<td>Real Estate Management I (S. 278)</td>
<td>2/2</td>
<td>W</td>
<td>4,5</td>
<td>Lützkendorf</td>
</tr>
<tr>
<td>26400</td>
<td>Real Estate Management II (S. 277)</td>
<td>2/2</td>
<td>S</td>
<td>4,5</td>
<td>Lützkendorf</td>
</tr>
</tbody>
</table>
Module: Risk and Insurance Management

Module key: [WI3BWLFBV3]

Subject: Business Administration
Module coordination: Ute Werner
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
None.

Conditions
It is only possible to choose this module in combination with the module Insurance Management [WI3BWLFBV4].

Learning Outcomes

Content

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS C/E/T</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25055</td>
<td>Principles of Insurance Management (S. 202)</td>
<td>3/0 W</td>
<td>4,5</td>
<td></td>
<td>Werner</td>
</tr>
<tr>
<td>26326</td>
<td>Enterprise Risk Management (S. 274)</td>
<td>3/0 W/S</td>
<td>4,5</td>
<td></td>
<td>Werner</td>
</tr>
</tbody>
</table>

Remarks

The course Enterprise Risk Management [26326] is offered irregularly. For further information, see: http://insurance.fbv.uni-karlsruhe.de

The lecture Principles of Insurance Management [25055] will be held additionally in the summer term 2009.
Module: Insurance Management

Subject: Business Administration
Module coordination: Ute Werner
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
None.

Conditions
The course Principles of Insurance Management [25055] has to be attended.
It is only possible to choose this module in combination with the module Risk and Insurance Management [WI3BWLFBV3].

Learning Outcomes

Content

Courses in module Insurance Management [WI3BWLFBV4]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>26323</td>
<td>Insurance Marketing (S. 273)</td>
<td>3</td>
<td>W/S</td>
<td>4.5</td>
<td>Werner</td>
</tr>
<tr>
<td>25050</td>
<td>Private and Social Insurance (S. 201)</td>
<td>2</td>
<td>W</td>
<td>2.5</td>
<td>Werner, Hellmann, Besserer</td>
</tr>
<tr>
<td>25055</td>
<td>Principles of Insurance Management (S. 202)</td>
<td>3/0</td>
<td>W</td>
<td>4.5</td>
<td>Werner</td>
</tr>
<tr>
<td>26360</td>
<td>Insurance Contract Law (S. 275)</td>
<td>3</td>
<td>S</td>
<td>4.5</td>
<td>Werner, Schwebler</td>
</tr>
</tbody>
</table>

Remarks
The course Insurance Marketing [26323] is offered irregularly. For further information, see: http://insurance.fbv.uni-karlsruhe.de
The lecture Principles of Insurance Management [25055] will be held additionally in the summer term 2009.
Module: Strategy and Organization

Module key: [WI3BWLWO1]

Subject: Business Administration
Module coordination: Hagen Lindstädt
Credit points (CP): 9

Learning Control / Examinations
Prerequisites
None.
Conditions
None.
Learning Outcomes

Content

Courses in module Strategy and Organization [WI3BWLWO1]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25900</td>
<td>Management and Strategy (S. 253)</td>
<td>2/0</td>
<td>S</td>
<td>4</td>
<td>Lindstädt</td>
</tr>
<tr>
<td>25902</td>
<td>Managing Organizations (S. 254)</td>
<td>2/0</td>
<td>W</td>
<td>4</td>
<td>Lindstädt</td>
</tr>
<tr>
<td>25907</td>
<td>Special Topics in Management: Management and IT (S. 255)</td>
<td>1/0</td>
<td>W/S</td>
<td>2</td>
<td>Lindstädt</td>
</tr>
</tbody>
</table>

Remarks
This module was formerly named Strategic Management and Organization.
Module: Topics in Finance I

Module key: [WI3BWLFBV5]

Subject: Business Administration

Module coordination: Marliese Uhrig-Homburg

Credit points (CP): 9

Learning Control / Examinations

Prerequisites
Successful completion of the module Business Administration [WI1BWL].

Conditions
It is only possible to choose this module in combination with the module Essentials in Finance [WI3BWLFBV1]. In addition to that it is possible to choose the module Topics in Finance II [WI3BWLFBV6]

Learning Outcomes

Content

Courses in module Topics in Finance I [WI3BWLFBV5]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>25210</td>
<td>Management Accounting (S. 215)</td>
<td>2/1</td>
<td>S</td>
<td>4.5</td>
<td>Lüdecke</td>
</tr>
<tr>
<td>25232</td>
<td>Financial Intermediation (S. 217)</td>
<td>3</td>
<td>W</td>
<td>4.5</td>
<td>Ruckes</td>
</tr>
<tr>
<td>26550</td>
<td>Derivatives (S. 292)</td>
<td>2/1</td>
<td>S</td>
<td>4.5</td>
<td>Uhrig-Homburg</td>
</tr>
<tr>
<td>25296</td>
<td>Exchanges (S. 219)</td>
<td>1</td>
<td>S</td>
<td>1.5</td>
<td>Franke</td>
</tr>
<tr>
<td>25299</td>
<td>Business Strategies of Banks (S. 220)</td>
<td>2</td>
<td>W</td>
<td>3</td>
<td>Müller</td>
</tr>
<tr>
<td>26570</td>
<td>International Finance (S. 293)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Uhrig-Homburg, Walter</td>
</tr>
</tbody>
</table>

Remarks

The lectures Financial Accounting and Accounting for Tax Purposes [25217] and Taxes and Investment [25216] won’t be offered any longer. Students who already take part in this component examination within the module examination, may complete this module within these lectures.
Module: Topics in Finance II

Module key: [WI3BWLFBV6]

Subject: Business Administration
Module coordination: Marliese Uhrig-Homburg
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
Successful completion of the module Business Administration [WI1BWL].

Conditions
It is only possible to choose this module in combination with the module Essentials in Finance [WI3BWLFBV1]. In addition to that it is possible to choose the module Topics in Finance I [WI3BWLFBV5]. In this case only those lectures are electable, that are not already completed in the module Topic in Finance I [WI3BWLFBV5].

Learning Outcomes

Content

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>25210</td>
<td>Management Accounting (S. 215)</td>
<td>2/1</td>
<td>S</td>
<td>4.5</td>
<td>Lüdecke</td>
</tr>
<tr>
<td>25232</td>
<td>Financial Intermediation (S. 217)</td>
<td>3</td>
<td>W</td>
<td>4.5</td>
<td>Ruckes</td>
</tr>
<tr>
<td>26550</td>
<td>Derivatives (S. 292)</td>
<td>2/1</td>
<td>S</td>
<td>4.5</td>
<td>Uhrig-Homburg</td>
</tr>
<tr>
<td>25296</td>
<td>Exchanges (S. 219)</td>
<td>1</td>
<td>S</td>
<td>1.5</td>
<td>Franke</td>
</tr>
<tr>
<td>25299</td>
<td>Business Strategies of Banks (S. 220)</td>
<td>2</td>
<td>W</td>
<td>3</td>
<td>Müller</td>
</tr>
<tr>
<td>26570</td>
<td>International Finance (S. 293)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Uhrig-Homburg, Walter</td>
</tr>
</tbody>
</table>

Remarks
The lectures Financial Accounting and Accounting for Tax Purposes [25217] and Taxes and Investment [25216] won’t be offered any longer. Students who already take part in this component examination within the module examination, may complet this module within this lectures.
Module: Industrial Production I

Module key: [WI3BWLIIP]

Subject: Business Administration
Module coordination: Frank Schultmann
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
None.

Conditions
The course Fundamentals of Production Management [25950] is obligatory. In addition to that one more course has to be chosen. The courses are designed separately so each course can be chosen independently. With consecutive master programme in mind, it is recommended to enroll on the module Industrial Production II [WW4BWLIIP2] and/or Industrial Production III [WW4BWLIIP6] as well.

Learning Outcomes

Content

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25950</td>
<td>Fundamentals of Production Management (S. 257)</td>
<td>2/2</td>
<td>S</td>
<td>5.5</td>
<td>Schultmann</td>
</tr>
<tr>
<td>25960</td>
<td>Material and Energy Flows in the Economy (S. 259)</td>
<td>2/0</td>
<td>W</td>
<td>3.5</td>
<td>Hiete, Hiete</td>
</tr>
<tr>
<td>25959</td>
<td>Energy Policy (S. 258)</td>
<td>2/0</td>
<td>S</td>
<td>3.5</td>
<td>Wietschel</td>
</tr>
</tbody>
</table>
Module: Energy Economics

Subject: Business Administration
Module coordination: Wolf Fichtner
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content

Courses in module Energy Economics [WI3BWL1IP2]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lector(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26010</td>
<td>Introduction in to Energy Economics (S. 260)</td>
<td>2/2</td>
<td>S</td>
<td>5.5</td>
<td>Fichtner</td>
</tr>
<tr>
<td>26012</td>
<td>Renewable Energy Sources - Technologies and Potentials (S. 261)</td>
<td>2/0</td>
<td>W</td>
<td>3.5</td>
<td>Fichtner</td>
</tr>
<tr>
<td>25959</td>
<td>Energy Policy (S. 258)</td>
<td>2/0</td>
<td>S</td>
<td>3.5</td>
<td>Wietschel</td>
</tr>
</tbody>
</table>

Remarks
This module is offered for the first time in summersemester 2009.
6.2 Economics

Module: Applied Game Theory

Subject: Economics
Module coordination: Siegfried Berninghaus
Credit points (CP): 9

Learning Control / Examinations
The assessment mix of each course of this module is defined for each course separately. The final mark for the module is the average of the marks for each course weighted by the credits of the course.
In Experimental Economics [25373] there may be the possibility - depending on the lecturer - to improve the final mark of the passed exam by writing a course homework and presenting it in class.

Prerequisites
None.

Conditions
Good knowledge of mathematics and statistics is recommended.
One of the lectures Game Theory I [25525] or Game Theory II [25369] has to be completed. Overall there has to be absolved examinations at at least 9 Credits.

Learning Outcomes
The student
- analyzes economic interdependencies under use of experimental mehtods and evaluates theoretial concepts,
- applies theoretical algorithms to economic and managerial problems,
- is able to analyze complex strategic decision problems by means of game theoretical concepts,
- knows basic solutions concepts of simple strategic decisions and is able to apply them to concrete economic problems,
- understands economic and managerial decision problems and is able to solve them by applying suitable solution concepts,
- knows experimental methods in economics from experiment design to evaluation of data.

Content
Lectures discuss individual as well as group decisions under (un-)certainty. Tutorials apply theoretical concepts to case studies. Theoretical models are compared to empirical findings.

Courses in module Applied Game Theory [WI3VWL1]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25525</td>
<td>Game Theory I (S. 230)</td>
<td>2/2</td>
<td>S</td>
<td>4.5</td>
<td>Berninghaus</td>
</tr>
<tr>
<td>25369</td>
<td>Game Theory II (S. 224)</td>
<td>2/2</td>
<td>W</td>
<td>4.5</td>
<td>Berninghaus</td>
</tr>
<tr>
<td>25371</td>
<td>Industrial Organization (S. 225)</td>
<td>2/1</td>
<td>S</td>
<td>4.5</td>
<td>Berninghaus</td>
</tr>
<tr>
<td>25373</td>
<td>Experimental Economics (S. 226)</td>
<td>2/1</td>
<td>S</td>
<td>4.5</td>
<td>Berninghaus, Bleich</td>
</tr>
</tbody>
</table>

Remarks
The lecture Experimental Economics is offered for the last time in summer 2009.
This module had the name Decision and Game Theory in previous versions of the module handbook. The lecture Economies of Uncertainty is offered in the module Strategic games.
Module: Strategic Games

Subject: Economics
Module coordination: Siegfried Berninghaus
Credit points (CP): 9

Learning Control / Examinations
The assessment mix of each course of this module is defined for each course separately. The final mark for the module is the average of the marks for each course weighted by the credits of the course. Written exams have a duration of 80mins.

Prerequisites
None.

Conditions
It is recommended to attend the courses in the following sequence:
1. Game Theory I [25525]
2. Game Theory II [25369]

Learning Outcomes
The student
- structurizes complex strategic decision problems and applies efficient solution algorithms,
- has a broad overview over game and decision theory,
- applies taught methods to problems of political and managerial consulting,
- knows basic solution concepts of simple strategic decision situations and is able to apply them to concrete economic problems,
- knows and analyzes strategic decisions, knows advanced solution concepts and applies them,
- knows basic elements of decision theory under (un-)certainty as well as more advanced models and is able to analyze and solve these problems, understands decision behavior by confronting it with experimental economics.

Content
The module consists of lectures in strategic decision making against other players or “nature”. Building on normal and extensive form games different strategic and non-strategic decision situations are laid out. Then more complex situations (e.g., repeated bargaining, reputation building) are discussed.

Courses in module Strategic Games [WI3VWL4]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25525</td>
<td>Game Theory I (S. 230)</td>
<td>2/2</td>
<td>S</td>
<td>4.5</td>
</tr>
<tr>
<td>25369</td>
<td>Game Theory II (S. 224)</td>
<td>2/2</td>
<td>W</td>
<td>4.5</td>
</tr>
<tr>
<td>25365</td>
<td>Economics of Uncertainty (S. 223)</td>
<td>2/2</td>
<td>S</td>
<td>4.5</td>
</tr>
</tbody>
</table>

Remarks
The lecture Economics of Uncertainty [25365] is now also part of this module.
Module: Industrial Organization

Module key: [WI3VWL2]

Subject: Economics
Module coordination: Harolf Grupp, N.N.
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
The module Economics [WI1VWL] has to be completed successfully.

Conditions
It is possible to attend the course Applying Industrial Organization [26287] before the course Industrial Organization [25371].

Learning Outcomes

Content

Courses in module Industrial Organization [WI3VWL2]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25371</td>
<td>Industrial Organization (S. 225)</td>
<td>2/1</td>
<td>S</td>
<td>4.5</td>
<td>Berninghaus</td>
</tr>
<tr>
<td>26274</td>
<td>Innovation (S. 270)</td>
<td>2/1</td>
<td>S</td>
<td>5</td>
<td>Grupp</td>
</tr>
<tr>
<td>25371</td>
<td>Applying Industrial Organization (S. 271)</td>
<td>2/2</td>
<td>W</td>
<td>6</td>
<td>Grupp, Fornahl</td>
</tr>
</tbody>
</table>

Modulhandbuch: Stand 13.03.2009

Business Engineering (B.Sc.)
Module: International Economics

Subject: Economics
Module coordination: Jan Kowalski
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content

Courses in module International Economics [WI3VWL3]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
</tr>
</thead>
<tbody>
<tr>
<td>26254</td>
<td>International Economic Policy (S. 267)</td>
<td>2</td>
<td>S</td>
<td>4</td>
</tr>
<tr>
<td>26259</td>
<td>Management and Organisation of Projects in Developing Countries (S. 268)</td>
<td>2/1</td>
<td>W</td>
<td>5</td>
</tr>
</tbody>
</table>

Responsible Lecturer(s)
Kowalski
Sieber
Module: Economic Policy

Subject: Economics
Module coordination: Werner Rothengatter
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
None.

Conditions
Knowledge in the area of macroeconomics is recommended.

Learning Outcomes

Content

Courses in module Economic Policy [WI3VWL5]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26252</td>
<td>International Economics (S. 266)</td>
<td>2/1</td>
<td>W</td>
<td>5</td>
<td>Kowalski</td>
</tr>
<tr>
<td>26274</td>
<td>Innovation (S. 270)</td>
<td>2/1</td>
<td>S</td>
<td>5</td>
<td>Grupp</td>
</tr>
</tbody>
</table>
Module: Financial Sciences  

Module key: [WI3VWL9]  

Subject: Economics  
Module coordination: Berthold Wigger  
Credit points (CP): 9  

Learning Control / Examinations  
Prerequisites  
None.  
Conditions  
None.  

Learning Outcomes  

Content  

Courses in module Financial Sciences [WI3VWL9]  

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>26120</td>
<td>Public Revenues (S. 262)</td>
<td>2/1</td>
<td>S</td>
<td>4,5</td>
<td>Wigger</td>
</tr>
<tr>
<td>26121</td>
<td>Fiscal Policy (S. 263)</td>
<td>2/1</td>
<td>W</td>
<td>4,5</td>
<td>Wigger</td>
</tr>
</tbody>
</table>
Module: Microeconomic Theory

Module key: [WI3VWL6]

Subject: Economics
Module coordination: Clemens Puppe
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
The module Economics [WW1VWL] has to be completed successfully.

Conditions
None.

Learning Outcomes

Content

Courses in module Microeconomic Theory [WI3VWL6]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25527</td>
<td>Advanced Microeconomic Theory (S. 231)</td>
<td>2/1</td>
<td>S</td>
<td>4.5</td>
<td>Puppe</td>
</tr>
<tr>
<td>25517</td>
<td>Welfare Economics (S. 229)</td>
<td>2/1</td>
<td>S</td>
<td>4.5</td>
<td>Puppe</td>
</tr>
<tr>
<td>25525</td>
<td>Game Theory I (S. 230)</td>
<td>2/2</td>
<td>S</td>
<td>4.5</td>
<td>Berninghaus</td>
</tr>
</tbody>
</table>
Module: Macroeconomic Theory

Subject: Economics
Module coordination: Clemens Puppe
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
The module Economics [WWL1VWL] has to be completed successfully.

Conditions
None.

Learning Outcomes

Content

Courses in module Macroeconomic Theory [WI3VWL8]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>25549</td>
<td>Macroeconomic Theory I (S. 233)</td>
<td>2/1</td>
<td>W</td>
<td>4.5</td>
<td>Barbie, Hillebrand</td>
</tr>
<tr>
<td>25551</td>
<td>Macroeconomic Theory II (S. 234)</td>
<td>2/1</td>
<td>S</td>
<td>4.5</td>
<td>Barbie</td>
</tr>
<tr>
<td>25543</td>
<td>Theory of Economic Growth (S. 232)</td>
<td>2/1</td>
<td>S</td>
<td>4.5</td>
<td>Hillebrand</td>
</tr>
</tbody>
</table>
6.3 Informatics

Module: Emphasis Informatics

Module key: [WI3INFO1]

Subject: Informatics
Module coordination: Hartmut Schmeck, Andreas Oberweis, Detlef Seese, Wolffried Stucky, Rudi Studer, Stefan Tai
Credit points (CP): 9

Learning Control / Examinations
see German version

Prerequisites
None.

Conditions
Either the course Advanced Programming - Java Network Programming [25889] or the course Advanced Programming - Application of Business Software [25886] has to be attended.

Learning Outcomes
see German version

Content

Courses in module Emphasis Informatics [WI3INFO1]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible</th>
<th>Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25780</td>
<td>Advanced Programming - Java Network Programming (S. 251)</td>
<td>2/1</td>
<td>S</td>
<td>5</td>
<td>Seese, Ratz</td>
<td></td>
</tr>
<tr>
<td>25886</td>
<td>Advanced Programming - Application of Business Software (S. 252)</td>
<td>2/1</td>
<td>W</td>
<td>5</td>
<td>Oberweis, Klink</td>
<td></td>
</tr>
<tr>
<td>25070</td>
<td>Applied Informatics I - Modelling (S. 203)</td>
<td>2</td>
<td>W</td>
<td>5</td>
<td>Oberweis, Studer</td>
<td></td>
</tr>
<tr>
<td>25033</td>
<td>Applied Informatics II - IT Systems for e-Commerce (S. 200)</td>
<td>2</td>
<td>S</td>
<td>5</td>
<td>Tai</td>
<td></td>
</tr>
<tr>
<td>25702</td>
<td>Algorithms for Internet Applications (S. 240)</td>
<td>2</td>
<td>W</td>
<td>5</td>
<td>Schmeck</td>
<td></td>
</tr>
<tr>
<td>25740</td>
<td>Knowledge Management (S. 243)</td>
<td>2</td>
<td>W</td>
<td>5</td>
<td>Studer</td>
<td></td>
</tr>
<tr>
<td>25760</td>
<td>Complexity Management (S. 245)</td>
<td>2</td>
<td>S</td>
<td>5</td>
<td>Seese</td>
<td></td>
</tr>
<tr>
<td>25728</td>
<td>Software Engineering (S. 242)</td>
<td>2</td>
<td>W</td>
<td>5</td>
<td>Oberweis, Seese</td>
<td></td>
</tr>
<tr>
<td>25772</td>
<td>Service-oriented Computing 2 (S. 250)</td>
<td>2</td>
<td>S</td>
<td>5</td>
<td>Tai, Studer</td>
<td></td>
</tr>
<tr>
<td>25700</td>
<td>Efficient Algorithms (S. 239)</td>
<td>2</td>
<td>S</td>
<td>5</td>
<td>Schmeck</td>
<td></td>
</tr>
</tbody>
</table>
Module: Electives in Informatic

Module key: [WI3INFO2]

Subject: Informatics
Module coordination: Hartmut Schmeck, Andreas Oberweis, Detlef Seese, Wolfrif Stucky, Stefan Tai, Rudi Studer
Credit points (CP): 9

Learning Control / Examinations
see German version

Prerequisites
None.

Conditions
None.

Learning Outcomes
see German version

Content

Courses in module *Electives in Informatic* [WI3INFO2]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>25070</td>
<td>Applied Informatics I - Modelling (S. 203)</td>
<td>2/1</td>
<td>W</td>
<td>5</td>
<td>Oberweis, Studer</td>
</tr>
<tr>
<td>25033</td>
<td>Applied Informatics II - IT Systems for e-Commerce (S. 200)</td>
<td>2/1</td>
<td>S</td>
<td>5</td>
<td>Tai</td>
</tr>
<tr>
<td>25702</td>
<td>Algorithms for Internet Applications (S. 240)</td>
<td>2/1</td>
<td>W</td>
<td>5</td>
<td>Schmeck</td>
</tr>
<tr>
<td>25700</td>
<td>Efficient Algorithms (S. 239)</td>
<td>2/1</td>
<td>S</td>
<td>5</td>
<td>Schmeck</td>
</tr>
<tr>
<td>25720</td>
<td>Datenbanksysteme (S. 241)</td>
<td>2/1</td>
<td>S</td>
<td>5</td>
<td>Oberweis, Dr. D. Sommer</td>
</tr>
<tr>
<td>25760</td>
<td>Complexity Management (S. 245)</td>
<td>2/1</td>
<td>S</td>
<td>5</td>
<td>Seese</td>
</tr>
<tr>
<td>25762</td>
<td>Intelligent Systems in Finance (S. 247)</td>
<td>2/1</td>
<td>S</td>
<td>5</td>
<td>Seese</td>
</tr>
<tr>
<td>25728</td>
<td>Software Engineering (S. 242)</td>
<td>2/1</td>
<td>W</td>
<td>5</td>
<td>Oberweis, Seese</td>
</tr>
<tr>
<td>25740</td>
<td>Knowledge Management (S. 243)</td>
<td>2/1</td>
<td>W</td>
<td>5</td>
<td>Studer</td>
</tr>
<tr>
<td>25748</td>
<td>Semantic Web Technologies I (S. 244)</td>
<td>2/1</td>
<td>W</td>
<td>5</td>
<td>Studer, Hitzler, Rudolph, Rudolph</td>
</tr>
<tr>
<td>25770</td>
<td>Service-oriented Computing 1 (S. 249)</td>
<td>2/1</td>
<td>W</td>
<td>5</td>
<td>Tai</td>
</tr>
</tbody>
</table>
6.4 Operations Research

Module: Methods for Discrete Optimization

Module key: [WI3OR1]

Subject: Operations Research
Module coordination: Oliver Stein
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25432</td>
<td>Optimization on Graphs and Networks (S. 228)</td>
<td>4/2</td>
<td>S</td>
<td>9</td>
<td>Nickel, N.N.</td>
</tr>
<tr>
<td>25138</td>
<td>Mixed-integer Optimization (S. 208)</td>
<td>4/2</td>
<td>S</td>
<td>9</td>
<td>Stein</td>
</tr>
</tbody>
</table>

Remarks
The lecture Mixed-integer Optimization will be offered in SS 2009 and SS 2011.
Module: Methods for Combinatorial Optimization

Module key: [WI3OR2]

Subject: Operations Research

Module coordination:
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
The module Operations Research [WI1OR] has to be completed successfully.

Conditions
None.

Learning Outcomes

Content

Courses in module Methods for Combinatorial Optimization [WI3OR2]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25128</td>
<td>Combinatorial Optimization (S. 205)</td>
<td>4/2</td>
<td>S</td>
<td>9</td>
<td>N.n.</td>
</tr>
<tr>
<td>VLPP</td>
<td>Production Scheduling (S. 318)</td>
<td>4/2</td>
<td>W</td>
<td>9</td>
<td>N.N.</td>
</tr>
</tbody>
</table>

Remarks
The module is not yet offered.
Module: Methods for Continuous Optimization

Module key: [WI3OR3]

Subject: Operations Research
Module coordination: Oliver Stein
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content

Courses in module Methods for Continuous Optimization [WI3OR3]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>25111</td>
<td>Non-linear Optimization (S. 204)</td>
<td>4/2/2</td>
<td>S</td>
<td>9</td>
<td>Stein</td>
</tr>
<tr>
<td>25134</td>
<td>Global Optimization (S. 207)</td>
<td>4/2/2</td>
<td>W</td>
<td>9</td>
<td>Stein</td>
</tr>
</tbody>
</table>

Remarks
The module will be offered every second year.
The lectures will be offered that way:
• SS 2010 und SS 2012: Non-linear Optimization
Module: Stochastic Methods and Simulation

Subject: Operations Research
Module coordination: Karl-Heinz Waldmann
Credit points (CP): 9

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

Prerequisites
None.

Conditions
None.

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

Content
Topics overview:
Markov Chains, Poisson Processes, Markov Chains in Continuous Time, Queuing Systems.
Discrete event simulation, generation of random numbers, generating discrete and continuous random variables, statistical analysis of simulated data.
Variance reduction techniques, simulation of stochastic processes, case studies.

Courses in module Stochastic Methods and Simulation [WI3OR4]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25679</td>
<td>OR Methods and Models in Information Engineering and Management (S. 238)</td>
<td>2/1/2</td>
<td>W</td>
<td>5</td>
<td>Waldmann</td>
</tr>
<tr>
<td>25662</td>
<td>Simulation I (S. 236)</td>
<td>2/1/2</td>
<td>W/S</td>
<td>5</td>
<td>Waldmann</td>
</tr>
<tr>
<td>25665</td>
<td>Simulation II (S. 237)</td>
<td>2/1/2</td>
<td>W/S</td>
<td>5</td>
<td>Waldmann</td>
</tr>
</tbody>
</table>

Remarks
The lectures of the module are offered irregularly. The curriculum of the next two years is available online.
### 6.5 Statistics

**Module: Statistical Applications of Financial Risk Management**  
**Module key: [WI3STAT]**

**Subject:** Statistics  
**Module coordination:** Svetlozar Rachev  
**Credit points (CP):** 9

#### Learning Control / Examinations

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

#### Prerequisites

None.

#### Conditions

None.

#### Learning Outcomes

#### Content

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25325</td>
<td>Statistics and Econometrics in Business and Economics (S. 221)</td>
<td>2/2</td>
<td>W</td>
<td>4.5</td>
<td>Heller</td>
</tr>
<tr>
<td>25016</td>
<td>Economics III: Introduction in Econometrics (S. 199)</td>
<td>2/2</td>
<td>S</td>
<td>5</td>
<td>Höchstötter</td>
</tr>
<tr>
<td>25355</td>
<td>Bankmanagement und Finanzmärkte, Ökonometrische Anwendungen (S. 222)</td>
<td>2/2</td>
<td>S</td>
<td>5</td>
<td>Vollmer</td>
</tr>
<tr>
<td>25375</td>
<td>Data Mining (S. 227)</td>
<td>2</td>
<td>W</td>
<td>5</td>
<td>Nakhaeizadeh</td>
</tr>
</tbody>
</table>

**Remarks**

This module is offered for the first time in summer 2009.
6.6 Engineering Sciences

Module: Introduction to Technical Logistics

Module key: [WI3INGMB13]

Subject: Engineering Science
Module coordination: Kai Furmans
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
The engineering science modules of the fundamental studies have to be completed successfully.

Conditions
The courses Materialflow [21051] and Fundamentals of Technical Logistics [21081] are obligatory.

Learning Outcomes

Content

Courses in module Introduction to Technical Logistics [WI3INGMB13]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>21051</td>
<td>Materialflow (S. 128)</td>
<td>3/1</td>
<td>W</td>
<td>6</td>
<td>Furmans</td>
</tr>
<tr>
<td>21081</td>
<td>Fundamentals of Technical Logistics (S. 133)</td>
<td>3/1</td>
<td>S</td>
<td>6</td>
<td>Mittwoollen</td>
</tr>
<tr>
<td>21086</td>
<td>Warehouse and Distribution Systems (S. 135)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Lippolt</td>
</tr>
<tr>
<td>21056</td>
<td>Airport Logistics (S. 129)</td>
<td>2</td>
<td>W</td>
<td>3</td>
<td>Brendlin</td>
</tr>
<tr>
<td>21085</td>
<td>Automotive Logistics (S. 134)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Furmans</td>
</tr>
<tr>
<td>21089</td>
<td>Industrial Application of Material Handling Systems in Sorting and Distribution Systems (S. 136)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Foller</td>
</tr>
<tr>
<td>21692</td>
<td>International Production and Logistics (S. 167)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Lanza</td>
</tr>
</tbody>
</table>
Module: Handling Characteristics of Motor Vehicles

Subject: Engineering Science
Module coordination: Frank Gauterin
Credit points (CP): 9

Learning Control / Examinations

Prerequisites

Conditions
None.

Learning Outcomes

Content

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>21806</td>
<td>Vehicle Comfort and Acoustics I (S. 170)</td>
<td>2</td>
<td>W</td>
<td>3</td>
<td>Gauterin</td>
</tr>
<tr>
<td>21838</td>
<td>Handling Characteristics of Motor Vehicles II</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Unrau</td>
</tr>
<tr>
<td></td>
<td>(S. 177)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21845</td>
<td>Project Workshop-Automotive Engineering (S. 181)</td>
<td>3</td>
<td>W/S</td>
<td>4.5</td>
<td>Gauterin</td>
</tr>
<tr>
<td>21807</td>
<td>Handling Characteristics of Motor Vehicles I</td>
<td>2</td>
<td>W</td>
<td>3</td>
<td>Unrau</td>
</tr>
<tr>
<td>21838</td>
<td>Handling Characteristics of Motor Vehicles II</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Unrau</td>
</tr>
<tr>
<td></td>
<td>(S. 177)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21816</td>
<td>Vehicle Mechatronics I (S. 175)</td>
<td>2</td>
<td>W</td>
<td>3</td>
<td>Ammon</td>
</tr>
</tbody>
</table>
Module: Automotive Engineering

Module coordination: Frank Gauterin
Credit points (CP): 9

Learning Control / Examinations

Prerequisites

Conditions
None.

Learning Outcomes

Content

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>21845</td>
<td>Project Workshop-Automotive Engineering (S. 181)</td>
<td>3</td>
<td>W/S</td>
<td>4.5</td>
<td>Gauterin</td>
</tr>
<tr>
<td>21816</td>
<td>Vehicle Mechatronics I (S. 175)</td>
<td>2</td>
<td>W</td>
<td>3</td>
<td>Ammon</td>
</tr>
<tr>
<td>21812</td>
<td>Fundamentals in the Development of Commercial Vehicles I (S. 173)</td>
<td>1</td>
<td>W</td>
<td>1.5</td>
<td>Zürn</td>
</tr>
<tr>
<td>21198</td>
<td>Fundamentals in the Development of Commercial Vehicles II (S. 148)</td>
<td>1</td>
<td>S</td>
<td>1.5</td>
<td>Zürn</td>
</tr>
<tr>
<td>21810</td>
<td>Fundamentals in the Development of Passenger Vehicles I (S. 172)</td>
<td>1</td>
<td>W</td>
<td>1.5</td>
<td>Frech</td>
</tr>
<tr>
<td>21842</td>
<td>Fundamentals in the Development of Passenger Vehicles II (S. 179)</td>
<td>1</td>
<td>S</td>
<td>1.5</td>
<td>Frech</td>
</tr>
<tr>
<td>21843</td>
<td>Basics and Methods for Integration of Tires and Vehicles (S. 180)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Leister</td>
</tr>
<tr>
<td>21095</td>
<td>Simulation of coupled systems (S. 139)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Geimer</td>
</tr>
</tbody>
</table>
Module: Automotive Engineering

Subject: Engineering Science
Module coordination: Frank Gauterin
Credit points (CP): 9

Learning Control / Examinations

Prerequisites

Conditions
None.

Learning Outcomes

Content

Courses in module Automotive Engineering [WI3INGMB5]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>21805</td>
<td>Basics of Automotive Engineering I (S. 169)</td>
<td>4</td>
<td>W</td>
<td>6</td>
<td>Gauterin, Unrau</td>
</tr>
<tr>
<td>21835</td>
<td>Basics of Automotive Engineering II (S. 176)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Gauterin, Unrau</td>
</tr>
<tr>
<td>21845</td>
<td>Project Workshop-Automotive Engineering (S. 181)</td>
<td>3</td>
<td>W/S</td>
<td>4.5</td>
<td>Gauterin</td>
</tr>
<tr>
<td>21814</td>
<td>Fundamentals for Design of Motor-Vehicle Bodies I (S. 174)</td>
<td>1</td>
<td>W</td>
<td>1.5</td>
<td>Harloff</td>
</tr>
<tr>
<td>21840</td>
<td>Fundamentals for Design of Motor-Vehicle Bodies II (S. 178)</td>
<td>1</td>
<td>S</td>
<td>1.5</td>
<td>Harloff</td>
</tr>
<tr>
<td>21093</td>
<td>Fluid Power Systems (S. 138)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Geimer</td>
</tr>
<tr>
<td>21092</td>
<td>CAN-Bus Release Control (S. 137)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Geimer</td>
</tr>
</tbody>
</table>
Module: Mechanical Modelling for Technical Applications  
Module key: [WI3INGMB12]

**Subject:** Engineering Science  
**Module coordination:** Carsten Proppe  
**Credit points (CP):** 9

### Learning Control / Examinations

#### Prerequisites

The engineering science modules of the fundamental studies have to be completed successfully. The courses *Engineering Mechanics I* [21208] *Engineering Mechanics II* [21226] have to be completed successfully.

#### Conditions

None.

### Learning Outcomes

### Content

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>21252p</td>
<td>Lab Course Experimental Solid Mechanics (S. 153)</td>
<td>3</td>
<td>S</td>
<td>4.5</td>
<td>Böhlke</td>
</tr>
<tr>
<td>21252</td>
<td>Advanced Course on strength of materials (S. 152)</td>
<td>2</td>
<td>W</td>
<td>3</td>
<td>Böhlke</td>
</tr>
<tr>
<td>21264</td>
<td>Simulation Methods in Product Development Process (S. 154)</td>
<td>2/1</td>
<td>W</td>
<td>4.5</td>
<td>Ovtcharova, Albers, Böhlke</td>
</tr>
<tr>
<td>21224</td>
<td>Dynamics of Machines (S. 150)</td>
<td>2</td>
<td>W</td>
<td>3</td>
<td>N.N.</td>
</tr>
<tr>
<td>21212</td>
<td>Theory of Mechanical Vibrations (S. 149)</td>
<td>2</td>
<td>W</td>
<td>3</td>
<td>Seemann, Boyaci</td>
</tr>
</tbody>
</table>
Module: Mobile Machines

Module key: [WI3INGMB15]

Subject: Engineering Science
Module coordination: Marcus Geimer
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
The engineering science modules of the fundamental studies have to be completed successfully.
Knowledge of Fluid Power Systems are helpful, otherwise it is recommended to take the course Fluid Power Systems [21093].

Conditions
None.

Learning Outcomes

Content

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>21093</td>
<td>Fluid Power Systems (S. 138)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Geimer</td>
</tr>
<tr>
<td>21095</td>
<td>Simulation of coupled systems (S. 139)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Geimer</td>
</tr>
<tr>
<td>21092</td>
<td>CAN-Bus Release Control (S. 137)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Geimer</td>
</tr>
<tr>
<td>21073</td>
<td>Mobile Machines (S. 131)</td>
<td>4</td>
<td>W</td>
<td>6</td>
<td>Geimer</td>
</tr>
<tr>
<td>21812</td>
<td>Fundamentals in the Development of Commercial Vehicles I (S. 173)</td>
<td>1</td>
<td>W</td>
<td>1.5</td>
<td>Zürn</td>
</tr>
<tr>
<td>21198</td>
<td>Fundamentals in the Development of Commercial Vehicles II (S. 148)</td>
<td>1</td>
<td>S</td>
<td>1.5</td>
<td>Zürn</td>
</tr>
</tbody>
</table>
Module: Engine Development

Module key: [WI3INGMB17]

Subject: Engineering Science
Module coordination: Heiko Kubach
Credit points (CP): 18

Learning Control / Examinations

Prerequisites
Successful completion of the engineering modules of the core programme.
Knowledge in the area of thermodynamics is helpful.

Conditions
The courses Combustion Engines A [21101] and Combustion Engines B [21135] are obligatory and have to be attended.

Learning Outcomes

Content

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>21101</td>
<td>Combustion Engines A (S. 140)</td>
<td>4/2</td>
<td>W</td>
<td>6</td>
<td>Spicher</td>
</tr>
<tr>
<td>21135</td>
<td>Combustion Engines B (S. 145)</td>
<td>2/1</td>
<td>S</td>
<td>3</td>
<td>Spicher</td>
</tr>
<tr>
<td>21112</td>
<td>Supercharging of Internal Combustion Engines (S. 142)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Golloch</td>
</tr>
<tr>
<td>21114</td>
<td>Simulation of Spray and Mixture Formation in Internal Combustion Engines (S. 143)</td>
<td>2</td>
<td>W</td>
<td>3</td>
<td>Baumgarten</td>
</tr>
<tr>
<td>21134</td>
<td>Methods in Analyzing Internal Combustion (S. 144)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Wagner</td>
</tr>
<tr>
<td>21109</td>
<td>Motor Fuels for Combustion Engines and their Verifications (S. 141)</td>
<td>2</td>
<td>W</td>
<td>3</td>
<td>Volz</td>
</tr>
<tr>
<td>21138</td>
<td>Internal Combustion Engines and Exhaust Gas Aftertreatment Technology (S. 147)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Lox</td>
</tr>
<tr>
<td>21137</td>
<td>Engine Measurement Technologies (S. 146)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Bernhardt</td>
</tr>
</tbody>
</table>
Module: Combustion Engines

Subject: Engineering Science
Module coordination: Heiko Kubach
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
Successful completion of the engineering modules of the core programme. Knowledge in the area of thermodynamics is helpful.

Conditions
The course Combustion Engines A [21101] is obligatory.

Learning Outcomes

Content

Courses in module Combustion Engines [WI3INGMB16]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>21101</td>
<td>Combustion Engines A (S. 140)</td>
<td>4/2</td>
<td>W</td>
<td>6</td>
<td>Spicher</td>
</tr>
<tr>
<td>21135</td>
<td>Combustion Engines B (S. 145)</td>
<td>2/1</td>
<td>S</td>
<td>3</td>
<td>Spicher</td>
</tr>
<tr>
<td>21137</td>
<td>Engine Measurement Technologies (S. 146)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Bernhardt</td>
</tr>
<tr>
<td>21112</td>
<td>Supercharging of Internal Combustion Engines (S. 142)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Golloch</td>
</tr>
<tr>
<td>21114</td>
<td>Simulation of Spray and Mixture Formation in Internal Combustion Engines (S. 143)</td>
<td>2</td>
<td>W</td>
<td>3</td>
<td>Baumgarten</td>
</tr>
<tr>
<td>21134</td>
<td>Methods in Analyzing Internal Combustion (S. 144)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Wagner</td>
</tr>
<tr>
<td>21109</td>
<td>Motor Fuels for Combustion Engines and their Verifications (S. 141)</td>
<td>2</td>
<td>W</td>
<td>3</td>
<td>Volz</td>
</tr>
</tbody>
</table>
**Module: Production Technology I**

**Module key:** [WI3INGMB10]

**Subject:** Engineering Science  
**Module coordination:** Volker Schulze  
**Credit points (CP):** 9

**Learning Control / Examinations**

**Prerequisites**  
The engineering science modules of the fundamental studies have to be completed successfully.

**Conditions**  
None.

**Learning Outcomes**

**Content**

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>21657</td>
<td>Manufacturing Technology (S. 165)</td>
<td>4/2</td>
<td>W</td>
<td>9</td>
<td>Schulze</td>
</tr>
<tr>
<td>21660</td>
<td>Integrated Production Planning (S. 166)</td>
<td>4/2</td>
<td>S</td>
<td>9</td>
<td>Lanza</td>
</tr>
<tr>
<td>21652</td>
<td>Machine Tools (S. 164)</td>
<td>4/2</td>
<td>W</td>
<td>9</td>
<td>Munzinger</td>
</tr>
</tbody>
</table>
Module: Production Technology II

Module key: [WI3INGMB4]

Subject: Engineering Science
Module coordination: Volker Schulze
Credit points (CP): 18

Learning Control / Examinations

Prerequisites
The engineering science modules of the fundamental studies have to be completed successfully.

Conditions
None.

Learning Outcomes

Content

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>21657</td>
<td>Manufacturing Technology (S. 165)</td>
<td>4/2</td>
<td>W</td>
<td>9</td>
<td>Schulze</td>
</tr>
<tr>
<td>21660</td>
<td>Integrated Production Planning (S. 166)</td>
<td>4/2</td>
<td>S</td>
<td>9</td>
<td>Lanza</td>
</tr>
<tr>
<td>21652</td>
<td>Machine Tools (S. 164)</td>
<td>4/2</td>
<td>W</td>
<td>9</td>
<td>Munzinger</td>
</tr>
</tbody>
</table>
Module: Production Technology III

Module key: [WI3INGMB7]

Subject: Engineering Science
Module coordination: Volker Schulze
Credit points (CP): 27

Learning Control / Examinations

Prerequisites
The engineering science modules of the fundamental studies have to be completed successfully.

Conditions
None.

Learning Outcomes

Content

Courses in module Production Technology III [WI3INGMB7]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>21657</td>
<td>Manufacturing Technology (S. 165)</td>
<td>4/2</td>
<td>W</td>
<td>9</td>
<td>Schulze</td>
</tr>
<tr>
<td>21660</td>
<td>Integrated Production Planning (S. 166)</td>
<td>4/2</td>
<td>S</td>
<td>9</td>
<td>Lanza</td>
</tr>
<tr>
<td>21652</td>
<td>Machine Tools (S. 164)</td>
<td>4/2</td>
<td>W</td>
<td>9</td>
<td>Munzinger</td>
</tr>
</tbody>
</table>
Module: Specialization in Engineering Science

Subject: Engineering Science
Module coordination: M. J. Hoffmann
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
The corresponding course of the fundamental studies to each course in this module has to be completed successfully.

Conditions
None.

Learning Outcomes

Content

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>21782</td>
<td>Material Science II for Business Engineers (S. 168)</td>
<td>2/1</td>
<td>S</td>
<td>4.5</td>
<td>Hoffmann</td>
</tr>
<tr>
<td>21226</td>
<td>Engineering Mechanics II (S. 151)</td>
<td>2/1</td>
<td>S</td>
<td>4.5</td>
<td>Proppe</td>
</tr>
<tr>
<td>23224</td>
<td>Electrical Engineering II (S. 189)</td>
<td>2/1</td>
<td>S</td>
<td>4.5</td>
<td>Menesklou</td>
</tr>
</tbody>
</table>
Module: Emphasis Material Science

Subject: Engineering Science
Module coordination: M. J. Hoffmann
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
The course Material Science I [21760] has to be completed successfully. It is recommended to have natural science basic knowledge and to be familiar with the content of the course Material Science II [21782].

Conditions
None.

Learning Outcomes

Content

Courses in module Emphasis Material Science [WI3INGMB9]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>21553</td>
<td>Material Science III (S. 158)</td>
<td>4</td>
<td>W</td>
<td>6</td>
<td>Wanner</td>
</tr>
<tr>
<td>21603</td>
<td>Material Science III (S. 161)</td>
<td>4</td>
<td>W</td>
<td>6</td>
<td>Zum Gahr</td>
</tr>
<tr>
<td>21755</td>
<td>Introduction in Ceramics (S. 105)</td>
<td>2</td>
<td>W</td>
<td>3</td>
<td>Hoffmann</td>
</tr>
<tr>
<td>21574</td>
<td>Materials of Lightweight Construction (S. 159)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Weidenmann</td>
</tr>
<tr>
<td>21576</td>
<td>Selection and Usage of Material (S. 160)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Wanner</td>
</tr>
<tr>
<td>21626</td>
<td>Material Aspects of Tribology (S. 162)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Zum Gahr</td>
</tr>
<tr>
<td>21643</td>
<td>Constitution and Properties of Wear-resistant materials (S. 163)</td>
<td>2</td>
<td>W</td>
<td>3</td>
<td>Ullrich</td>
</tr>
</tbody>
</table>
Module: Product Lifecycle Management

Subject: Engineering Science
Module coordination: Jivka Ovtcharova
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
Successful completion of the engineering modules of the core programm.

Conditions
None.

Learning Outcomes

Content

Courses in module *Product Lifecycle Management* [WI3INGMB21]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>21350</td>
<td>Product Lifecycle Management (S. 155)</td>
<td>3/1</td>
<td>W</td>
<td>6</td>
<td>Ovtcharova</td>
</tr>
<tr>
<td>21366</td>
<td>Product Lifecycle Management in the Manufacturing Industry (S. 156)</td>
<td>2/0</td>
<td>W</td>
<td>3</td>
<td>Meier</td>
</tr>
<tr>
<td>21387</td>
<td>Computer Integrated Planning of New Products (S. 157)</td>
<td>2/0</td>
<td>S</td>
<td>3</td>
<td>Kläger</td>
</tr>
</tbody>
</table>
Module: Electrical Power Engineering

Subject: Engineering Science
Module coordination: Bernd Hoferer, Thomas Leibfried
Credit points (CP): 18

Learning Control / Examinations

Prerequisites
The engineering science modules of the fundamental studies have to be completed successfully.

Conditions
The courses Energy Generation [909081] and Electric Power System Engineering I [23371] are obligatory. In addition to that more courses totalling 9 credit points have to be attended.

Learning Outcomes

Content

Courses in module Electrical Power Engineering [WI3INGETIT1]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>909081</td>
<td>Systems for Electrical Energy (S. 295)</td>
<td>2/2</td>
<td>S</td>
<td>6</td>
<td>Leibfried</td>
</tr>
<tr>
<td>23371</td>
<td>Electric Power System Engineering I (S. 192)</td>
<td>2/2</td>
<td>W</td>
<td>6</td>
<td>Leibfried</td>
</tr>
<tr>
<td>23356</td>
<td>Energy Generation (S. 190)</td>
<td>2</td>
<td>W</td>
<td>3</td>
<td>Hoferer</td>
</tr>
<tr>
<td>23365</td>
<td>Diagnostics of Electrical Equipment (S. 191)</td>
<td>2/0</td>
<td>W</td>
<td>3</td>
<td>Leibfried</td>
</tr>
<tr>
<td>23390</td>
<td>Power Transformations (S. 194)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Schäfer</td>
</tr>
<tr>
<td>23382</td>
<td>Power Distribution Systems (S. 193)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Kühner</td>
</tr>
<tr>
<td>23396</td>
<td>Power Grid Supervisory and Control (S. 195)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Eichler</td>
</tr>
</tbody>
</table>
Module: Control Engineering

Subject: Engineering Science
Module coordination: Mathias Kluwe
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
The engineering science modules of the fundamental studies have to be completed successfully.
Knowledge of integral transformations are assumed. There it is recommended to attend the courses Complex Analysis and Integral Transformations beforehand.

Conditions
The courses are to be attended in the following sequence:
1. System Dynamics and Control Engineering [23155]
2. Modelling and Identification [VLMI]

Learning Outcomes

Content

Courses in module Control Engineering [WI3INGETIT2]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>23155</td>
<td>System Dynamics and Control Engineering (S. 188)</td>
<td>3/1</td>
<td>W</td>
<td>6</td>
<td>Kluwe</td>
</tr>
<tr>
<td>VLM</td>
<td>Modelling and Identification (S. 317)</td>
<td>2/1</td>
<td>S</td>
<td>4.5</td>
<td>N.N.</td>
</tr>
</tbody>
</table>
Module: Fundamentals of Spatial and Infrastructural Development
[WI3INGBGU1]

**Subject:** Engineering Science  
**Module coordination:** Ralf Roos  
**Credit points (CP):** 9

### Learning Control / Examinations

**Prerequisites**
The engineering science modules of the fundamental studies have to be completed successfully.

**Conditions**
None.

### Learning Outcomes

### Content

#### Courses in module Fundamentals of Spatial and Infrastructural Development [WI3INGBGU1]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19027</td>
<td>Basics in Transport Planning and Traffic Engineering (S. 115)</td>
<td>1/1</td>
<td>S</td>
<td>3</td>
<td>Zumkeller, Chlond</td>
</tr>
<tr>
<td>19026</td>
<td>Design Basics in Highway Engineering (S. 114)</td>
<td>1/1</td>
<td>S</td>
<td>3</td>
<td>Roos</td>
</tr>
<tr>
<td>19028</td>
<td>Spatial Planning and Planning Law (S. 116)</td>
<td>1/1</td>
<td>S</td>
<td>3</td>
<td>Engelke, Heberling</td>
</tr>
</tbody>
</table>
Module: Foundations of Guided Systems

Module key: [WI3INGBGU2]

Subject: Engineering Science
Module coordination: Friedrich Schedel
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
The engineering science modules of the fundamental studies have to be completed successfully.

Conditions
None.

Learning Outcomes

Content

Courses in module *Foundations of Guided Systems* [WI3INGBGU2]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19066</td>
<td>basic of ground born guided systems (S. 117)</td>
<td>3/1</td>
<td>S</td>
<td>6</td>
<td>Schedel, Hohnecker</td>
</tr>
<tr>
<td>19306</td>
<td>Railway Logistics, Management and Operating - Part I (S. 120)</td>
<td>1/1</td>
<td>W</td>
<td>3</td>
<td>Hohnecker</td>
</tr>
</tbody>
</table>
Module: Principles of Life Science Engineering

Module key: [WI3INGCV1]

Subject: Engineering Science

Module coordination: Volker Gaukel

Credit points (CP): 9

Learning Control / Examinations

Prerequisites
The engineering science modules of the fundamental studies have to be completed successfully.

Conditions
The course Principles of Process Engineering referring to Food I [22213] is obligatory.

Learning Outcomes

Content

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>22213</td>
<td>Principles of Process Engineering referring to Food I</td>
<td>2</td>
<td>W</td>
<td>4</td>
<td>Gaukel</td>
</tr>
<tr>
<td></td>
<td>(S. 184)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22601</td>
<td>Chemical Technology of Water (S. 187)</td>
<td>2</td>
<td>W</td>
<td>4</td>
<td>Frimmel</td>
</tr>
<tr>
<td>22319</td>
<td>Cycles and Global Development (S. 186)</td>
<td>2</td>
<td>W</td>
<td>4</td>
<td>Schaub</td>
</tr>
<tr>
<td>22220</td>
<td>Life Science Engineering II (S. 185)</td>
<td>2/0</td>
<td>W</td>
<td>2</td>
<td>Schuchmann, et. al.</td>
</tr>
</tbody>
</table>
Module: Reaction Engineering I

Subject: Engineering Science
Module coordination: Bettina Kraushaar-Czarnetzki
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
The engineering science modules of the fundamental studies have to be completed successfully.

Conditions
None.

Learning Outcomes

Content

Courses in module Reaction Engineering I [WI3INGCV2]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>22114</td>
<td>Reaction Engineering I (S. 183)</td>
<td>3/2</td>
<td>S</td>
<td>9</td>
<td>Müller</td>
</tr>
</tbody>
</table>
Module: Understanding and Prediction of Disasters I  Module key: [WI3INGINTER1]

Subject: Engineering Science
Module coordination: Ute Werner
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
The engineering science modules of the fundamental studies have to be completed successfully.

Conditions
None.

Learning Outcomes

Content

Courses in module Understanding and Prediction of Disasters I [WI3INGINTER1]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lector(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>03071</td>
<td>Climatology for Students of other Faculties (S.110)</td>
<td>3/2</td>
<td>S</td>
<td>5</td>
<td>Jones</td>
</tr>
<tr>
<td>04006</td>
<td>Introduction to General Geophysics (S.111)</td>
<td>2/1</td>
<td>W</td>
<td>4</td>
<td>Wenzel</td>
</tr>
<tr>
<td>04014</td>
<td>Tectonic Stress in Petroleum Rock Mechanics (S.112)</td>
<td>1/1</td>
<td>W</td>
<td>3</td>
<td>Müller</td>
</tr>
<tr>
<td>20242</td>
<td>Remote Sensing I (S.124)</td>
<td>1</td>
<td>S</td>
<td>1.5</td>
<td>Bähr</td>
</tr>
<tr>
<td>20262</td>
<td>Remote Sensing II (S.125)</td>
<td>2/1</td>
<td>S</td>
<td>4</td>
<td>Bähr</td>
</tr>
<tr>
<td>20150</td>
<td>Geoinformatics I (S.122)</td>
<td>2/1</td>
<td>W</td>
<td>4</td>
<td>Zippelt</td>
</tr>
<tr>
<td>20160</td>
<td>Geoinformatics II (S.123)</td>
<td>1/1</td>
<td>S</td>
<td>3</td>
<td>Rösch</td>
</tr>
<tr>
<td>19206</td>
<td>Measurement Techniques in Hydrology and Water Resources Management (S.118)</td>
<td>1/1</td>
<td>S</td>
<td>3</td>
<td>Buck, Ihringer</td>
</tr>
<tr>
<td>03013</td>
<td>Meteorological Natural Hazards (S.109)</td>
<td>2</td>
<td>W</td>
<td>3.5</td>
<td>Kottmeier, Hauck, Jones</td>
</tr>
<tr>
<td>19216b</td>
<td>Soil Erosion and Soil Conservation (S.119)</td>
<td>1</td>
<td>S</td>
<td>1.5</td>
<td>Prinz</td>
</tr>
</tbody>
</table>
Module: Understanding and Prediction of Disasters II  
Module key: [WI3INGINTER2]

Subject: Engineering Science  
Module coordination: Ute Werner  
Credit points (CP): 18

Learning Control / Examinations

Prerequisites
The engineering science modules of the fundamental studies have to be completed successfully.

Conditions
None.

Learning Outcomes

Content

Courses in module Understanding and Prediction of Disasters II [WI3INGINTER2]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>03071</td>
<td>Climatology for Students of other Faculties (S. 110)</td>
<td>3/2</td>
<td>S</td>
<td>5</td>
<td>Jones</td>
</tr>
<tr>
<td>04006</td>
<td>Introduction to General Geophysics (S. 111)</td>
<td>2/1</td>
<td>W</td>
<td>4</td>
<td>Wenzel</td>
</tr>
<tr>
<td>04014</td>
<td>Tectonic Stress in Petroleum Rock Mechanics (S. 112)</td>
<td>1/1</td>
<td>W</td>
<td>3</td>
<td>Müller</td>
</tr>
<tr>
<td>20242</td>
<td>Remote Sensing I (S. 124)</td>
<td>1</td>
<td>S</td>
<td>1.5</td>
<td>Bähr</td>
</tr>
<tr>
<td>20262</td>
<td>Remote Sensing II (S. 125)</td>
<td>2/1</td>
<td>S</td>
<td>4</td>
<td>Bähr</td>
</tr>
<tr>
<td>20150</td>
<td>GeoInformatics I (S. 122)</td>
<td>2/1</td>
<td>W</td>
<td>4</td>
<td>Zippelt</td>
</tr>
<tr>
<td>20160</td>
<td>GeoInformatics II (S. 123)</td>
<td>1/1</td>
<td>S</td>
<td>3</td>
<td>Rösch</td>
</tr>
<tr>
<td>03013</td>
<td>Meteorological Natural Hazards (S. 109)</td>
<td>2</td>
<td>W</td>
<td>3.5</td>
<td>Kottmeier, Hauck, Jones</td>
</tr>
<tr>
<td>19206</td>
<td>Measurment Techniques in Hydrology and Water Ressources Management (S. 118)</td>
<td>1/1</td>
<td>S</td>
<td>3</td>
<td>Buck, Ihringer</td>
</tr>
<tr>
<td>19216b</td>
<td>Soil Erosion and Soil Conservation (S. 119)</td>
<td>1</td>
<td>S</td>
<td>1.5</td>
<td>Prinz</td>
</tr>
</tbody>
</table>
Module: Safety Science I

Module key: [WI3INGINTER3]

Subject: Engineering Science
Module coordination: Ute Werner
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
The engineering science modules of the fundamental studies have to be completed successfully.

Conditions
None.

Learning Outcomes

Content

Courses in module Safety Science I [WI3INGINTER3]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19315</td>
<td>Safety Management in Highway Engineering (S. 121)</td>
<td>1 W</td>
<td>2</td>
<td>2</td>
<td>Zimmermann</td>
</tr>
<tr>
<td>21061</td>
<td>Safety Engineering (S. 130)</td>
<td>2 W</td>
<td>4</td>
<td></td>
<td>Kany</td>
</tr>
<tr>
<td>21930</td>
<td>Radiation Protection and Nuclear Emergency Protection (S. 182)</td>
<td>2 S</td>
<td>4</td>
<td></td>
<td>Bayer</td>
</tr>
<tr>
<td>21037</td>
<td>Industrial Safety and Environmental Management (S. 127)</td>
<td>2 S</td>
<td>4</td>
<td></td>
<td>Zülch, Kiparski</td>
</tr>
<tr>
<td>21030</td>
<td>Occupational Health and Safety Management and Systems (S. 126)</td>
<td>1 W</td>
<td>2</td>
<td></td>
<td>Zülch</td>
</tr>
</tbody>
</table>
Module: Safety Science II

Subject: Engineering Science
Module coordination: Ute Werner
Credit points (CP): 18

Learning Control / Examinations

Prerequisites
The engineering science modules of the fundamental studies have to be completed successfully.

Conditions
None.

Learning Outcomes

Content

### Courses in module Safety Science II [WI3INGINTER4]

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19315</td>
<td>Safety Management in Highway Engineering (S. 121)</td>
<td>1 W 2</td>
<td></td>
<td></td>
<td>Zimmermann</td>
</tr>
<tr>
<td>21061</td>
<td>Safety Engineering (S. 130)</td>
<td>2 W 4</td>
<td></td>
<td></td>
<td>Kany</td>
</tr>
<tr>
<td>21930</td>
<td>Radiation Protection and Nuclear Emergency Protection (S. 182)</td>
<td>2 S 4</td>
<td></td>
<td></td>
<td>Bayer</td>
</tr>
<tr>
<td>21037</td>
<td>Industrial Safety and Environmental Management (S. 127)</td>
<td>2 S 4</td>
<td></td>
<td></td>
<td>Zülch, Kiparski</td>
</tr>
<tr>
<td>21030</td>
<td>Occupational Health and Safety Management and Systems (S. 126)</td>
<td>1 W 2</td>
<td></td>
<td></td>
<td>Zülch</td>
</tr>
</tbody>
</table>
Module: Unscheduled Engineering Module

Subject: Engineering Science
Module coordination: Prüfer einer Ingenieurwissenschaftlichen Fakultät
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content

Remarks
The module is newly-offered in summer 2009.
6.7 Law

Module: Elective Module Law

Module key: [WI3JURA]

Subject: Law
Module coordination: Thomas Dreier
Credit points (CP): 9

Learning Control / Examinations
Prerequisites
None.

Conditions
None.

Learning Outcomes

Content

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>24012</td>
<td>Civil Law for Beginners (S. 196)</td>
<td>4/0</td>
<td>W</td>
<td>4</td>
<td>Dreier, Sester</td>
</tr>
<tr>
<td>24016</td>
<td>Public Law I - Basic Principles (S. 197)</td>
<td>2/0</td>
<td>W</td>
<td>3</td>
<td>Spiecker genannt Döhmann</td>
</tr>
<tr>
<td>24520</td>
<td>Public Law II - Public Economic Law (S. 198)</td>
<td>2/0</td>
<td>S</td>
<td>3</td>
<td>Spiecker genannt Döhmann</td>
</tr>
</tbody>
</table>
# 6.8 Sociology

**Module: Sociology/Empirical Social Research**

Module key: [WI3SOZ]

**Subject:** Sociology  
**Module coordination:** Gerd Nollmann  
**Credit points (CP):** 9

## Learning Control / Examinations

**Prerequisites**
None.

**Conditions**
None.

## Learning Outcomes

## Content

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible Lecturer(s)</th>
</tr>
</thead>
</table>
| 11005 | Social structures of modern societies (S. 113)  
      | spezSoz Special Sociology (S. 319)  
      | SozSem Projectseminar (S. 316) | 2 | W | 4 | Nollmann  
      | | | 2 | W/S | 2 | Nollmann, Pfadenhauer, Pfaff, Haupt, Grenz, Eisewicht  
      | | | 2 | W/S | 4 | Bernart, Kunz, Pfaff, Haupt, Grenz, Eisewicht |
6.9 General Modules

Module: Seminar Module

Module key: [WI3SEM]

Subject: no category
Module coordination: Marliese Uhrig-Homburg, Andreas Oberweis
Credit points (CP): 9

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content

<table>
<thead>
<tr>
<th>ID</th>
<th>Course</th>
<th>SWS</th>
<th>Term</th>
<th>CP</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>SemAlFB1</td>
<td>Seminar in Enterprise Information Systems (S. 301)</td>
<td>2</td>
<td>W/S</td>
<td>3</td>
<td>Studer, Oberweis, Stucky, Wolf, Kneuper</td>
</tr>
<tr>
<td>SemAlFB2</td>
<td>Seminar Efficient Algorithms (S. 302)</td>
<td>2</td>
<td>W/S</td>
<td>3</td>
<td>Schneck</td>
</tr>
<tr>
<td>SemAlFB3</td>
<td>Seminar Complexity Management (S. 303)</td>
<td>2</td>
<td>W/S</td>
<td>3</td>
<td>Seese</td>
</tr>
<tr>
<td>SemAlFB4</td>
<td>Seminar Knowledge Management (S. 304)</td>
<td>2</td>
<td>W</td>
<td>3</td>
<td>Studer</td>
</tr>
<tr>
<td>25131</td>
<td>Seminar in Continuous Optimization (S. 206)</td>
<td>2</td>
<td>W/S</td>
<td>3</td>
<td>Stein</td>
</tr>
<tr>
<td>25293</td>
<td>Seminar in Finance (S. 218)</td>
<td>2</td>
<td>W/S</td>
<td>3</td>
<td>Uhrig-Homburg, Ruckes</td>
</tr>
<tr>
<td>SemFBV1</td>
<td>Seminar in Insurance Management (S. 305)</td>
<td>2</td>
<td>W/S</td>
<td>3</td>
<td>Werner</td>
</tr>
<tr>
<td>SemFBV2</td>
<td>Seminar in Operational Risk Management (S. 306)</td>
<td>2</td>
<td>W/S</td>
<td>3</td>
<td>Werner</td>
</tr>
<tr>
<td>SemFBV3</td>
<td>Seminar in Risk Theory and Actuarial Science (S. 307)</td>
<td>2</td>
<td>W/S</td>
<td>3</td>
<td>Hipp</td>
</tr>
<tr>
<td>SemIP</td>
<td>Seminar in Ergonomics (S. 308)</td>
<td>2</td>
<td>W/S</td>
<td>3</td>
<td>Kauth, Karl</td>
</tr>
<tr>
<td>26524</td>
<td>Bachelor Seminar in Information Engineering and Management (S. 291)</td>
<td>2</td>
<td>W/S</td>
<td>3</td>
<td>Geyer-Schulz</td>
</tr>
<tr>
<td>26420</td>
<td>Topics of Sustainable Management of Housing and Real Estate (S. 281)</td>
<td>2</td>
<td>W/S</td>
<td>3</td>
<td>Lützkendorf</td>
</tr>
<tr>
<td>SemWIOR4</td>
<td>Seminar in Game and Decision Theory (S. 315)</td>
<td>2</td>
<td>W/S</td>
<td>3</td>
<td>Berninghaus</td>
</tr>
<tr>
<td>SemWIOR3</td>
<td>Seminar in Experimental Economics (S. 314)</td>
<td>2</td>
<td>W/S</td>
<td>3</td>
<td>Berninghaus</td>
</tr>
<tr>
<td>SemWIOR2</td>
<td>Seminar Economic Theory (S. 313)</td>
<td>2</td>
<td>W/S</td>
<td>3</td>
<td>Puppe</td>
</tr>
<tr>
<td>SemIW</td>
<td>Seminar Information Engineering and Management (S. 310)</td>
<td>2</td>
<td>W/S</td>
<td>3</td>
<td>Weinhardt</td>
</tr>
<tr>
<td>SemiWW</td>
<td>Seminar in System Dynamics and Innovation (S. 311)</td>
<td>2</td>
<td>W/S</td>
<td>3</td>
<td>Grupp, N.N.</td>
</tr>
<tr>
<td>26130</td>
<td>Seminar Financial Sciences (S. 264)</td>
<td>2</td>
<td>W/S</td>
<td>3</td>
<td>Wigger</td>
</tr>
<tr>
<td>26263</td>
<td>Seminar on Network Economics (S. 269)</td>
<td>2</td>
<td>W/S</td>
<td>3</td>
<td>Mitsusch</td>
</tr>
<tr>
<td>SemWIOR1</td>
<td>Seminar Stochastic Models (S. 312)</td>
<td>2</td>
<td>W/S</td>
<td>3</td>
<td>Waldmann</td>
</tr>
<tr>
<td>25915</td>
<td>Seminar: Management and Organization (S. 256)</td>
<td>2</td>
<td>S</td>
<td>3</td>
<td>Lindstädt</td>
</tr>
<tr>
<td>SemiIP2</td>
<td>Seminar in Industrial Production (S. 309)</td>
<td>2</td>
<td>W/S</td>
<td>3</td>
<td>Schultmann</td>
</tr>
<tr>
<td>26470</td>
<td>Seminar Service Science, Management &amp; Engineering (S. 285)</td>
<td>2</td>
<td>W/S</td>
<td>3</td>
<td>Tai</td>
</tr>
<tr>
<td>HoC1</td>
<td>Elective „Culture - Policy - Science - Technology“ (S. 296)</td>
<td>2-4</td>
<td>W/S</td>
<td>3</td>
<td>House of Competence</td>
</tr>
<tr>
<td>HoC3</td>
<td>Elective Foreign Languages (S. 298)</td>
<td>2-4</td>
<td>W/S</td>
<td>2-4</td>
<td>House of Competence</td>
</tr>
<tr>
<td>HoC4</td>
<td>Elective „Tutor Programmes“ (S. 299)</td>
<td>k.A.</td>
<td>W/S</td>
<td>3</td>
<td>House of Competence</td>
</tr>
<tr>
<td>HoC2</td>
<td>Elective „Workshops for Competence and Creativity“ (S. 297)</td>
<td>2-4</td>
<td>W/S</td>
<td>3</td>
<td>House of Competence</td>
</tr>
<tr>
<td>HoC5</td>
<td>Elective „Personal Fitness &amp; Emotional Competence“ (S. 300)</td>
<td>k.A.</td>
<td>W/S</td>
<td>2-3</td>
<td>House of Competence</td>
</tr>
</tbody>
</table>
Module: Internship

Subject: no category
Module coordination: Der Vorsitzende des Prüfungsausschusses
Credit points (CP): 8

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes
Content
Module: Bachelor Thesis

Subject: no category
Module coordination: Der Vorsitzende des Prüfungsausschusses
Credit points (CP): 12

Learning Control / Examinations
Prerequisites
None.
Conditions
None.

Learning Outcomes
Content
7 Courses

7.1 Foundation

Course: Financial Accounting and Cost Accounting  
Course key: [25002/25003]

Lecturers: Thomas Burdelski
Credit points (CP): 4  Hours per week: 2/2
Term: Wintersemester  Level: 1
Teaching language: Deutsch
Part of the modules: Business Administration [WI1BWL] (S. 17)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Business transactions are economic events that affect the financial position of a business entity. After this basic course students have to be familiar with the principles of Financial and Management Accounting especially with the four financial statements and the instruments of a cost accounting system.

Content

After an introduction to the objectives of accounting the student will learn the double- Entry- System, the basic method of accounting, and the difference between accounting and bookkeeping. We examine the typical business transactions for Trading Companies and Industrial Enterprises. Financial statements are the primary means of communicating important accounting information about a business to those who have an interest in the business. Four major financial statements are used to communicate accounting information: the income statement, the statement of retained earnings, the balance sheet and the statement of cash flows, here in the context with german laws (HGB). In the second part of the course the cost accounting instruments will be analyzed: cost type accounting, cost center accounting, and unit of output costing. Aspects of modern systems in Management Accounting conclude this basic course.

Media
slides

Basic literature
R. Buchner, Buchführung und Jahresabschluss, Vahlen Verlag
A. Coenenberg, Jahresabschluss und Jahresabschlussanalyse, Verlag Moderne Industrie
A. Coenenberg, Kostenrechnung und Kostenanalyse, Verlag Moderne Industrie
R. Ewert, A. Wagenhofer, Interne Unternehmensrechnung, Springer Verlag
J. Schöttler, R. Spulak, Technik des betrieblichen Rechnungswesen, Oldenbourg Verlag
Course: Business Administration and Management Science A

Lecturers: Thomas Burdelski
Credit points (CP): 3  Hours per week: 2
Term: Wintersemester  Level: 1
Teaching language: Deutsch
Part of the modules: Business Administration [W1BWL] (S. 17)

Learning Control / Examinations
Prerequisites
None.
Conditions
None.

Learning Outcomes
Content
Course: Business Administration and Management Science B  Course key: [25024/25025]

Lecturers: Wolfgang Gaul, Thomas Lützkendorf, Andreas Geyer-Schulz, Christof Weinhardt, Thomas Burdelski
Credit points (CP): 4  Hours per week: 2/0/2
Term: Sommersemester  Level: 1
Teaching language: Deutsch
Part of the modules: Business Administration [WI1BWL] (S. 17)

Learning Control / Examinations
Prerequisites
None.
Conditions
None.
Learning Outcomes
Content
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 engineering and management
   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
Course: Business Administration and Management Science C  Course key: [25026/25027]

Lecturers: Hagen Lindstädt, Martin E. Ruckes, Marliese Uhrig-Homburg, Thomas Burdelski
Credit points (CP): 4  Hours per week: 2/0/2
Term: Wintersemester  Level: 1
Teaching language: Deutsch
Part of the modules: Business Administration [WI1BWL] (S. 17)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content

1. Management and Organization
A) Foundations of Management
B) Foundations of Strategic Management
   • Process of Strategic Management
   • Strategic Analysis using the SWOT Framework
   • Formulating Strategic Options
   • Evaluation and Choice
C) Foundations of Organization
   • Why do Organizations exist?
   • Objectives, Measures and Conditions of Managing Organizations
   • Level 1: Division of Labour and Design of Departments
   • Level 2: Choosing the Hierarchical Structure
   • Level 3: Coordination and Formalization
D) Agency-theoretic Foundations:
   • Organization under Asymmetric Organization
   • Three Types of Informational Asymmetries
     • Type 1: Hidden Intention and Holdup
     • Type 2: Hidden Characteristics and Adverse Selection
     • Type 3: Hidden Action and Moral Hazard

Basic literature
Extensive bibliographic information will be given in the materials to the lecture.
Course: Economics I: Microeconomics

Lecturers: Clemens Puppe
Credit points (CP): 5  Hours per week: 3/0/2
Term: Wintersemester  Level: 1
Teaching language: Deutsch
Part of the modules: Economics [WI1VWL] (S. 18)

Learning Control / Examinations
Assessment will consist of a written exam (120 min) following §4, Abs. 2, 1 of the SPO.

Prerequisites
None.

Conditions
None.

Learning Outcomes
It is the main aim of this course to provide basic knowledge in economic modelling. Particularly, the student should be able to analyze market processes and the determinants of market results. Furthermore, she should be able to evaluate the effects of economic policy measures on market behavior and propose alternative but more effective policy measures. In particular, the student should learn
- to apply simple microeconomic concepts,
- to analyze the structure of real world economic phenomena,
- to judge the possible effects of economic policy measures on the behavior of economic agents (in simple decision problems),
- to possibly suggest alternative policy measures,
- to analyze as a participant of a tutorial simple economic problems by solving written exercises and to present the results of the exercises on the blackboard,
- practicing to solve the home work in due time,
- to become familiar with the basic literature on microeconomics.

The student should gain basic knowledge in order to help in practical problems
- to analyze the structure of microeconomics relationships and possibly to present own problem solutions,

Content
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.

Media
downloadable from IT server

Basic literature
H. Varian, Grundzüge der Mikroökonomik, 5. edition (2001), Oldenburg Verlag
Pindyck, Robert S./Rubinfeld, Daniel L., Mikroökonomie, 6. Aufl., Pearson. Münscben, 2005

Complementary literature
- Offer for interested and top students: detailed top articles with proofs, algorithms, ... state-of-the-art surveys, industrial magazines and scientific journals, pointers to recent developments related to the course.
- Tutorials and perhaps simpler literature alternatives for students to fill in gaps in prerequisites (or to fresh up their memory). Alternatives with a different mode of explanation to help students understand ...
Course: Economics II: Macroeconomics

Lecturers: Werner Rothengatter, Schaffer
Credit points (CP): 5  Hours per week: 3/0/2
Term: Sommersemester  Level: 1
Teaching language: Deutsch
Part of the modules: Economics [WI1VWL] (S. 18)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Introduction to Programming with Java

Lecturers: Detlef Seese
Credit points (CP): 5  Hours per week: 3/1/2
Term: Wintersemester  Level: 1
Teaching language: Deutsch
Part of the modules: Introduction to Informatics [WI1INFO] (S. 19)

Learning Control / Examinations
see German part

Prerequisites
None.

Conditions
None.

Learning Outcomes
see German part

Content
see German part

Basic literature

Complementary literature

Remarks
see German part
Course: Foundations of Informatics I

Lecturers: Rudi Studer, Sudhir Agarwal, Cimiano
Credit points (CP): 5  Hours per week: 2/2
Term: Sommersemester  Level: 1
Teaching language: Deutsch
Part of the modules: Introduction to Informatics [WI1INFO] (S. 19)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes
Central theoretic basics and solution approaches coming from all areas of computer science are presented and illustrated and exercised using examples.

The following topics are covered:
  • Object oriented modeling
  • Logic (Propositional calculus, Predicate logic, boolean algebra)
  • Algorithms and their properties
  • Sort-and Search-Algorithms
  • Problem Specification
  • Dynamic Data Structures

Content

Complementary literature

Additional literature will be announced in the lecture.
Course: Foundations of Informatics II

Lecturers: Hartmut Schmeck
Credit points (CP): 5  Hours per week: 3/1
Term: Wintersemester  Level: 1
Teaching language: Deutsch
Part of the modules: Introduction to Informatics [WI1INFO] (S. 19)

Learning Control / Examinations
The assessment is done in form of a written exam (90 min.) (following §4(2), 1 SPO).
If the mark obtained in the written exam is in between 1.3 and 4.0, a successful completion of the assignments or of a bonus exam will improve the mark by one level.

Prerequisites
It is recommended to attend the course Foundations of Informatics I [25074] beforehand.
Active participation in the practical lessons is strongly recommended.

Conditions
None.

Learning Outcomes

Content
Course: Introduction to Operations Research I

Lecturers: Oliver Stein, Karl-Heinz Waldmann, Stefan Nickel
Credit points (CP): 4.5  Hours per week: 2/2/2
Term: Sommersemester  Level: 2
Teaching language: Deutsch
Part of the modules: Introduction to Operations Research [WI1OR] (S. 20)

Learning Control / Examinations

Prerequisites
See module information.

Conditions
None.

Learning Outcomes
Siehe Modulbeschreibung.

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, game theory.
Graphs and Networks: Basic notions of graph theory, shortest paths in networks, project scheduling, maximal and minimal cost flows in networks.

Media
Tafel, Folien, Skript, OR-Software

Basic literature
Skript

Complementary literature
- Neumann, Morlock: Operations Research. Hanser
- Winston: Operations Research - Applications and Algorithms. PWS-Kent
- Bünning, Naeve, Trenkler, Waldmann: Mathematik für Ökonomen im Hauptstudium. Oldenbourg 2000
Course: Introduction to Operations Research II

Lecturers: Oliver Stein, Karl-Heinz Waldmann, Stefan Nickel
Credit points (CP): 4.5  Hours per week: 2/2/2
Term: Wintersemester  Level: 2
Teaching language: Deutsch
Part of the modules: Introduction to Operations Research [WI1OR] (S. 20)

Learning Control / Examinations
See description of this module.

Prerequisites
See corresponding module information. Especially the course Introduction to Operations Research I [25040] is assumed.

Conditions
None.

Learning Outcomes
Siehe Modulbeschreibung.

Content
Integer and Combinatorial Programming: Basic notions, cutting plane methods, branch and bound methods, branch and cut methods, heuristics.  
Nonlinear Programming: Basic notions, optimality conditions, solution methods for convex and nonconvex optimization problems. Dynamic and stochastic models and methods: dynamical programming, Bellman method, lot sizing models, dynamical and stochastic inventory models, queuing theory.

Media
Tafel, Folien, Skript, OR-Software

Basic literature
Skript

Complementary literature
- Neumann, Morlock: Operations Research. Hanser
- Winston: Operations Research - Applications and Algorithms. PWS-Kent
- Bünning, Naeve, Trenkler, Waldmann: Mathematik für Ökonomen im Hauptstudium. Oldenbourg 2000
Course: Mathematics I

Course key: [01350]

Lecturers: Günter Last, Folkers, Klar
Credit points (CP): 7  Hours per week: 4/2/2
Term: Wintersemester  Level: 1
Teaching language: Deutsch
Part of the modules: Mathematics [WI1MATH] (S. 25)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Mathematics II

Lecturers: Günter Last, Folkers, Klar
Credit points (CP): 7  Hours per week: 4/2/2
Term: Sommersemester  Level: 1
Teaching language: Deutsch
Part of the modules: Mathematics [WI1MATH] (S. 25)

Learning Control / Examinations
Prerequisites
Good knowledge of the content of the course Mathematics I [01350].

Conditions
None.

Learning Outcomes
Content
Course: Mathematics III

Lecturers: Günter Last, Folkers, Klar
Credit points (CP): 7  Hours per week: 4/2/2
Term: Wintersemester  Level: 1
Teaching language: Deutsch
Part of the modules: Mathematics [WI1MATH] (S. 25)

Learning Control / Examinations

Prerequisites
Good knowledge of the content of the courses Mathematics I [01350] and Mathematics II [01830].

Conditions
None.

Learning Outcomes

Content
Course: Statistics I

Lecturers: Markus Höchstötter
Credit points (CP): 4.5  Hours per week: 4/0/2
Term: Sommersemester  Level: 1
Teaching language: Deutsch
Part of the modules: Statistics [WI1STAT] (S. 26)

Learning Control / Examinations
Prerequisites
None.
Conditions
None.

Learning Outcomes
The Student should understand and apply
• the basic concepts of statistical data exploration
• the basic definitions and theorems of probability theory

Content
A. Descriptive Statistics: univariate und bivariate analysis
B. Probability Theory: probability space, conditional and product probabilities

Media
lecture notes

Basic literature
Skriptum: Kurzfassung Statistik I

Complementary literature
• Bol, G.: Deskriptive Statistik, 5. Aufl., Oldenbourg, München etc., 2001
• Bosch, K.: Statistik-Taschenbuch, Oldenbourg, München etc., 1992
Course: Statistics II

Course key: [25020/25021]

Lecturers: Markus Höchstötter
Credit points (CP): 4.5  Hours per week: 4/0/2
Term: Wintersemester  Level: 2
Teaching language: Deutsch
Part of the modules: Statistics [WI1STAT] (S. 26)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes
probability theory (continued), Introduction to estimation and testing theory

Content
B. Probability Theory: transformation of probabilities, parameters of location and dispersion, most important discrete and continuous distributions, covariance and correlation, convolution and limit distributions
C. Theory of estimation and testing: sufficiency of statistics, point estimation (optimality, ML-method ), internal estimations, theory of tests (optimality, most important examples of tests)

Media
lecture notes

Basic literature
Skriftum: Kurzfassung Statistik II

Complementary literature

- Bosch, K.: Statistik-Taschenbuch, Oldenbourg, München etc., 1992
Course: Introduction in Ceramics

Lecturers: M. J. Hoffmann
Credit points (CP): 3  Hours per week: 2
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Emphasis Material Science [WI3INGMB9] (S. 71)

Learning Control / Examinations

Prerequisites
The course Material Science I [21760] has to be completed beforehand.
Basic knowledge of natural science and knowledge of the content Material Science II [21782] is recommended.

Conditions
None.

Learning Outcomes

Content
Course: Material Science I  

Lecturers: M. J. Hoffmann
Credit points (CP): 2.5  
Hours per week: 2/1
Term: Wintersemester  
Level: 1
Teaching language: Deutsch
Part of the modules: Material Science [WI1ING2] (S. 22)

Learning Control / Examinations
Prerequisites
None.

Conditions
None.

Learning Outcomes
Content
Course: Engineering Mechanics I

Lecturers: Carsten Proppe
Credit points (CP): 2.5  Hours per week: 2/1
Term: Wintersemester  Level: 1
Teaching language: Deutsch
Part of the modules: Engineering Mechanics [WI1ING3] (S. 23)

Learning Control / Examinations
Prerequisites
None.
Conditions
None.
Learning Outcomes

Content
Course: Electrical Engineering I

Lecturers: Wolfgang Menesklou
Credit points (CP): 2.5  Hours per week: 2/2
Term: Wintersemester  Level: 1
Teaching language: Deutsch
Part of the modules: Electrical Engineering [WI1ING4] (S. 21)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
7.2 Specialization

Course: Meteorological Natural Hazards

Course key: [03013]

Lecturers: Kottmeier, Hauck, Jones
Credit points (CP): 3.5  Hours per week: 2
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Understanding and Prediction of Disasters I [WI3INGINTER1] (S. 79), Understanding and Prediction of Disasters II [WI3INGINTER2] (S. 80)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Climatology for Students of other Faculties  

Course key: [03071]

Lecturers: Jones  
Credit points (CP): 5  
Hours per week: 3/2  
Term: Sommersemester  
Level: 3  
Teaching language: Deutsch  

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
**Course: Introduction to General Geophysics**

**Lecturers:** Wenzel  
**Credit points (CP):** 4  
**Hours per week:** 2/1  
**Term:** Wintersemester  
**Level:** 3  
**Teaching language:** Deutsch  
**Part of the modules:** Understanding and Prediction of Disasters I [WI3INGINTER1] (S. 79), Understanding and Prediction of Disasters II [WI3INGINTER2] (S. 80)

---

**Learning Control / Examinations**

**Prerequisites**
None.

**Conditions**
None.

**Learning Outcomes**

**Content**
Course: Tectonic Stress in Petroleum Rock Mechanics

Lecturers: Müller
Credit points (CP): 3  Hours per week: 1/1
Term: Wintersemester  Level: ???
Teaching language: Deutsch
Part of the modules: Understanding and Prediction of Disasters I [WI3INGINTER1] (S. 79), Understanding and Prediction of Disasters II [WI3INGINTER2] (S. 80)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Social structures of modern societies

Lecturers: Gerd Nollmann
Credit points (CP): 4  Hours per week: 2
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Sociology/Empirical Social Research [WI3SOZ] (S. 85)

Learning Control / Examinations

Prerequisites
None.

Conditions
The lecture is obligatorily in the module and has to be completed.

Learning Outcomes

Content
Course: Design Basics in Highway Engineering

Lecturers: Ralf Roos
Credit points (CP): 3  Hours per week: 1/1
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Fundamentals of Spatial and Infrastructural Development [WI3INGBGU1] (S. 75)

Learning Control / Examinations

Prerequisites
None.

Conditions
See corresponding module information.

Learning Outcomes

Content
Course: Basics in Transport Planning and Traffic Engineering

Lecturers: Dirk Zumkeller, Chlonid
Credit points (CP): 3  Hours per week: 1/1
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Fundamentals of Spatial and Infrastructural Development [WI3INGBGU1] (S. 75)

Learning Control / Examinations
Prerequisites
None.
Conditions
None.
Learning Outcomes
Content
Course: Spatial Planning and Planning Law

Course key: [19028]

Lecturers: Engelke, Heberling
Credit points (CP): 3  Hours per week: 1/1
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Fundamentals of Spatial and Infrastructural Development [WI3INGBGU1] (S. 75)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: basic of ground born guided systems

Lecturers: Friedrich Schedel, Hohnecker
Credit points (CP): 6  Hours per week: 3/1
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Foundations of Guided Systems [WI3INGBGU2] (S. 76)

Learning Control / Examinations
See module description.

Prerequisites
See module description.

Conditions
Siehe Modulbeschreibung.

Learning Outcomes

Content
Course: Measurement Techniques in Hydrology and Water Resources Management

**Course key:** [19206]

**Lecturers:** Buck, Ihringer

**Credit points (CP):** 3  
**Hours per week:** 1/1

**Term:** Sommersemester  
**Level:** 3

**Teaching language:** Deutsch

**Part of the modules:** Understanding and Prediction of Disasters I [WI3INGINTER1] (S. 79), Understanding and Prediction of Disasters II [WI3INGINTER2] (S. 80)

**Learning Control / Examinations**

**Prerequisites**  
None.

**Conditions**  
None.

**Learning Outcomes**

**Content**
Course: Soil Erosion and Soil Conservation

Lecturers: Prinz
Credit points (CP): 1.5  Hours per week: 1
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Understanding and Prediction of Disasters I [WI3INGINTER1] (S. 79), Understanding and Prediction of Disasters II [WI3INGINTER2] (S. 80)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Railway Logistics, Management and Operating - Part I

Lecturers: Hohnecker
Credit points (CP): 3  Hours per week: 1
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Foundations of Guided Systems [WI3INGBGU2] (S. 76)

Learning Control / Examinations
See module description.

Prerequisites
See module description.

Conditions
None.

Learning Outcomes

Content
Course: Safety Management in Highway Engineering  
Course key: [19315]

Lecturers: Zimmermann  
Credit points (CP): 2  
Hours per week: 1  
Term: Wintersemester  
Level: 3  
Teaching language: Deutsch  
Part of the modules: Safety Science I [WI3INGINTER3] (S. 81), Safety Science II [WI3INGINTER4] (S. 82)

Learning Control / Examinations

Prerequisites
See corresponding module information.

Conditions
None.

Learning Outcomes

Content
Course: Geoinformatics I

Lecturers: Zippelt
Credit points (CP): 4  Hours per week: 2/1
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Understanding and Prediction of Disasters I [WI3INGINTER1] (S. 79), Understanding and Prediction of Disasters II [WI3INGINTER2] (S. 80)

Learning Control / Examinations
Prerequisites
None.

Conditions
None.

Learning Outcomes
Content
Course: Geoinformatics II

Lecturers: Rösch
Credit points (CP): 3  Hours per week: 1/1
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Understanding and Prediction of Disasters I [WI3INGINTER1] (S. 79), Understanding and Prediction of Disasters II [WI3INGINTER2] (S. 80)

Learning Control / Examinations
Prerequisites
None.

Conditions
None.

Learning Outcomes
Content
Course: Remote Sensing I

Lecturers: Bähr

Credit points (CP): 1.5  Hours per week: 1

Term: Sommersemester  Level: 3

Teaching language: Deutsch

Part of the modules: Understanding and Prediction of Disasters I [WI3INGINTER1] (S. 79), Understanding and Prediction of Disasters II [WI3INGINTER2] (S. 80)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Remote Sensing II

Lecturers: Bähr
Credit points (CP): 4  Hours per week: 2/1
Term: Sommersemester  Level: 3
Teaching language: Deutsch

Learning Control / Examinations

Prerequisites
It is recommended to attend the course Thermodynamics beforehand.

Conditions
None.

Learning Outcomes

Content
Course: Occupational Health and Safety Management and Systems  
Course key: [21030]

Lecturers: Zülch
Credit points (CP): 2  
Hours per week: 1
Term: Wintersemester  
Level: 3
Teaching language: Deutsch
Part of the modules: Safety Science I [WI3INGINTER3] (S. 81), Safety Science II [WI3INGINTER4] (S. 82)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Industrial Safety and Environmental Management  
Course key: [21037]

Lecturers: Zülch, Kiparski
Credit points (CP): 4  Hours per week: 2
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Safety Science I [WI3INGINTER3] (S. 81), Safety Science II [WI3INGINTER4] (S. 82)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Materialflow

Lecturers: Kai Furmans

Credit points (CP): 6  Hours per week: 3/1

Term: Wintersemester  Level: 4

Teaching language: Deutsch

Part of the modules: Introduction to Technical Logistics [WI3INGMB13] (S. 59)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Airport Logistics

Lecturers: Brendlin
Credit points (CP): 3  Hours per week: 2
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Introduction to Technical Logistics [WI3INGMB13] (S. 59)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Safety Engineering

Course key: [21061]

Lecturers: Kany
Credit points (CP): 4  Hours per week: 2
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Safety Science I [WI3INGINTER3] (S. 81), Safety Science II [WI3INGINTER4] (S. 82)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Mobile Machines

Lecturers: Marcus Geimer
Credit points (CP): 6  Hours per week: 4
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Mobile Machines [WI3INGMB15] (S. 64)

Learning Control / Examinations
See modul description.

Prerequisites
It is recommended to attend the course Fluid Power Systems [21093] beforehand.

Conditions
None.

Learning Outcomes

Content

Modulhandbuch: Stand 13.03.2009  Business Engineering (B.Sc.)
Course: Logistics

Lecturers: Kai Furmans

Credit points (CP): 6  Hours per week: 3/1

Term: Sommersemester  Level: 3

Teaching language: Deutsch

Part of the modules: Supply Chain Management [WI3BWLISM2] (S. 29)

Learning Control / Examinations
Assessment will consist of a written exam following §4, Abs. 2, 1 of the examination regulation.

Prerequisites
Requied are lectures on “Linear Algebra” and “Stochastic”.

Conditions
None.

Learning Outcomes
After successfully finishing this course, the student is able to plan simple material handling and logistic systems and is able to assign the right models to a certain task. He is able to evaluate the performance of the most important elements of material handling and logistic systems.

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

Media
Blackboard, Beramer, In Excercises also PCs

Complementary literature
- Arnold/Isermann/Kuhn/Tempelmeier. Handbuch Logistik, Springer Verlag, 2002 (Neuauflage in Arbeit)
- Domschke. Logistik, Rundreisen und Touren, Oldenbourg Verlag, 1982
- Domschke/Drexel. Logistik, Standorte, Oldenbourg Verlag, 1996
- Gudehus. Logistik, Springer Verlag, 2007
- Tempelmeier. Bestandsmanagement in Supply Chains, Books on Demand 2006
Course: Fundamentals of Technical Logistics

Lecturers: Mittwoollen
Credit points (CP): 6  Hours per week: 3/1
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Introduction to Technical Logistics [WI3INGMB13] (S. 59)

Learning Control / Examinations

Prerequisites
Technical understanding is recommended.

Conditions
None.

Learning Outcomes

Content
Course: Autotmative Logistics

Lecturers: Kai Furmans
Credit points (CP): 3  Hours per week: 2
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Introduction to Technical Logistics [WI3INGMB13] (S. 59)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Warehouse and Distribution Systems

Lecturers: Lippolt
Credit points (CP): 3  Hours per week: 2
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Introduction to Technical Logistics [WI3INGMB13] (S. 59)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Industrial Application of Material Handling Systems in Sorting and Distribution Systems

Lecturers: Foller
Credit points (CP): 3  Hours per week: 2
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Introduction to Technical Logistics [WI3INGMB13] (S. 59)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: CAN-Bus Release Control

Lecturers: Marcus Geimer
Credit points (CP): 3  Hours per week: 2
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Automotive Engineering [WI3INGMB5] (S. 62), Mobile Machines [WI3INGMB15] (S. 64)

Learning Control / Examinations

Prerequisites
Basic knowledge of electrical engineering is recommended. Programming skills are also helpful.

Conditions
None.

Learning Outcomes

Content
Course: Fluid Power Systems

Lecturers: Marcus Geimer
Credit points (CP): 3  Hours per week: 2
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Automotive Engineering [WI3INGMB5] (S. 62), Mobile Machines [WI3INGMB15] (S. 64)

Learning Control / Examinations

Prerequisites
It is recommended to understand the mechanical and fluid mechanical basics.

Conditions
None.

Learning Outcomes

Content
Course: Simulation of coupled systems  

Course key: [21095]

Lecturers: Marcus Geimer
Credit points (CP): 3  
Hours per week: 2
Term: Sommersemester  
Level: 4
Teaching language: Deutsch
Part of the modules: Automative Engineering [WI3INGMB14] (S. 61), Mobile Machines [WI3INGMB15] (S. 64)

Learning Control / Examinations

Prerequisites
It is recommended to have:
- Knowledge of ProE (ideally Wildfire 2.0)
- Basic knowledge of Matlab/Simulink
- Basic knowledge of dynamics of machines
- Basic knowledge of hydraulics

Conditions
None.

Learning Outcomes

Content
Course: Combustion Engines A

Lecturers: Spicher
Credit points (CP): 6  Hours per week: 4/2
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Engine Development [WI3INGMB17] (S. 65), Combustion Engines [WI3INGMB16] (S. 66)

Learning Control / Examinations

Prerequisites
It is recommended to have basic knowledge of thermodynamics.

Conditions
None.

Learning Outcomes

Content
Course: Motor Fuels for Combustion Engines and their Verifications  
Course key: [21109]

Lecturers: Volz
Credit points (CP): 3  Hours per week: 2
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Engine Development [WI3INGMB17] (S. 65), Combustion Engines [WI3INGMB16] (S. 66)

Learning Control / Examinations

Prerequisites
Successful completion of the course Combustion Engines A [21101].
Basic knowledge of chemistry is recommended.

Conditions
None.

Learning Outcomes

Content
Course: Supercharging of Internal Combustion Engines

Course key: [21112]

Lecturers: Golloch
Credit points (CP): 3  Hours per week: 2
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Engine Development [WI3INGMB17] (S. 65), Combustion Engines [WI3INGMB16] (S. 66)

Learning Control / Examinations

Prerequisites
The course Combustion Engines A [21101] has to be completed beforehand.

Conditions
None.

Learning Outcomes

Content
Course: Simulation of Spray and Mixture Formation in Internal Combustion Engines

Course key: [21114]

Lecturers: Baumgarten

Credit points (CP): 3  Hours per week: 2

Term: Wintersemester  Level: 4

Teaching language: Deutsch

Part of the modules: Engine Development [WI3INGMB17] (S. 65), Combustion Engines [WI3INGMB16] (S. 66)

Learning Control / Examinations

Prerequisites

The course Combustion Engines A [21101] has to be completed beforehand.

Conditions

None.

Learning Outcomes

Content
Course: Methods in Analyzing Internal Combustion

Course key: [21134]

Lecturers: Wagner
Credit points (CP): 3  Hours per week: 2
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Engine Development [WI3INGMB17] (S. 65), Combustion Engines [WI3INGMB16] (S. 66)

Learning Control / Examinations

Prerequisites
The course Combustion Engines A [21101] has to be completed beforehand.

Conditions
None.

Learning Outcomes

Content
Course: Combustion Engines B

**Course key:** [21135]

**Lecturers:** Spicher  
**Credit points (CP):** 3  
**Hours per week:** 2/1  
**Term:** Sommersemester  
**Level:** 4  
**Teaching language:** Deutsch  
**Part of the modules:** Engine Development [WI3INGMB17] (S. 65), Combustion Engines [WI3INGMB16] (S. 66)

**Learning Control / Examinations**

**Prerequisites**
The course *Combustion Engines A* [21101] has to be completed beforehand. Knowledge of thermodynamics is recommended.

**Conditions**
None.

**Learning Outcomes**

**Content**
Course: Engine Measurement Technologies

Lecturers: Bernhardt
Credit points (CP): 3  Hours per week: 2
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Engine Development [WI3INGMB17] (S. 65), Combustion Engines [WI3INGMB16] (S. 66)

Learning Control / Examinations

Prerequisites
The course Combustion Engines A [21101] has to be completed beforehand.

Conditions
None.

Learning Outcomes

Content
Course: Internal Combustion Engines and Exhaust Gas Aftertreatment Technology

Course key: [21138]

Lecturers: Lox

Credit points (CP): 3  Hours per week: 2

Term: Sommersemester  Level: 4

Teaching language: Deutsch

Part of the modules: Engine Development [WI3INGMB17] (S. 65)

Learning Control / Examinations

Prerequisites
The course Combustion Engines A [21101] has to be completed beforehand.

Conditions
None.

Learning Outcomes

Content
Course: Fundamentals in the Development of Commercial Vehicles II  Course key: [21198]

Lecturers: Zürn
Credit points (CP): 1.5  Hours per week: 1
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules:  Automative Engineering [WI3INGMB14] (S. 61), Mobile Machines [WI3INGMB15] (S. 64)

Learning Control / Examinations

Prerequisites
It is recommended to attend the course Fundamentals in the Development of Passenger Vehicles I [21810] beforehand.

Conditions
None.

Learning Outcomes

Content
Course: Theory of Mechanical Vibrations

Lecturers: Seemann, Boyaci
Credit points (CP): 3  Hours per week: 2
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Mechanical Modelling for Technical Applications [WI3INGMB12] (S. 63)

Learning Control / Examinations

Prerequisites
The engineering science modules of the first three semesters have to be completed successfully.
The courses Technical Mechanics I [21208] and Technical Mechanics II [21226] have to be completed successfully.

Conditions
None.

Learning Outcomes

Content
Course: Dynamics of Machines

Course key: [21224]

Lecturers: N.N.
Credit points (CP): 3  Hours per week: 2
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Mechanical Modelling for Technical Applications [WI3INGMB12] (S. 63)

Learning Control / Examinations

Prerequisites
The engineering science modules of the first three semesters have to be completed successfully. The courses Technical Mechanics I [21208] and Technical Mechanics II [21226] have to be completed successfully.

Conditions
None.

Learning Outcomes

Content
Course: Engineering Mechanics II

Lecturers: Carsten Proppe
Credit points (CP): 4.5  Hours per week: 2/1
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Specialization in Engineering Science [WI3INGMB8] (S. 70)

Learning Control / Examinations

Prerequisites
The module Technical Mechanics I [WI1ING3] has to be completed beforehand.

Conditions
None.

Learning Outcomes

Content
Course: Advanced Course on strength of materials

Lecturers: Böhlke
Credit points (CP): 3  Hours per week: 2
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Mechanical Modelling for Technical Applications [WI3INGMB12] (S. 63)

Learning Control / Examinations

Prerequisites
The engineering science modules of the first three semesters have to be completed successfully.
The courses Technical Mechanics I [21208] and Technical Mechanics II [21226] have to be completed successfully.

Conditions
None.

Learning Outcomes

Content
Course: Lab Course Experimental Solid Mechanics

Lecturers: Böhlke
Credit points (CP): 4.5  Hours per week: 3
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Mechanical Modelling for Technical Applications [WI3INGMB12] (S. 63)

Learning Control / Examinations

Prerequisites
The courses *Technical Mechanics I* [21208] and *Technical Mechanics II* [21226] have to be completed successfully. It is recommended to attend the course *Advanced Course on strength of materials* [21252].

Conditions
None.

Learning Outcomes

Content
Course: Simulation Methods in Product Development Process  
Course key: [21264]

Lecturers: Ovtcharova, Albers, Böhlke  
Credit points (CP): 4.5  
Hours per week: 2/1  
Term: Wintersemester  
Level: 3  
Teaching language: Deutsch  
Part of the modules: Mechanical Modelling for Technical Applications [WI3INGMB12] (S. 63)

Learning Control / Examinations

Prerequisites
The engineering science modules of the first three semesters have to be completed successfully.  
The courses Technical Mechanics I [21208] and Technical Mechanics II [21226] have to be completed successfully.

Conditions
None.

Learning Outcomes

Content
Course: Product Lifecycle Management

Lecturers: Jivka Ovtcharova
Credit points (CP): 6  Hours per week: 3/1
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Product Lifecycle Management [WI3INGMB21] (S. 72)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Product Lifecycle Management in the Manufacturing Industry Course key: [21366]

Lecturers: Gunter Meier
Credit points (CP): 3  Hours per week: 2/0
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Product Lifecycle Management [WI3INGMB21] (S. 72)

Learning Control / Examinations
Prerequisites
None.
Conditions
None.
Learning Outcomes
Content
Course: Computer Integrated Planning of New Products  

Lecturers: Roland Kläger  
Credit points (CP): 3  Hours per week: 2/0  
Term: Sommersemester  Level: 4  
Teaching language: Deutsch  
Part of the modules: Product Lifecycle Management [WI3INGMB21] (S. 72)  

Learning Control / Examinations  
Prerequisites  
None.  
Conditions  
None.  
Learning Outcomes  
Content
Course: Material Science III

Lecturers: Wanner
Credit points (CP): 6   Hours per week: 4
Term: Wintersemester   Level: 3
Teaching language: Deutsch
Part of the modules: Emphasis Material Science [WI3INGMB9] (S. 71)

Learning Control / Examinations

Prerequisites
The course Material Science I [21760] is a prerequisite.
It is recommended to have basic knowledge of natural science and knowledge of the content of the course Material Science II [21782].

Conditions
None.

Learning Outcomes

Content
Course: Materials of Lightweight Construction

Lecturers: Weidenmann
Credit points (CP): 3  Hours per week: 2
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Emphasis Material Science [WI3INGMB9] (S. 71)

Learning Control / Examinations

Prerequisites
Successfull completion of the course Material Science I [21760].
Basic knowledge of natural science and knowledge of the content Material Science II [21782] is recommended.

Conditions
None.

Learning Outcomes

Content
Course: Selection and Usage of Material

Course key: [21576]

Lecturers: Wanner
Credit points (CP): 3  Hours per week: 2
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Emphasis Material Science [WI3INGMB9] (S. 71)

Learning Control / Examinations

Prerequisites
The course Material Science I [21760] has to be completed beforehand. Basic knowledge of natural science and knowledge of the content Material Science II [21782] is recommended.

Conditions
None.

Learning Outcomes

Content
Course: Material Science III  

Lecturers: Zum Gahr  
Credit points (CP): 6  
Hours per week: 4  
Term: Wintersemester  
Level: 3  
Teaching language: Deutsch  
Part of the modules: Emphasis Material Science [WI3INGMB9] (S. 71)

Learning Control / Examinations

Prerequisites
The course Material Science I [21760] has to be completed beforehand. Basic knowledge of natural science and knowledge of the content Material Science II [21782] is recommended.

Conditions
None.

Learning Outcomes

Content
Course: Material Aspects of Tribology

Lecturers: Zum Gahr
Credit points (CP): 3  Hours per week: 2
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Emphasis Material Science [WI3INGMB9] (S. 71)

Learning Control / Examinations

Prerequisites
The course Material Science I [21760] has to be completed beforehand.
Basic knowledge of natural science and knowledge of the content Material Science II [21782] is recommended.

Conditions
None.

Learning Outcomes

Content
Course: Constitution and Properties of Wear-resistant materials

Course key: [21643]

Lecturers: Ullrich
Credit points (CP): 3  Hours per week: 2
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Emphasis Material Science [WI3INGMB9] (S. 71)

Learning Control / Examinations

Prerequisites
The course Material Science I [21760] has to be completed beforehand. Basic knowledge of natural science and knowledge of the content Material Science II [21782] is recommended.

Conditions
None.

Learning Outcomes

Content
Course: Machine Tools

Lecturers: Munzinger
Credit points (CP): 9  Hours per week: 4/2
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Production Technology I [WI3INGMB10] (S. 67), Production Technology II [WI3INGMB4] (S. 68), Production Technology III [WI3INGMB7] (S. 69)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes
Content
Course: Manufacturing Technology

Lecturers: Volker Schulze
Credit points (CP): 9  Hours per week: 4/2
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Production Technology I [WI3INGMB10] (S. 67), Production Technology II [WI3INGMB4] (S. 68), Production Technology III [WI3INGMB7] (S. 69)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Integrated Production Planning

Course key: [21660]

Lecturers: Lanza
Credit points (CP): 9  Hours per week: 4/2
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Production Technology I [WI3INGMB10] (S. 67), Production Technology II [WI3INGMB4] (S. 68), Production Technology III [WI3INGMB7] (S. 69)

Learning Control / Examinations

Prerequisites
It is recommended to attend the course Manufacturing Technology [21657] beforehand.

Conditions
None.

Learning Outcomes

Content
Course: International Production and Logistics

Lecturers: Lanza
Credit points (CP): 3  Hours per week: 2
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Introduction to Technical Logistics [WI3INGMB13] (S. 59)

Learning Control / Examinations
Prerequisites
None.
Conditions
None.
Learning Outcomes
Content
Course: Material Science II for Business Engineers

Course key: [21782]

Lecturers: Hoffmann
Credit points (CP): 4.5  Hours per week: 2/1
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Specialization in Engineering Science [WI3INGMB8] (S. 70)

Learning Control / Examinations

Prerequisites
The module Material Science [WI1ING2] has to be completed beforehand.

Conditions
None.

Learning Outcomes

Content
Course: Basics of Automotive Engineering I

Lecturers: Frank Gauterin, Unrau
Credit points (CP): 6  Hours per week: 4
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Automotive Engineering [WI3INGMB5] (S. 62)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Vehicle Comfort and Acoustics I

Lecturers: Frank Gauterin
Credit points (CP): 3  Hours per week: 2
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Handling Characteristics of Motor Vehicles [WI3INGMB6] (S. 60)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes
Content
Course: Handling Characteristics of Motor Vehicles I

Lecturers: Unrau
Credit points (CP): 3  Hours per week: 2
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Handling Characteristics of Motor Vehicles [WI3INGMB6] (S. 60)

Learning Control / Examinations
Prerequisites
None.
Conditions
None.

Learning Outcomes
Content
Course: Fundamentals in the Development of Passenger Vehicles I  

Course key: [21810]

Lecturers: Frech
Credit points (CP): 1.5  Hours per week: 1
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Automative Engineering [WI3INGMB14] (S. 61)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes
Content
Course: Fundamentals in the Development of Commercial Vehicles I  Course key: [21812]

Lecturers: Zürn
Credit points (CP): 1.5  Hours per week: 1
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Automative Engineering [WI3INGMB14] (S. 61), Mobile Machines [WI3INGMB15] (S. 64)

Learning Control / Examinations
Prerequisites
None.
Conditions
None.

Learning Outcomes
Content
Course: Fundamentals for Design of Motor-Vehicle Bodies I

Lecturers: Harloff
Credit points (CP): 1.5  Hours per week: 1
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Automotive Engineering [WI3INGMB5] (S. 62)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Vehicle Mechatronics I

Lecturers: Ammon
Credit points (CP): 3  Hours per week: 2
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Handling Characteristics of Motor Vehicles [WI3INGMB6] (S. 60), Automotive Engineering [WI3INGMB14] (S. 61)

Learning Control / Examinations

Prerequisites
It is recommended to have knowledge of control engineering, technical mechanics and automobile technology.

Conditions
None.

Learning Outcomes

Content
Course: Basics of Automotive Engineering II  
Course key: [21835]  

Lecturers: Frank Gauterin, Unrau  
Credit points (CP): 3  
Hours per week: 2  
Term: Sommersemester  
Level: 4  
Teaching language: Deutsch  
Part of the modules: Automotive Engineering [WI3INGMB5] (S. 62)  

Learning Control / Examinations  

Prerequisites  
It is recommended to attend the course Fundamentals for Design of Motor-Vehicle Bodies I [21814].  

Conditions  
None.  

Learning Outcomes  
Content
Course: Handling Characteristics of Motor Vehicles II

Lecturers: Unrau
Credit points (CP): 3  
Term: Sommersemester

Hours per week: 2  
Level: 4

Teaching language: Deutsch

Part of the modules: Handling Characteristics of Motor Vehicles [WI3INGMB6] (S. 60)

Learning Control / Examinations

Prerequisites
It is recommended to attend the course Handling Characteristics of Motor Vehicles I [21807] beforehand.

Conditions
None.

Learning Outcomes

Content
Course: Fundamentals for Design of Motor-Vehicle Bodies II  

Course key: [21840]

Lecturers: Harloff  
Credit points (CP): 1.5  
Hours per week: 1  
Term: Sommersemester  
Level: 4  
Teaching language: Deutsch  
Part of the modules: Automotive Engineering [WI3INGMB5] (S. 62)

Learning Control / Examinations  
Prerequisites  
It is recommended to attend the course *Fundamentals for Design of Motor-Vehicle Bodies I* [21814] beforehand.

Conditions  
None.

Learning Outcomes  
Content
Course: Fundamentals in the Development of Passenger Vehicles II

Course key: [21842]

Lecturers: Frech
Credit points (CP): 1.5  Hours per week: 1
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Automative Engineering [WI3INGMB14] (S. 61)

Learning Control / Examinations

Prerequisites
It is recommended to attend the course Fundamentals in the Development of Passenger Vehicles I [21810] beforehand.

Conditions
None.

Learning Outcomes

Content
Course: Basics and Methods for Integration of Tires and Vehicles

Lecturers: Leister
Credit points (CP): 3  Hours per week: 2
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules:  Automative Engineering [WI3INGMB14] (S. 61)

Learning Control / Examinations

Prerequisites
Knowledge of automobile technology is recommended.

Conditions
None.

Learning Outcomes

Content
Course: Project Workshop-Automotive Engineering

Lecturers: Frank Gauterin  
Credit points (CP): 4.5 Hours per week: 3
Term: Winter-/Sommersemester Level: 4
Teaching language: Deutsch

Learning Control / Examinations
Prerequisites None.
Conditions None.

Learning Outcomes
Content
Course: Radiation Protection and Nuclear Emergency Protection          Course key: [21930]

Lecturers: Bayer
Credit points (CP): 4   Hours per week: 2
Term: Sommersemester   Level: 3
Teaching language: Deutsch

Learning Control / Examinations

Prerequisites
Basic knowledge of physics/nuclear physics of the secondary school is assumed (atomic structure, electrons, etc.)

Conditions
None.

Learning Outcomes

Content
Course: Reaction Engineering I

Lecturers: Müller
Credit points (CP): 9  Hours per week: 3/2
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Reaction Engineering I [WI3INGCV2] (S. 78)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Principles of Process Engineering referring to Food I  

Course key: [22213]

Lecturers: Volker Gaukel
Credit points (CP): 4  Hours per week: 2
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Principles of Life Science Engineering [WI3INGCV1] (S. 77)

Learning Control / Examinations

Prerequisites
None.

Conditions
The course is an obligatory course within the module and has to be attended.

Learning Outcomes

Content
Course: Life Science Engineering II

Lecturers: Schuchmann, et. al.
Credit points (CP): 2  Hours per week: 2/0
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Principles of Life Science Engineering [W3INGCV1] (S. 77)

Learning Control / Examinations

Prerequisites
The engineering science modules of the first three semesters have to be completed successfully.

Conditions
None.

Learning Outcomes

Content
Course: Cycles and Global Development

Lecturers: Georg Schaub
Credit points (CP): 4  Hours per week: 2
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Principles of Life Science Engineering [WI3INGCV1] (S. 77)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Chemical Technology of Water

**Lecturers:** F.H. Frimmel

**Credit points (CP):** 4  **Hours per week:** 2

**Term:** Wintersemester  **Level:** 4

**Teaching language:** Deutsch

**Part of the modules:** Principles of Life Science Engineering [WI3INGCV1] (S. 77)

### Learning Control / Examinations

**Prerequisites**

None.

**Conditions**

See corresponding module information.

### Learning Outcomes

Content
Course: System Dynamics and Control Engineering

Course key: [23155]

Lecturers: Kluwe
Credit points (CP): 6  Hours per week: 3/1
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Control Engineering [WI3INGETIT2] (S. 74)

Learning Control / Examinations

Prerequisites
Knowledge of integral transformations is assumed. Therefore it is recommended to attend the course Complex Analysis and Integral Transformations beforehand or to acquire a good knowledge through private study (see literature), but a proof of performance is not necessary.

Conditions
None.

Learning Outcomes

Content
Course: Electrical Engineering II

Lecturers: Wolfgang Menesklou
Credit points (CP): 4.5  Hours per week: 2/1
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Specialization in Engineering Science [WI3INGMB8] (S. 70)

Learning Control / Examinations
Prerequisites
Successful completion of the module Electrical Engineering [WI1ING4].

Conditions
None.

Learning Outcomes

Content
Course: Energy Generation

Lecturers: Bernd Hoferer
Credit points (CP): 3  Hours per week: 2
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Electrical Power Engineering [WI3INGETIT1] (S. 73)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Diagnostics of Electrical Equipment

Lecturers: Thomas Leibfried
Credit points (CP): 3  Hours per week: 2/0
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Electrical Power Engineering [WI3INGETIT1] (S. 73)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Electric Power System Engineering I

Lecturers: Thomas Leibfried
Credit points (CP): 6  Hours per week: 2/2
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Electrical Power Engineering [WI3INGETIT1] (S. 73)

Learning Control / Examinations

Prerequisites
None.

Conditions
This course is obligatory within the module and has to be attended.

Learning Outcomes

Content
Course: Power Distribution Systems

Lecturers: Kühner
Credit points (CP): 3  Hours per week: 2
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Electrical Power Engineering [WI3INGETIT1] (S. 73)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Power Transformations

Lecturers: Schäfer
Credit points (CP): 3  Hours per week: 2
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Electrical Power Engineering [WI3INGETIT1] (S. 73)

Learning Control / Examinations
Prerequisites
None.
Conditions
None.
Learning Outcomes
Content
Course: Power Grid Supervisory and Control

Lecturers: Eichler
Credit points (CP): 3  Hours per week: 2
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Electrical Power Engineering [WI3INGETIT1] (S. 73)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Civil Law for Beginners

Lecturers: Thomas Dreier, Peter Sester
Credit points (CP): 4  Hours per week: 4/0
Term: Wintersemester  Level: 1
Teaching language: Deutsch
Part of the modules: Elective Module Law [WI3JURA] (S. 84)

Learning Control / Examinations
Assessment will consist of a written exam following §4, Abs. 2, 1 of the SPO. Time: 90 min.

Prerequisites
None.

Conditions
None.

Learning Outcomes
To begin with, the course provides students with a general introduction into law. It shall enable them to understand legal problems and solutions both with regard to lawmaking and to individual cases. Students shall grasp the differences between civil law, public law and criminal law. In particular, students shall learn the fundamental notions and constructions of Civil law as laid down in the German Civil Code (Bürgerliches Gesetzbuch, BGB), such as subjects and objects of law, legally binding declarations, the formation of contracts, standard terms and conditions, consumer protection, performance of contractual promises etc. Students shall be trained to understand legal problems and legal solutions. They shall be able to recognise the legal problems of a given factual situation and develop solutions to simple legal problems.

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

Media
Transparencies/Slides

Basic literature
Tba at the beginning of the course,

Complementary literature
Tba at the beginning of the course,
Course: Public Law I - Basic Principles  
Course key: [24016]

Lecturers: Indra Spiecker genannt Döhmann
Credit points (CP): 3  Hours per week: 2/0
Term: Wintersemester  Level: 2
Teaching language: Deutsch
Part of the modules: Elective Module Law [WI3JURA] (S. 84)

Learning Control / Examinations
Assessment will consist of a written exam concerning the courses Public Law I [24016] and Public Law II [24520] (following §4(2), 1 SPO).

Prerequisites
None.

Conditions
None.

Learning Outcomes
[Jonas wiederherstellen]

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

Media
abstracts, sketches on blackboard, slides

Basic literature
tba in scriptum

Complementary literature
tba in scriptum

Remarks
From the winter term 2008 on, the Public Law I will be lectured during the winter term and Public Law II will be lectured during the summer term. This means:

1. In the winter term 2008/2009, Public Law I was being lectured.
2. In the summer term 2009, Public Law II will be lectured.
**Course: Public Law II - Public Economic Law**

**Course key:** [24520]

**Lecturers:** Indra Spiecker genannt Döhmann

**Credit points (CP):** 3  
**Hours per week:** 2/0  
**Term:** Sommersemester  
**Level:** 2  
**Teaching language:** Deutsch

**Part of the modules:** Elective Module Law [WI3JURA] (S. 84)

### Learning Control / Examinations
Assessment will consist of a written exam concerning the courses Public Law I [24016] and Public Law II [24520] (following §4(2), 1 SPO).

### Prerequisites
None.

### Conditions
None.

### Learning Outcomes
Public economic law is of significant importance to supervise the German economy. In order to understand the functionality of mandatory interventions into market mechanisms in a thoroughly normed legal system, appropriate legal knowledge is required. This knowledge is to be provided in the lecture. In doing so, substantive law ought to be dealt with in a deepened way, while responsible authorities and institutions as well as possibilities of legal protection in the area of public commercial law will be taught at a glance. The lecture’s primary aim is to exercise handling the corresponding legal norms. It proceeds the lecture Public law I.

### Content
In a first step legal basics of the economic system (such as financial system and freedom of property and profession) will be presented. In this context, interaction between the Basic Constitutional Law and presettings of European Community law will be elaborated on as well. Thereafter, regulatory instruments of the administrative law will be analysed extensively. As particular matters, we will deal with industrial code, further trade law (handicrafts code; law of gastronomy), basic principles of telecommunication law, state aid law and public procurement law. A last part is devoted to the institutional design of the economy’s regulation.

### Media
content structure; documents

### Basic literature
Will be announced in the lecture.

### Complementary literature
TBA in lecture slides

### Remarks
In winter term 2008 on, the Public Law I will be lectured during the winter term and Public Law II will be lectured during the summer term. This means:

1. In the winter term 2008/2009, Public Law I will be lectured.
2. In the summer term 2009, Public Law II will be lectured.
Course: Economics III: Introduction in Econometrics

Lecturers: Markus Höchstötter
Credit points (CP): 5  Hours per week: 2/2
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Statistical Applications of Financial Risk Management [WI3STAT] (S. 58)

Learning Control / Examinations

Prerequisites
statistics I + II

Conditions
None.

Learning Outcomes
Familiarity with the basic concepts and methods of econometrics
Preparation of simple econometric surveys

Content
Simple and multiple linear regression (estimating parameters, confidence interval, testing, prognosis, testing assumptions)
Multi equation models
Dynamic models

Basic literature
- Schneeweß: Ökonometrie ISBN 3-7908-0008-2

Complementary literature
Additional literature will be suggested in course
Course: Applied Informatics II - IT Systems for e-Commerce  

Lecturers: Stefan Tai  
Credit points (CP): 5  
Hours per week: 2/1  
Term: Sommersemester  
Level: 2  
Teaching language: Deutsch  
Part of the modules: Emphasis Informatics [WI3INFO1] (S. 52), Electives in Informatic [WI3INFO2] (S. 53)

Learning Control / Examinations

Prerequisites
Knowledge of content of the courses Foundations of Informatics I [25074] and Foundations of Informatics II [25076] is expected.

Conditions
None.

Learning Outcomes
The student learns about IT methods and systems in support of modern electronic commerce. The student should be able to select, assess, design, and apply these methods and systems in a context-sensitive manner.

Content
The course introduces methods and systems in support of electronic commerce, including the topics:
- application architectures (incl. client server architectures)
- document description and exchange (incl. XML)
- enterprise middleware (incl. CORBA, Messaging Middleware, Java Enterprise Edition)
- Web services and SOA

Media
Slides, internet resources.

Basic literature
Tba in the lecture.
Course: Private and Social Insurance

Lecturers: Ute Werner, Heilmann, Besserer
Credit points (CP): 2.5  Hours per week: 2
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Insurance Management [WI3BWLFBV4] (S. 38)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Principles of Insurance Management

Lecturers: Ute Werner
Credit points (CP): 4,5  Hours per week: 3/0
Term: Wintersemester  Level: 4
Teaching language: Deutsch

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content

Remarks
This lecture will be held additionally in the summer term 2009.
Course: Applied Informatics I - Modelling

Lecturers: Andreas Oberweis, Rudi Studer
Credit points (CP): 5  Hours per week: 2/1
Term: Wintersemester  Level: 2
Teaching language: Deutsch
Part of the modules: Emphasis Informatics [WI3INFO1] (S. 52), Electives in Informatics [WI3INFO2] (S. 53)

Learning Control / Examinations
The assessment consists of an 1h written exam in the first week after lecture period.

Prerequisites
None.

Conditions
None.

Learning Outcomes
Basic knowledge about the strengths and weaknesses of various modeling approaches including their application areas.

Content
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 as well as event driven process chains together with their respective analysis techniques will be introduced.

Media
Slides.

Basic literature

Complementary literature
Course: Non-linear Optimization

Lecturers: Oliver Stein
Credit points (CP): 9  Hours per week: 4/2/2
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Methods for Continuous Optimization [WI3OR3] (S. 56)

Learning Control / Examinations
The assessment of the lecture is a written examination (120 minutes) according to §4(2), 1 of the examination regulation. Examination are held in the semester of the lecture and in the following semester. Upon attaining more than 50% of the exercise points, the grade of the passed examination is improved by a third of a grading step. Upon attaining more than 50% of the computer exercise points, the grade of the passed examination is improved by a third of a grading step.

Prerequisites
None.

Conditions
None.

Learning Outcomes
The student
- knows and understands fundamentals of nonlinear optimization,
- is able to choose, design and apply modern techniques of nonlinear optimization in practice.

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:
- Existence results for global minimizers
- 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)
- 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.

Complementary literature
- W. Alt, Nichtlineare Optimierung, Vieweg, 2002
- M.S. Bazaraa, H.D. Sherali, C.M. Shetty, Nonlinear Programming, Wiley, 1993

Remarks
The lecture will be offered in SS 2010.
Course: Combinatorial Optimization

Lecturers: N.n.
Credit points (CP): 9  Hours per week: 4/2
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Methods for Combinatorial Optimization [WI3OR2] (S. 55)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Seminar in Continous Optimization

Course key: [25131]

**Lecturers:** Oliver Stein  
**Credit points (CP):** 3  
**Hours per week:** 2  
**Term:** Winter-/Sommersemester  
**Level:** 4  
**Teaching language:** Deutsch  
**Part of the modules:** Seminar Module [WI3SEM] (S. 86)

**Learning Control / Examinations**

**Prerequisites**
See corresponding module information.

**Conditions**
Attendance is compulsory.  
Preferably at least one module offered by the institute should have been chosen before attending this seminar.

**Learning Outcomes**

**Content**
Course: Global Optimization
Course key: [25134]

Lecturers: Oliver Stein
Credit points (CP): 9  Hours per week: 4/2/2
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Methods for Continuous Optimization [WI3OR3] (S. 56)

Learning Control / Examinations
The assessment of the lecture is a written examination (120 minutes) according to §4(2), 1 of the examination regulation. The examination is held in the semester of the lecture and in the following semester. Upon attaining more than 50% of the exercise points, the grade of the passed examination is improved by a third of a grading step. Upon attaining more than 50% of the computer exercise points, the grade of the passed examination is improved by a third of a grading step.

Prerequisites
None.

Conditions
None.

Learning Outcomes
The student
• knows and understands the fundamentals of deterministic global optimization,
• is able to choose, design and apply modern techniques of deterministic global optimization in practice.

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 lecture treats methods for global optimization of functions under constraints. It is structured as follows:
• Convex Problems, duality, interior point methods
• Branch and bound methods
• Cutting plane methods
• Interval arithmetic
• Lipschitz optimization and αBB method
• Heuristics

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.

Complementary 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

Remarks
The lecture will be offered in winterterm 2010/11.
Course: Mixed-integer Optimization

Lecturers: Oliver Stein
Credit points (CP): 9  Hours per week: 4/2
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Methods for Discrete Optimization [WI3OR1] (S. 54)

Learning Control / Examinations
The assessment of the lecture is a written examination (120 minutes) according to §4(2), 1 of the examination regulation. Examination are held in the semester of the lecture and in the following semester.
Upon attaining more then 50% of the exercise points, the grade of the passed examination is improved by a third of a grading step.
Upon attaining more then 50% of the computer exercise points, the grade of the passed examination is improved by a third of a grading step.

Prerequisites
None.

Conditions
None.

Learning Outcomes
The student
• knows and understands the fundamentals of linear and nonlinear mixed integer programming,
• is able to choose, design and apply modern techniques of mixed integer programming in practice.

Content
Many optimization problems from economics, engineering and natural sciences are modeled with continuous as well as discrete variables. Examples are the energy minimal design of a chemical process in which several reactors may be switched on or off, or the time minimal covering of a distance with a vehicle equipped with a gear shift. While locally and globally optimal points can be defined straightforwardly, for their numerical identification an interplay of ideas from discrete and continuous optimization is necessary.

The lecture treats methods for the numerical solution of optimization problems which depend on continuous as well as discrete variables. It is structured as follows:
• Existence results
• Concepts of linear and convex optimization
• Mixed-integer linear programming (Gomory cuts, branch and cut methods, lift and project cuts)
• Mixed-integer convex programming (branch and bound methods)
• Generalized Benders decomposition
• Nonconvex mixed-integer optimization
• Heuristics

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.

Complementary literature

Remarks
The lecture will be offered in SS 2009.
Course: Marketing and Consumer Behavior

Lecturers: Wolfgang Gaul
Credit points (CP): 5  Hours per week: 2/1
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Foundations of Marketing [WI3BWLDMAR] (S. 34)

Learning Control / Examinations
Prerequisites
See corresponding module description.

Conditions
See corresponding module description.

Learning Outcomes

Content
Starting from the S-O-R paradigm where S stands for “stimuli”, O for “organism”, and R for “reactions”, aspects of consumer behavior are explained and possibilities are provided how marketing activities can be used to create desired influences. S-R models describe how consumer reactions depend on stimuli. Cognitive processes and psychical states help to explain how the (unobservable) interior of the organism contributes to the interpretation of reactions. In this context the adequate combination of available marketing instruments (price, product, promotion, place) will be discussed.
Course: Modern Market Research

Lecturers: Wolfgang Gaul
Credit points (CP): 5  Hours per week: 2/1
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Foundations of Marketing [WI3BWLMAR] (S. 34)

Learning Control / Examinations

Prerequisites
Basic knowledge of statistics.

Conditions
None.

Learning Outcomes

Content
Course: Marketing and Operations Research

Lecturers: Wolfgang Gaul
Credit points (CP): 5  Hours per week: 2/1
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Foundations of Marketing [WI3BWLMAR] (S. 34)

Learning Control / Examinations

Prerequisites
Basics of Operations Research are required.

Conditions
None.

Learning Outcomes

Content
Course: Corporate Planning and Operations Research

Lecturers: Wolfgang Gaul
Credit points (CP): 5  Hours per week: 2/1
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Specialization in Customer Relationship Management [WI3BWLISM5] (S. 32)

Learning Control / Examinations

Prerequisites
Basics of operations research are assumed.

Conditions
None.

Learning Outcomes

Content
Course: Brand Management

Lecturers: Bruno Neibecker
Credit points (CP): 4  Hours per week: 2
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Foundations of Marketing [WI3BWLMAR] (S. 34)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes
(See description of the module)

Content
The students should learn the essential scientific and practical principles of Marketing, especially branding. Branding consists of any name, design, style, words or symbols, singly or in any combination that distinguish one product from another in the eyes of the consumer. Brand positioning, brand loyalty and brand equity are discussed as important elements of a management concept. The focus of the course is not limited to short-term ROI, but also long-term benefits of communication strategies facing company’s responsibilities to all of its stakeholders, e.g. consumers, investors and public. The strategies and techniques in branding are broaden by several case studies. English as an international technical language in marketing is practiced with course readings and scientific papers. Content:

The course brand management starts with the development of the corporate objectives as the heart of the brand planning process followed by definitions of brand. Setting up on the psychological and social bases of consumer behavior, aspects of an integrated marketing communication are discussed. The students should acquire the particular value of branding strategies. The concept of brand personality is considered in two perspectives, from a practical point of view and the challenging position of the theoretical construct. Methods for the measurement of a consumer-based brand equity are compared with the financial valuation of the brand. The information provided by this equity measurements are related to the equity drivers in brand management. The marketers perspective will be accomplish with the analysis of several case studies. Within the limits of a knowledge based system for advertising evaluation many of the issues accomplished in the course are summarized. At the same time it is discussed as a tool to use marketing knowledge systematically.

Media
Slides, Powerpoint presentations, Website with Online Course Readings

Basic literature

Course: Bachelor Seminar in Foundations of Marketing

Lecturers: Wolfgang Gaul
Credit points (CP): 2  Hours per week: 2
Term: Winter-/Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Foundations of Marketing [WI3BWLMAR] (S. 34)

Learning Control / Examinations

Prerequisites
Knowledge like it is provided in the course Foundations of Marketing [WI3BWLMAR] is assumed.

Conditions
None.

Learning Outcomes
Content
Course: Management Accounting  
Course key: [25210]

Lecturers: Torsten Lüdecke  
Credit points (CP): 4.5  
Hours per week: 2/1  
Term: Sommersemester  
Level: 3  
Teaching language: Deutsch  
Part of the modules: Topics in Finance I [WI3BWLFBV5] (S. 40), Topics in Finance II [WI3BWLFBV6] (S. 41)

Learning Control / Examinations  
Prerequisites  
None.

Conditions  
None.

Learning Outcomes

Content
Course: Financial Management  

Lecturers: Martin E. Ruckes  
Credit points (CP): 4.5  
Hours per week: 2/1  
Term: Sommersemester  
Level: 3  
Teaching language: Deutsch  
Part of the modules: Essentials of Finance [WI3BWLFBV1] (S. 33)  

Learning Control / Examinations  
Prerequisites  
None.  
Conditions  
None.  
Learning Outcomes  

Content
Course: Financial Intermediation

Lecturers: Martin E. Ruckes
Credit points (CP): 4.5  Hours per week: 3
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Topics in Finance I [WI3BWLFBV5] (S. 40), Topics in Finance II [WI3BWLFBV6] (S. 41)

Learning Control / Examinations
Prerequisites
None.
Conditions
None.
Learning Outcomes
Content
Course: Seminar in Finance

Lecturers: Marliese Uhrig-Homburg, Martin E. Ruckes
Credit points (CP): 3  Hours per week: 2
Term: Winter-/Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Seminar Module [WI3SEM] (S. 86)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Exchanges

Lecturers: Jörg Franke
Credit points (CP): 1.5  Hours per week: 1
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Topics in Finance I [WI3BWLFBV5] (S. 40), Topics in Finance II [WI3BWLFBV6] (S. 41)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Business Strategies of Banks

Lecturers: Wolfgang Müller
Credit points (CP): 3  Hours per week: 2
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Topics in Finance I [WI3BWLFBV5] (S. 40), Topics in Finance II [WI3BWLFBV6] (S. 41)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Statistics and Econometrics in Business and Economics  
Course key: [25325]

Lecturers: Wolf-Dieter Heller
Credit points (CP): 4.5   Hours per week: 2/2
Term: Wintersemester    Level: 3
Teaching language: Deutsch
Part of the modules: Statistical Applications of Financial Risk Management [WI3STAT] (S. 58)

Learning Control / Examinations

Prerequisites
Basic knowledge in statistics is required.

Conditions
None

Learning Outcomes
statistically accurate use of financial market data, particularly time series analysis
Evaluation of various time series models and their applicability

Content
In Part 1 we will provide a thorough description of the quantitative part of investment theory paying attention to the mathematical, probabilistic and statistical methods now widely used in financial practice.
In Part 2 we shall study the methods of construction, identification and verification of time-series models, which are among most powerful instruments of the financial econometrics. The emphasis will be on the financial and economic indicators forecasting the financial time-series.

Media
transparencies lecture

Basic literature
e.g.

• Franke/Härdle/Hafner : Einführung in die Statistik der Finanzmärkte.
• Ruppert: Statistics and Finance

Complementary literature
See reading list
Course: Bankmanagement und Finanzmärkte, Ökonometrische Anwendungen

Lecturers: Karl-Heinz Vollmer
Credit points (CP): 5
Hours per week: 2/2
Term: Sommersemester
Level: 4
Teaching language: Deutsch
Part of the modules: Statistical Applications of Financial Risk Management [WI3STAT] (S. 58)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content

Basic literature

- Bierwag: Duration-Analysis; Managing Interest Rate Risk, 1987
- Andrew Harvey: The Econometric Analysis of Time Series, 2nd. Ed. 1993
- Andrew Harvey: Time Series Models, 2nd. Ed. 1994
- Pindyck, Rubinfeld: Econometric Models and Economic Forecasts, 1998
- B. Rolles: Gesamtbanksteuerung, 1999
Course: Economics of Uncertainty

Lecturers: Martin Barbie, Siegfried Berninghaus
Credit points (CP): 4.5  Hours per week: 2/2
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Strategic Games [WI3VWL4] (S. 45)

Learning Control / Examinations
Written exam, possible further requirements.

Prerequisites
None.

Conditions
Knowledge in mathematics and statistics is required.

Learning Outcomes
The student will be made familiar with the basics in modern decision making under uncertainty so that she will be able to analyze concrete decision problems and to develop simple solution procedures. By being confronted with experimental results in decision making the student should also be able to evaluate the behavioral part of decision making.

Content
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.

Media
overhead slides, possibly additional printed material.

Basic literature

Complementary literature
• Lippman/McCall, Economics of Uncertainty, in: Handbook of Mathematical Economics I, 1986
• DeGroot, Optimal Statistical Decisions, Kap. 1 und 2, 1970
Course: Game Theory II

Lecturers: Siegfried Berninghaus
Credit points (CP): 4.5  Hours per week: 2/2
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Applied Game Theory [WI3VWL1] (S. 44), Strategic Games [WI3VWL4] (S. 45)

Learning Control / Examinations

Prerequisites
Basic knowledge of mathematics and statistics is assumed.

Conditions
None.

Learning Outcomes
This course teaches advanced knowledge in strategic decision theory. Latest developments in game theory are discussed. The student learns to judge complex strategic problems and to offer adequate solutions.

Content
This lecture aims at amplifying the students' knowledge in game theory. Main topics are further concepts of non-cooperative game theory, cooperative game theory, evolutionary game theory and bargaining theory.

Media
Folien, Übungsblätter.

Basic literature

Complementary literature
Course: Industrial Organization

Lecturers: Siegfried Berninghaus

Credit points (CP): 4.5  Hours per week: 2/1

Term: Sommersemester  Level: 3

Teaching language: Deutsch

Part of the modules: Applied Game Theory [WI3VWL1] (S. 44), Industrial Organization [WI3VWL2] (S. 46)

Learning Control / Examinations

The assessment is a written examination according to §4(2), 1 SPO (80 min). The exam will be offered every term. It is possible to resit the exam at every official examination date.

Prerequisites

None.

Conditions

None.

Learning Outcomes

The students will learn to understand the negative effects of imperfect competition and possible political implications thereof. In every chapter of the course game theoretic models will be introduced with the objective to reveal how the theory of industrial organization can explain real world economic phenomena. The theoretical analysis of economic interrelations will be supplemented by class room experiments and if possible by presentations from business experts.

Content

In the first part of the course different market structures like monopoly, oligopoly and perfect competition will be introduced and compared with each other. In the main part advanced concepts on topics like price discrimination, product differentiation, collusive behavior, as well as different theoretical models on market entry and R&D will be presented.

Media

Slides.

Basic literature

• H. Bester (2007), Theorie der Industrieökonomik. Berlin: Springer-Verlag

Complementary literature

• D. Carlton, J. Perloff (2005), Modern Industrial Organization. Reading, Mass.: Addison-Wesley
• N. Schultz (2003), Wettbewerbspolitik: eine Einführung aus industrieökonomischer Perspektive, Tübingen: Mohr Siebeck
Course: Experimental Economics

Lecturers: Siegfried Berninghaus, Bleich
Credit points (CP): 4,5  Hours per week: 2/1
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Applied Game Theory [WI3VWL1] (S. 44)

Learning Control / Examinations
The assessment consists of an 80 min written exam. The lecturer may offer the opportunity to reach up to 10 points by writing a seminar thesis and a presentation to an individually announced topic.

Prerequisites
None.

Conditions
None.

Learning Outcomes
The students should learn
• how to gain scientific experience and knowledge (philosophy of science),
• how Game Theory and Experimental Economics influenced each other in scientific research,
• about the methods as well as the strengths and weaknesses of Experimental Economics,
• some examples of experimental research, such as markets and market equilibria, coordination games, bargaining, decision making under risk,
• how to evaluate data.

Content
Experimental Economics have become a separate field in Economics. Nearly all fields of the economic discipline use economic experiments to verify theoretical results. Besides being used for empirical validation, this method is applied in political and strategic consulting. The lecture gives an introduction to experimental methods in economics and shows differences to experiments in natural sciences. Scientific studies are used to show exemplary applications.

Media
Classroom experiments or experiments in the computer laboratory will be conducted. To some extent, slides are made available online.

Complementary literature
• Strategische Spiele; S. Berninghaus, K.-M. Ehrhart, W. Güth; Springer Verlag, 2nd ed., 2006.
• Experiments in Economics; J.D. Hey; Blackwell Publishers, 1991.
• Experimental Methods: A Primer for Economists; D. Friedman, S. Sunder; Cambridge University Press, 1994.

Remarks
The lecture is held for the last time in summer 2009. Last exams in October 2009 and April 2010.
Course: Data Mining

Lecturers: Gholamreza Nakhaeizadeh
Credit points (CP): 5  Hours per week: 2
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Statistical Applications of Financial Risk Management [WI3STAT] (S. 58)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

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

Basic literature

- 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
Course: Optimization on Graphs and Networks

Lecturers: Stefan Nickel, N.N.
Credit points (CP): 9  Hours per week: 4/2/2
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Methods for Discrete Optimization [WI3OR1] (S. 54)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Welfare Economics

Lecturers: Clemens Puppe
Credit points (CP): 4.5  Hours per week: 2/1
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Microeconomic Theory [WI3VWL6] (S. 50)

Learning Control / Examinations

Prerequisites
The courses Economics I: Microeconomics [25012] and Economics II: Macroeconomics [25014] have to be completed beforehand.

Conditions
None.

Learning Outcomes

Content
Course: Game Theory I

Lecturers: Siegfried Berninghaus
Credit points (CP): 4.5  Hours per week: 2/2
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Applied Game Theory [WI3VWL1] (S. 44), Strategic Games [WI3VWL4] (S. 45), Microeconomic Theory [WI3VWL6] (S. 50)

Learning Control / Examinations

Prerequisites
Basic knowledge of mathematics and statistics is assumed.

Conditions
None.

Learning Outcomes
This course conveys established knowledge in theory of strategic decision making. The students shall be able to analyze strategic problems systematically and to give advice for behavior in concrete economic situations.

Content
Main topic is non-cooperative game theory. Models, solution concepts and applications are discussed for simultaneous as well as sequential games. Different equilibrium concepts are introduced and a short introduction to cooperative game theory is given.

Media
Foliens, Übungsblätter.

Basic literature
Gibbons, A primer in Game Theory, Harvester-Wheatsheaf, 1992

Complementary literature
  • Binmore, Fun and Games, DC Heath, Lexington, MA, 1991
Course: Advanced Microeconomic Theory

Lecturers: Clemens Puppe
Credit points (CP): 4.5 Hours per week: 2/1
Term: Sommersemester Level: 4
Teaching language: Deutsch
Part of the modules: Microeconomic Theory [WI3VWL6] (S. 50)

Learning Control / Examinations
Prerequisites
None.
Conditions
None.
Learning Outcomes
Content
Course: Theory of Economic Growth

Course key: [25543]

Lecturers: Marten Hillebrand
Credit points (CP): 4.5  Hours per week: 2/1
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Macroeconomic Theory [WI3VWL8] (S. 51)

Learning Control / Examinations
Prerequisites
None.
Conditions
None.
Learning Outcomes
Content
Course: Macroeconomic Theory I

Lecturers: Martin Barbie, Marten Hillebrand
Credit points (CP): 4.5  Hours per week: 2/1
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Macroeconomic Theory [WI3VWL8] (S. 51)

Learning Control / Examinations

Prerequisites
The courses Economics I: Microeconomics [25012] and Economics II: Macroeconomics [25014] have to be completed beforehand.

Conditions
None.

Learning Outcomes

Content
Course: Macroeconomic Theory II

Lecturers: Martin Barbie
Credit points (CP): 4.5  Hours per week: 2/1
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Macroeconomic Theory [WI3VWL8] (S. 51)

Learning Control / Examinations

Prerequisites
The courses Economics I: Microeconomics [25012] and Economics II: Macroeconomics [25014] have to be completed beforehand.

Conditions
None.

Learning Outcomes

Content
Course: Operations Management

Lecturers: Cornelia Schön  
Credit points (CP): 5  Hours per week: 3  
Term: Wintersemester  Level: 3  
Teaching language: Englisch  
Part of the modules: Supply Chain Management [WI3BWLISM2] (S. 29)

Learning Control / Examinations
The assessment of this course consists of a written examination (60 min) (following §4(2), 1 SPO).

Prerequisites
Successfull completion of the module Introduction to Operations Research [IW1WWOR].

Conditions
None.

Learning Outcomes
Provide a general introduction to the language, concepts, techniques, tools, and actual developments of operations management.

Content
This course will provide a general introduction to the concepts and techniques of operations management, i.e. the design, planning, control, and improvement of manufacturing and service operations. The course begins with a strategic view of the operations function within a firm at the interface to other business functions such as finance, marketing, and human resources. We stress the role of operations for gaining competitive advantage, and discuss how to coordinate three tiers of operations, namely product development, process management, and supply chain management. As we proceed, we will investigate various problems of operations management at the tactical level in detail.

Particular attention is paid to services which are the largest and fastest growing segment of our economy and which play also an increasing role for manufacturing firms to remain competitive. Services pose particular challenges to managers due to their intangible and experiential nature, perishability and high levels of customer involvement. For services, “process is the product” and the customer often participates in the service delivery process as an external input factor. Accordingly, managing services requires tight integration between operations, strategy, marketing, technology, and organizational issues from an integrated viewpoint with a focus on the customer. Therefore, approaches from manufacturing operations management may not be applied directly to the service context without modifications.

We will cover selected topics in the areas of
• The Process View of the Organization
• Operations Strategy and Management
• Forecasting and Modelling Demand
• Process Analysis and Design
• Product and Service Design
• Logistics and Supply Chain Management
• Inventory Management and Replenishment (EOQ, Newsvendor, Order-up-to Inventory Model, Lot Sizing)
• Capacity Management, Queueing Analysis
• Revenue Management with Capacity Controls
• Project Management and Operations Scheduling
• Layout and Flows
• Push and Pull Production: MRP and JIT
• APS and ERP Systems
• Process Improvement and Quality

The course strives to provide a balance between qualitative (more strategic) concepts and a more quantitative approach at the tactical level drawing on models and methods from Operations Research. In addition to the fundamentals of operations management, we will discuss recent research results from scientific publications and actual case study applications.

Media
Lecture slides.
Course: Simulation I

Lecturers: Karl-Heinz Waldmann
Credit points (CP): 5  Hours per week: 2/1/2
Term: Winter-/Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Stochastic Methods and Simulation [WI3OR4] (S. 57)

Learning Control / Examinations
The assessment consists of an 1h written exam following §4(2), 1 SPO. Credit from the voluntary computer lab is accounted for in the overall grade raising the exam grade by 0.3 (§4(2), 3 SPO).

Prerequisites
Foundations in the following fields are required:
• Operations Research, as lectured in Introduction to Operations Research I [25040] and Introduction to Operations Research II [25043].
• Statistics, as lectured in Statistics I [25008/25009] and Statistics II [25020/25021].

Conditions
None.

Learning Outcomes
The lecture provides insights into the typical process in planning and conducting simulation studies.

Content
As the world is getting more complex it is oftern not possible to analytically provide key figures of interest without overly simplifying the problem. Thus efficient simulation techniques become more and more important. In the lecture important basic concepts are presented in terms of selected case studies.
Topics overview: Discrete event simulation, generation of random numbers, generating discrete and continuous random variables, statistical analysis of simulated data, variance reduction techniques, case studies.

Media
Blackboard, Slides, Flash Animations, Simulation Software

Basic literature
• Lecture Notes

Complementary literature

Remarks
The lecture is offered irregularly. The curriculum of the next two years is available online.
Course: Simulation II

Lecturers: Karl-Heinz Waldmann
Credit points (CP): 5  Hours per week: 2/1/2
Term: Winter-/Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Stochastic Methods and Simulation [WI3OR4] (S. 57)

Learning Control / Examinations
The assessment consists of an 1h written exam following §4(2), 1 SPO. Credit from the voluntary computer lab is accounted for in the overall grade raising the exam grade by 0.3 ( §4(2), 3 SPO).

Prerequisites
Foundations in the following fields are required:
  • Operations Research, as lectured in Introduction to Operations Research I [25040] and Introduction to Operations Research II [25043].
  • Statistics, as lectured in Statistics I [25008/25009] and Statistics II [25020/25021].
  • Simulation I [25662]

Conditions
not any

Learning Outcomes
The lecture provides insights into the typical process in planning and conducting simulation studies.

Content
As the world is getting more complex it is oftern not possible to analytically provide key figures of interest without overly simplifying the problem. Thus efficient simulation techniques become more and more important. In the lecture important basic concepts are presented in terms of selected case studies.
Topics overview: Variance reduction techniques, simulation of stochastic processes, case studies.

Media
Blackboard, Slides, Flash Animations, Simulation Software

Basic literature
  • Skript

Complementary literature

Remarks
The lecture is offered irregularly. The curriculum of the next two years is available online.
Course: OR Methods and Models in Information Engineering and Management  

**Lecturers:** Karl-Heinz Waldmann  
**Credit points (CP):** 5  
**Hours per week:** 2/1/2  
**Term:** Wintersemester  
**Level:** 4  
**Teaching language:** Deutsch  
**Part of the modules:** Stochastic Methods and Simulation [Wi3OR4] (S. 57)

### Learning Control / Examinations

The assessment consists of an 1h written exam following §4(2), 1 SPO. Credit from the voluntary computer lab is accounted for in the overall grade raising the exam grade by 0.3 (§4(2), 3 SPO).

### Prerequisites

None.

### Conditions

None.

### Learning Outcomes

The lecture provides students with knowledge of modern techniques of stochastic modelling. Students are able to properly describe and analyze basic stochastic systems.

### Content

Markov Chains, Poisson Processes, Markov Chains in Continuous Time, Queuing Systems

### Media

Blackboard, Slides, Flash Animations, Simulation Software

### Basic literature

Lecture Notes

### Complementary literature

Course: Efficient Algorithms
Course key: [25700]

Lecturers: Hartmut Schmeck
Credit points (CP): 5  Hours per week: 2/1
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Emphasis Informatics [WI3INFO1] (S. 52), Electives in Informatic [WI3INFO2] (S. 53)

Learning Control / Examinations
The assessment of this course is a written examination (60 min) in the first week after the end of the lecturing period. If the exam gets a mark between 1,3 and 4,0, it can be improved by one mark level (i.e. by 0,3 or 0,4) by a tutorial bonus, which is awarded for a minimum number of points on the assignments or for passing an additional “bonus exam”.
Deviations from this type of assessment are announced at the beginning of this course.

Prerequisites
credits for the Informatics modules of years 1 and 2.

Conditions
None.

Learning Outcomes
The student will learn how to use methods and concepts of efficient algorithms and how to demonstrate adequate innovative capabilities with respect to the used methods.
This course emphasizes the teaching of advanced concepts for the design and application of algorithms, data structures, and computer infrastructures in relation to their applicability in the real world. Based on a fundamental understanding of the covered concepts and methods, students should know how to select appropriate concepts and methods for problem settings in their professional life, and, if necessary, to extend and apply them in an adequate form. The students should be enabled to find adequate arguments for justifying their chosen problem solutions.

Content
In a problem oriented way the course presents systematic approaches to the design and analysis of efficient algorithms using standard tasks of information processing as generic examples. Special emphasis is put on the influence of data structures and computer architectures on the performance and cost of algorithms. In particular, the course emphasizes the design and analysis of algorithms on parallel computers and in hardware, which is increasingly important considering the growing presence of multicore architectures.

Media
- powerpoint slides with annotations using a tablet pc
- access to applets and Internet resources
- lecture recording (camtasia)

Basic literature
Borodin, Munro: The Computational Complexity of Algebraic and Numeric Problems (Elsevier 1975)
Cormen, Leiserson, Rivest: Introduction to Algorithms (MIT Press)
Sedgewick: Algorithms (Addison-Wesley) (many different versions available)

Complementary literature
will be announced in class
Course: Algorithms for Internet Application

Lecturers: Hartmut Schmeck
Credit points (CP): 5  Hours per week: 2/1
Term: Wintersemester  Level: 4
Teaching language: Englisch
Part of the modules: Emphasis Informatics [WI3INFO1] (S. 52), Electives in Informatics [WI3INFO2] (S. 53)

Learning Control / Examinations

Prerequisites
credits for all the Informatics modules of years 1 and 2 (except for at most one module)

Conditions
None.

Learning Outcomes
The students will learn to master methods and concepts of essential algorithms within Internet applications and to develop capabilities for innovative improvements. The course aims at teaching advanced concepts for the design and application of algorithms with respect to the requirements in networked systems. Based on a fundamental understanding of taught concepts and methods the students should be able to select appropriate concepts and methods for problem settings in their future professional life, and - if necessary - customize and apply them in an adequate way. The students will be capable to find appropriate arguments for their chosen approach to a problem setting.

In particular, the student will:
- know the structure and elementary protocols of the Internet (TCP/IP) and standard routing algorithms (distance vector and link state routing),
- know methods of information retrieval in the WWW, algorithms for searching information and be able to assess the performance of search engines,
- know how to design and use cryptographic methods and protocols to guarantee and check confidentiality, data integrity and authenticity,
- know algorithmic basics of electronic payment systems and of electronic money,
- the architectures and methodologies of firewalls.

Content
Internet and World Wide Web are changing our world, this core course provides the necessary background and methods for the design of central applications of the Internet. After an introduction into Internet technology the following topics are addressed: information retrieval in the www, structure and functioning of search engines, foundations of secure communication, electronic payment systems and digital money, and - if time permits - security architectures (firewalls), data compression, distributed computing on the Internet.

Media
Powerpoint slides with annotations on graphics screen, access to Internet resources, recorded lectures

Basic literature

Complementary literature
- Further references will be given in the course.
Course: Datenbanksysteme

Lecturers: Andreas Oberweis, Dr. D. Sommer
Credit points (CP): 5  Hours per week: 2/1
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Electives in Informatic [WI3INFO2] (S. 53)

Learning Control / Examinations
The assessment consists of an 1h written exam in the first week after lecture period.

Prerequisites
Knowledge of course Applied Informatics I - Modelling [25070] is expected.

Conditions
None.

Learning Outcomes
Students
- are familiar with the concepts and principles of data base models, languages and systems and their applications,
- can design and model relational data bases on the basis of theoretical foundations,
- are able to ensure an error-free operation and the integrity of the data base and
- know how to handle enhanced data base problems occurring in the enterprises.

Content
Database systems (DBS) play an important role in today's companies. Internal and external data is stored and processed in databases in every company. The proper management and organization of data helps to solve many problems, enables simultaneous queries from multiple users and is the organizational and operational base for the entire working procedures and processes of the company. The lecture leads in the area of the database theory, covers the basics of database languages and database systems, considers basic concepts of object-oriented and XML databases, conveys the principles of multi-user control of databases and physical data organization. In addition, it gives an overview of business problems often encountered in practice such as:
- Correctness of data (operational, semantic integrity)
- Restore of a consistent database state
- Synchronization of parallel transactions (phantom problem).

Media
Slides, Access to internet resources

Complementary literature

Further literature will be given individually.
Course: Software Engineering

Lecturers: Andreas Oberweis, Detlef Seese
Credit points (CP): 5  Hours per week: 2/1
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Emphasis Informatics [WI3INFO1] (S. 52), Electives in Informatic [WI3INFO2] (S. 53)

Learning Control / Examinations
The assessment consists of an 1h written exam in the first week after lecture period.

Prerequisites
Modul “Introduction to Informatics” [W1INFO] is precondition

Conditions
None.

Learning Outcomes
Students
- are familiar with the concepts and principles of software engineering
- know important and common software development process models
- know methods for requirements analysis and know how to model and evaluate use case models
- know models for systems structuring and controlling as well as architecture principles of software systems.
- can model and evaluate component diagrams
- are familiar with basic concepts of software quality management and are able to apply software test and evaluation methods.

Content
The course deals with fundamental aspects of the systematically development of huge software systems. The course covers topics such as:
- software developing process models
- methods and tools for the development phases: requirements analysis, system specification, system design, programming and testing.

Media
Slides, access to internet resources.

Complementary literature
- E. Gamma et al.. Design Patterns. Addison Wesley 1995.

Further literature is given in the course.
Course: Knowledge Management

Lecturers: Rudi Studer
Credit points (CP): 5  Hours per week: 2/1
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Emphasis Informatics [WI3INFO1] (S. 52), Electives in Informatic [WI3INFO2] (S. 53)

Learning Control / Examinations

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

Conditions
None.

Learning Outcomes
Making students sensitive to the problems of corporate knowledge management, knowledge about the central dimensions of influence as well as of relevant technologies for supporting knowledge management.

Content
In modern corporations, knowledge is an increasingly important aspect for fulfilling central tasks (amelioration of business processes, increasing innovation, increasing customer satisfaction, strategic planning and the like). Therefore, knowledge management has become a determining factor of success.

The lecture covers the different types of knowledge that play a role in knowledge management, the corresponding knowledge processes (generation, capture, access and usage of knowledge) as well as methodologies for the introduction of knowledge management solutions.

The lecture will further emphasize the following computer science techniques for knowledge management:

• Communities of Practice, Collaboration Tools, Skill Management
• ontology-based knowledge management
• Business Process oriented Knowledge Management
• Personal Knowledge Management
• Case Based Reasoning (CBR)

Media
Slides.

Basic literature
• C. Beierle, G. Kern-Isberner: Methoden wissensbasiertener Systeme, Vieweg, Braunschweig/Wiesbaden, 2. überarb. Auflage, 2005

Complementary literature
Course: Semantic Web Technologies I

Lecturers: Rudi Studer, Pascal Hitzler, Sebastian Rudolph, Rudolph

Credit points (CP): 5  Hours per week: 2/1

Term: Wintersemester  Level: 4

Teaching language: Deutsch

Part of the modules: Electives in Informatic (WI3INFO2) (S. 53)

Learning Control / Examinations

Prerequisites

Lectures on Informatics of the Bachelor on Information Management (Semester 1-4) or equivalent.

Conditions

None.

Learning Outcomes

• Basic knowledge about the main ideas and the realisation of Semantic Web Technologies

Content

"Semantic Web" denotes an extension of the World Wide Web by meta data and applications in order to make the meaning (semantics) of data on the web usable by intelligent systems, e.g. in e-commerce and internet portals. Central to this is the representation and processing of knowledge in form of ontologies. This lecture provides the foundations for knowledge representation and processing for the corresponding technologies and presents example applications. It covers the following topics:

• Extensible Markup Language (XML)
• Resource Description Framework (RDF) and RDF Schema
• Web Ontology Language (OWL)
• Rule Languages
• Applications

Media

Slides.

Basic literature


Complementary literature

Course: Complexity Management

Lecturers: Detlef Seese
Credit points (CP): 5
Hours per week: 2/1
Term: Sommersemester
Level: 4
Teaching language: Englisch
Part of the modules: Emphasis Informatics [WI3INFO1] (S. 52), Electives in Informatic [WI3INFO2] (S. 53)

Learning Control / Examinations
The assessment of this course consists of a written examination (60 min) (following §4(2), 1 SPO). The exam will be offered every semester and may be repeated at every ordinary exam date.
Questions are in English, answers are possible in German or in English.
In case that only a small number of candidates apply for the examination there will be offered an oral examination.

Prerequisites
A basic knowledge in informatics is suitable.

Conditions
None.

Learning Outcomes
Students will be enabled to acquire abilities, methods and instruments in the area of complexity management and learn to use them in an innovative way. The students should be enabled to find arguments for the solution of problems in this area. The basic goal of the lecture is to enable to understand the difficulties to manage complex systems and processes.

Content
Complexity is one of the biggest challenges of our time. Central questions are: - Why humans often fail in complex situations? - What is complexity? -What are reasons for complexity? - Which parameters are essential to control complexity? - How systems have to be designed to reduce their complexity and to enable management of complexity?
The lecture gives a survey on fundamental results and handles the following topics: - Understanding of the difficulties produced by complex systems and complex processes - Foundations: modelling complex systems, complexity theory, descriptive, structural and parametric complexity, dynamic systems, topology, dimension, non-linearity, chaos, randomness and emerging structures, human shortcomings, simulation - Complexity of products and production - Complexity of markets - How to improve complexity management? - Decision support by intelligent use of IT

Media
The slides of the lectures will be provided on the website of the lecture.

Basic literature
• Franz Reither: Komplexitätsmanagement. Gerling Akademie Verlag, München 1997
• S. Wolfram: A new kind of Science. Wolfram Media Inc. 2002

Complementary literature
• N. Immerman: Descriptive Complexity; Springer-Verlag, New York 1999
• R. Diestel: Graphentheorie, Springer 1996
• J. A. Bondy, U.S.R. Murty: Graph Theory, Springer 2008
• Christos H. Papadimitriou: Computational Complexity, Addison-Wesley, Reading, Massachusetts, 1994
• R. Niedermeier: Invitation to Fixed-Parameter Algorithms, Oxford University Press 2006
• W. Metzler: Nichtlineare Dynamik und Chaos, Teubner Studienbücher Mathematik, Stuttgart 1998
• G. Frizelle, H. Richards (eds.): Tackling industrial complexity: the ideas that make a difference. University of Cambridge, Institute of Manufacturing 2002
• M. J. North, Ch. M. Macal: Managing Business Complexity, Discovering Strategic Solutions with Agent-Based Modeling and Simulation, Oxford University Press 2006
• S. Bornholdt, H. G. Schuster (Eds.): Handbook of Graphs and Networks, From the Genome to the Internet, Wiley-VCH, 2003
• Further references will be given in each lecture.

Remarks
The content of the lecture will permanently be adapted to actual developments. This can be the cause to changes of the described content and schedule.
Course: Intelligent Systems in Finance

Lecturers: Detlef Seese
Credit points (CP): 5  Hours per week: 2/1
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: eFinance [WI3BWLISM3] (S. 30), Electives in Informatic [WI3INFO2] (S. 53)

Learning Control / Examinations
see the German part

Prerequisites
None.

Conditions
None.

Learning Outcomes
• The students acquire abilities and knowledge of methods and systems from the area of machine learning and learn how to use them in the area of finance, which is the core area of application of this lecture.
• It is taught the ability to choose and change these methods and systems adequate to the situation and to use them for problem solving in the area of finance.
• The students get the ability to find strategic and creative answers in their search for solutions for precisely defined, concrete and abstract problems.
• At the same time the lecture aims to give foundational knowledge and methods in the context of their application in practise. On the basis of the basic understanding of concepts and methods of informatics the students should be able to comprehend quickly the new developments in the area and to use them correctly.

Content
A new generation of computing methods, commonly known as “intelligent systems”, has recently been successfully applied to a variety of business and financial modelling tasks. In many application fields these novel methods outperform traditional statistical techniques. The lecture provides a comprehensive coverage of the area, including foundations and applications. In particular it deals with intelligent software agents, genetic algorithms, neural networks, support vector machines, fuzzy-logic, expert systems and intelligent hybrid systems. The presented applications focus on the finance area and are related to risk management (credit risk, operational risk), financial trading, portfolio management and economic modelling. The lecture is given in cooperation with the company msgGILLARDON. The lecture starts with an introduction of the central problems of application in this area, e.g. decision support for investors, Portfolio selection under constraints, information retrieval from business reports, automatic development of trading rules for the capital market, modelling of time series at the capital market, explanation of phenomena at capital markets by simulation, decision support in risk management (credit risk, operational risk). After this the basics of intelligent systems are discussed. Basic ideas and essential results for different stochastic heuristics for local search are discussed next, especially Hill Climbing, Simulated Annealing, Threshold Accepting and Tabu Search. After this different population-based approaches of evolutionary methods are presented, e.g. Genetic Algorithms, Evolutionary Strategies and Programming, Genetic Programming, Memetic Algorithms and Ant-Algorithms. It follows an introduction into Neural Networks, Support Vector Machines and Fuzzylogic. Softwareagents and agentbased stock market models are the next topic. The lecture ends with an overview on the complexity of algorithmic problems in the area of finance, giving in this way one of the key reasons for the necessity to use heuristics and intelligent systems. Essential examples and basic applications are choosen from the area of finance.

Media
Slides.

Basic literature
There is no text book covering completely the content of the lecture.

Further references will be given in each lecture.
Complementary literature

- Further references will be given in the lecture.

Remarks
The content of the lecture will permanently be adapted to actual developments. This can be the cause to changes of the described contend and schedule.
Course: Service-oriented Computing 1

Lecturers: Stefan Tai

Credit points (CP): 5  Hours per week: 2/1

Term: Wintersemester  Level: 4

Teaching language: Deutsch

Part of the modules: Electives in Informatic [WI3INFO2] (S. 53)

Learning Control / Examinations
The assessment of this course is a written examination (60min.) in the first week after lecture period (nach §4(2), 1 SPO).

Prerequisites
Lecture AI2 [25033] is recommended.

Conditions
None.

Learning Outcomes
The course introduces concepts, methods, and techniques of “service-oriented computing”, including languages for (Web) service description, methods and tools for the development of services, and platforms (middleware, runtimes) for the Web-based deployment, delivery, and execution of services. In addition, software-as-a-service models and emerging trends (incl. Cloud Computing) will be presented and discussed. The course provides a solid technical foundation that enables the student to address the increasingly relevant challenges of developing “service-oriented architectures (SOA)” in the industry.

Content
Web services represent the next-generation of Web technology, and are an evolution of conventional distributed middleware. They enable new and improved ways for enterprise computing, including application interoperability and integration, and business process management. Modern software systems are being designed as service-oriented architectures (SOA), introducing increased agility and flexibility at both the software systems and the business level. Web services and SOA thus have a profound impact on software development and the businesses that they support. The course “Service-oriented Computing” introduces the concepts, methods and technology that provide a solid foundation in this area. Topics include:

- Service description
- Service engineering, including development and implementation
- Service composition (aggregation), including process-based service orchestration
- Interoperability formats and protocols
- Service platforms and runtimes (middleware)
- Software-as-a-Service models
- Service intermediaries (markets)
- Mashups and situational applications
- Cloud computing

Media
Slides, access to internet resources.

Basic literature
Will be given in the course.
Course: Service-oriented Computing 2

Course key: [25772]

Lecturers: Stefan Tai, Rudi Studer
Credit points (CP): 5  Hours per week: 2/1
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Emphasis Informatics [WI3INFO1] (S. 52)

Learning Control / Examinations
The assessment of this course is a written examination (60min.) in the first week after lecture period (nach §4(2), 1 SPO).

Prerequisites
It is recommended to attend the course Service-oriented Computing [25770] beforehand.

Conditions
None.

Learning Outcomes
Students will extend their knowledge and proficiency in the area of modern service-oriented technologies. Thereby, they acquire the capability to understand, apply and assess concepts and methods that are of innovative and scientific nature.

Content
Building upon basic Web service technologies the lecture introduces select topics of advanced service computing and service engineering. In particular, focus will be placed on new Web-based architectures and applications leveraging Web 2.0, Cloud Computing, Semantic Web and other emerging technologies.

Basic literature
Literature will be announced in the lecture.
Course: Advanced Programming - Java Network Programming

Lecturers: Detlef Seese, Ratz
Credit points (CP): 5  Hours per week: 2/1/2
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Emphasis Informatics [WI3INFO1] (S. 52)

Learning Control / Examinations
see German version

Prerequisites
Successful completion of the course Introduction to Programming with Java [25030].

Conditions
None.

Learning Outcomes
see German version

Content
see German version

Basic literature

Complementary literature
• Further references will be given in the lecture.
Course: Advanced Programming - Application of Business Software  
Course key: [25886]

Lecturers: Andreas Oberweis, Stefan Klink
Credit points (CP): 5  Hours per week: 2/1/2
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Emphasis Informatics [WI3INFO1] (S. 52)

Learning Control / Examinations
The assessment is a written examination of 2 hours according to §4, Abs. 2, 1 of the examination regulation and of assignments during the course.
Successful participation to the computer lab is precondition for permission to the assessment. Further information will be given at the first lesson and via the homepage of the course.

Prerequisites
Knowledge of the course “Grundlagen der Informatik I und II” are helpful.

Conditions
None.

Learning Outcomes
Students
• master basic concepts and principles of enterprise information systems,
• can model and implement operative workflows
• apply standard software for modelling business processes and for analysing them to given criteria
• master the installation, configuration, and parameterisation of enterprise information systems in business and
• assess economical aspects of such systems.

Content
Business information systems enable, support, and accelerate new forms of business processes and forms of organisation. They are the central infrastructure of the economy in the age of eBusiness. Thus, basic knowledge is given in lectures, in excercises and in the computer lab which deals with installation, configuration and parameterization of business information systems. The course communicates profound knowledge in following topics:
• Analysis of cooperation scenarios and business process scenarios
• Selection of modelling methods according to defined criteria
• Implementation of business process models and cooperation models with the help of standard software
• Identification and assessment of challenges during the installation of information systems
• Economical evaluation of business information systems.

Media
Slides, access to internet resources.

Complementary literature
• Schwabe, Streitz, Unland. CSCW-Kompendium. Lehr- und Handbuch zum computerunterstützen kooperativen Arbeiten.
• Krcmar, Schwarzer. Wirtschaftsinformatik.
• Stucky. Petri-Netze zur Modellierung verteilter DV-Systeme.
Further literature will be given during the course.
Course: Management and Strategy  

Lecturers: Hagen Lindstädt  
Credit points (CP): 4  
Hours per week: 2/0  
Term: Sommersemester  
Level: 4  
Teaching language: Deutsch  
Part of the modules: Strategy and Organization [WI3BWLUO1] (S. 39)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes
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.

Content
• 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

Media
Slides.

Basic literature

The relevant excerpts and additional sources are made known during the course.
Course: Managing Organizations

Credit points (CP): 4  Hours per week: 2/0
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Strategy and Organization [WI3BWL01] (S. 39)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes
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 organisational 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.

Content
- 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

Media
Slides.

Basic literature

The relevant excerpts and additional sources are made known during the course.
Course: Special Topics in Management: Management and IT

Lecturers: Hagen Lindstädt
Credit points (CP): 2  Hours per week: 1/0
Term: Winter-/Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Strategy and Organization [WI3BWLO1] (S. 39)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes
The course discusses management questions and concepts that are clearly motivating from a current and practical perspective. Here the integration of IT and process issues into corporate management from the management's perspective is one of the subjects of particular interest. The event takes place in close cooperation with leading, practical managers.

Content
(Excerpt):
• A summary of current management concepts and questions.

Media
Slides.

Basic literature
The relevant excerpts and additional sources are made known during the course.
Course: Seminar: Management and Organization

Course key: [25915]

Lecturers: Hagen Lindstädt
Credit points (CP): 3  Hours per week: 2
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Seminar Module [WI3SEM] (S. 86)

Learning Control / Examinations

Prerequisites
See corresponding module information.

Conditions
None.

Learning Outcomes
The aim of the seminar is to describe corporate and organisational management approaches, to assess them critically and clarify them using practical examples. The focus is on assessing the models with a view to their applicability and theoretical limits.

Content
The subjects are redefined each semester on the basis of current issues.

Media
Slides.

Basic literature
The relevant sources are made known during the course.
Course: Fundamentals of Production Management

Lecturers: Frank Schultmann

Credit points (CP): 5.5
Hours per week: 2/2

Term: Sommersemester
Level: 3

Teaching language: Deutsch

Part of the modules: Industrial Production I [WI3BWLIP] (S. 42)

Learning Control / Examinations
See module description.

Prerequisites
None.

Conditions
None.

Learning Outcomes
Formulation of basic problems and development of solutions in the framework of production management.

Content
This lecture is designed as an introduction to Industrial Production. It focusses on among others on strategic production management and ecological aspects. After an introduction in production management and system theory, topics treated cover industrial R&D, siting, industrial logistics as well as reverse logistics and finally transport and stockkeeping. The topics presented are additionally illustrated by several case studies from industry.

Media
Media will be provided on learning platform ILIAS.

Basic literature

Complementary literature
Course: Energy Policy

Lecturers: Martin Wietschel
Credit points (CP): 3.5  Hours per week: 2/0
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Industrial Production I [WI3BWLIIP] (S. 42), Energy Economics [WI3BWLIIP2] (S. 43)

Learning Control / Examinations

Prerequisites
Keine.

Conditions
Keine.

Learning Outcomes

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.

Basic literature
Will be announced in the lecture.
Course: Material and Energy Flows in the Economy

Lecturers: Michael Hiete, Hiete
Credit points (CP): 3.5  Hours per week: 2/0
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Industrial Production I [WI3BWLIIIP] (S. 42)

Learning Control / Examinations

Prerequisites

Conditions
None.

Learning Outcomes

Content
Course: Introduction to Energy Economics

Lecturers: Wolf Fichtner
Credit points (CP): 5.5  Hours per week: 2/2
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Energy Economics [WI3BWLIIIP2] (S. 43)

Learning Control / Examinations
The assessment consists of a written exam.

Prerequisites
None.

Conditions
None.

Learning Outcomes
Content
Course: Renewable Energy Sources - Technologies and Potentials  
Course key: [26012]

Lecturers: Wolf Fichtner
Credit points (CP): 3.5  
Hours per week: 2/0
Term: Wintersemester  
Level: 3
Teaching language: Deutsch
Part of the modules: Energy Economics [WI3BLIIP2] (S. 43)

Learning Control / Examinations
The assessment consists of a written exam.

Prerequisites
None.

Conditions
None.

Learning Outcomes
Content
Course: Public Revenues  
Course key: [26120]

Lecturers: Berthold Wigger  
Credit points (CP): 4.5  
Hours per week: 2/1  
Term: Sommersemester  
Level: 3  
Teaching language: Deutsch  
Part of the modules: Financial Sciences [WI3VWL9] (S. 49)

Learning Control / Examinations
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
Foundations of financial sciences are required.

Conditions
None.

Learning Outcomes
Content
Course: Fiscal Policy

Lecturers: Berthold Wigger
Credit points (CP): 4,5  Hours per week: 2/1
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Financial Sciences [WI3VWL9] (S. 49)

Learning Control / Examinations
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
Foundations of financial sciences are required.

Conditions
None.

Learning Outcomes

Content
Course: Seminar Financial Sciences  
Course key: [26130]

Lecturers: Berthold Wigger  
Credit points (CP): 3  
Hours per week: 2  
Term: Winter-/Sommersemester  
Level: 4  
Teaching language: Deutsch  
Part of the modules: Seminar Module [WI3SEM] (S. 86)

Learning Control / Examinations

Prerequisites
See module description.

Conditions
None.

Learning Outcomes

Content
Course: Competition in Networks

Lecturers: Kay Mitusch
Credit points (CP): 5  Hours per week: 2/1
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Specialization in Customer Relationship Management [WI3BWLISM5] (S. 32)

Learning Control / Examinations

Prerequisites
Basics of microeconomics obtained within the undergraduate programme (B.Sc) of economics are required. Useful, but not necessary, are basic knowledge of industrial economics, principal agent theory, and contract theory.

Conditions
None.

Learning Outcomes
The Student should ...

Content
Course: International Economics

Lecturers: Jan Kowalski
Credit points (CP): 5  Hours per week: 2/1
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Economic Policy [WI3VWL5] (S. 48)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: International Economic Policy

Lecturers: Jan Kowalski

Credit points (CP): 4  Hours per week: 2

Term: Sommersemester  Level: 3

Teaching language: Deutsch

Part of the modules: International Economics [WI3VWL3] (S. 47)

Learning Control / Examinations

Prerequisites
Macroeconomics, foreign trade

Conditions
None.

Learning Outcomes

Content
Course: Management and Organisation of Projects in Developing Countries  Course key: [26259]

Lecturers: Sieber
Credit points (CP): 5  Hours per week: 2/1
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: International Economics [WI3VWL3] (S. 47)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Seminar on Network Economics

Lecturers: Kay Mitusch
Credit points (CP): 3  Hours per week: 2
Term: Winter-/Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Seminar Module [WI3SEM] (S. 86)

Learning Control / Examinations
Prerequisites
See module description.
Conditions
None.

Learning Outcomes

Content
Course: Innovation

Course key: [26274]

Lecturers: Hariolf Grupp
Credit points (CP): 5  Hours per week: 2/1
Term: Sommersemester  Level: 3
Teaching language: Deutsch

Learning Control / Examinations
Prerequisites
None.
Conditions
None.
Learning Outcomes
Content
Course: Applying Industrial Organization

Lecturers: Hariolf Grupp, Dirk Fornahl
Credit points (CP): 6  Hours per week: 2/2
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Industrial Organization [WI3VWL2] (S. 46)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Insurance Models  

**Lecturers:** Christian Hipp  
**Credit points (CP):** 5  
**Hours per week:** 2/2  
**Term:** Sommersemester  
**Level:** 3  
**Teaching language:** Deutsch  
**Part of the modules:** Insurance: Calculation and Control [WI3BLFBV2] (S. 35)

### Learning Control / Examinations

**Prerequisites**
None.

**Conditions**
None.

### Learning Outcomes

**Content**
Course: Insurance Marketing

Course key: [26323]

Lecturers: Ute Werner
Credit points (CP): 4.5   Hours per week: 3
Term: Winter-/Sommersemester   Level: 4
Teaching language: Deutsch
Part of the modules: Insurance Management [WI3BWLFBV4] (S. 38)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content

Remarks
This course is offered irregularly. For further information, see: http://insurance.fbv.uni-karlsruhe.de
Course: Enterprise Risk Management

Lecturers: Ute Werner
Credit points (CP): 4,5  Hours per week: 3/0
Term: Winter-/Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Risk and Insurance Management [WI3BWLFBV3] (S. 37)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes
Learning to identify, to analyse and to assess business risks; this serves as a basis for strategy and policy design regarding risks and opportunities of an enterprise. Introduction to optimization approaches that allow to consider area-specific objectives, risk-bearing capacity and risk acceptance.

Content
1. Concepts and practice of risk management, based on decision theory
2. Goals, strategies and measures for the identification, analysis, assessment and management of risks
3. Insurance as an instrument for loss-financing
4. Selected aspects of risk management: e.g. environmental protection, organizational failure and D&O-coverage, development of a risk management culture
5. Organisation of risk management
6. Approaches for determining optimal combinations of risk management measures considering their investment costs and outcomes.

Basic literature

Remarks
This course is offered irregularly. For further information, see: http://insurance.fbv.uni-karlsruhe.de
Course: Insurance Contract Law

Lecturers: Ute Werner, Schwebler
Credit points (CP): 4.5  Hours per week: 3
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Insurance Management [WI3BWLBV4] (S. 38)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Insurance Game

Lecturers: Christian Hipp
Credit points (CP): 4  Hours per week: 2
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Insurance: Calculation and Control [WI3BWLFBV2] (S. 35)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Real Estate Management II

Lecturers: Thomas Lützkendorf
Credit points (CP): 4,5  Hours per week: 2/2
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Real Estate Management [WI3BWLOOW2] (S. 36)

Learning Control / Examinations
Written exam (60 min.) (according to §4(2), 1 SPO) or oral exam (20 min.) (according to §4(2), 2 SPO).
Exams are offered both winter and summer term and can be retried at any time.

Prerequisites
A combination with the module Design Construction and Assessment of Green Buildings I [WI3BWLOOW1] 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)

Conditions
None.

Learning Outcomes
Application of economic methods to the fields of real estate economics and sustainable construction.

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.

Media
Presentation slides and supplementary material is provided partly as printout, partly online for download.

Complementary literature
See german version.

Remarks
The course is replenished by excursions and guest lectures by practitioners out of the real estate business.
Course: Real Estate Management I

**Lecturers:** Thomas Lützkendorf

**Credit points (CP):** 4.5  **Hours per week:** 2/2

**Term:** Wintersemester  **Level:** 3

**Teaching language:** Deutsch

**Part of the modules:** Real Estate Management [WI3BWLOOW2] (S. 36)

**Learning Control / Examinations**

Written exam (60 min.) (according to §4(2), 1 SPO) or oral exam (20 min.) (according to §4(2), 2 SPO).

Exams are offered both winter and summer term and can be retried at any time.

**Prerequisites**

A combination with the module Design Construction and Assessment of Green Buildings I [WI3BWLOOW1] 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)

**Conditions**

None.

**Learning Outcomes**

Application of economic methods to the fields of real estate economics and sustainable construction.

**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.

**Media**

Presentation slides and supplementary material is provided partly as printout, partly online for download.

**Remarks**

The course is replenished by excursions and guest lectures by practitioners out of the real estate business.
Course: Sustainability Assessment of Construction Works

Lecturers: Thomas Lützkendorf
Credit points (CP): 4,5  Hours per week: 2/1
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Sustainable Construction [WI3BWLOOW1] (S. 27)

Learning Control / Examinations
Oral exam (20 min.) (according to §4(2), 2 SPO).
Exams are offered both winter and summer term and can be retried at any time.

Prerequisites
A combination with the module Real Estate Management [WI3BWLOOW2] and with engineering science modules from the areas building physics and structural design is recommended.

Conditions
None.

Learning Outcomes
Knowledge in the area of economic and environmental assessment of construction works.

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.

Complementary literature
See german version.
Course: Design, Construction and Assessment of Green Buildings I Course key: [26404w]

**Lecturers:** Thomas Lützkendorf  
**Credit points (CP):** 4,5  
**Hours per week:** 2/1  
**Term:** Wintersemester  
**Level:** 3  
**Teaching language:** Deutsch  
**Part of the modules:** Sustainable Construction [WI3BWLOOW1] (S. 27)

**Learning Control / Examinations**  
Oral exam (20 min.) (according to §4(2), 2 SPO). Exams are offered both winter and summer term and can be retried at any time.

**Prerequisites**  
None.

**Conditions**  
A combination with the module Real Estate Management [WI3BWLUO1] and with engineering science modules in the area of building physics and structural design is recommended.

**Learning Outcomes**  
Knowledge in the area of sustainable construction concerning whole buildings, building components, equipment and appliances as well as building material.

**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.

**Media**  
For a better clearness videos and simulation tools will be presented during the lectures.

**Complementary literature**  
See german version.
Course: Topics of Sustainable Management of Housing and Real Estate  
Course key: [26420]

Lecturers: Thomas Lützkendorf  
Credit points (CP): 3  
Hours per week: 2  
Term: Winter-/Sommersemester  
Level: 3  
Teaching language: Deutsch  
Part of the modules: Seminar Module [WI3SEM] (S. 86)

Learning Control / Examinations  
The assessment of this course is (according to §4(2), 3 SPO) in form of an examination of the written seminar thesis and a presentation.

Prerequisites  
None.

Conditions  
None.

Learning Outcomes  
- Students autonomously compile a paper treating of a marked-off subject within the area of real estate economics respectively sustainable construction, and present their results within the seminar.
- Therefore they master the principles of scientific writing, especially research, reasoning and citation, as well as handling information suspiciously.
- Through own and observed experiences they develop the ability to hold scientific presentations, including technical, formal, rhetorical and didactical aspects.

Content  
The seminar deals with changing up-to-date topics concerning Real Estate Economics or Sustainable Construction. Current topics and schedules are announced at the beginning of term.

Media  
A reader dealing with the basics of scientific writing is provided (in german language).
Course: Management of Business Networks

Lecturers: Christof Weinhardt, Jan Kraemer
Credit points (CP): 4.5  Hours per week: 2/1
Term: Wintersemester  Level: 4
Teaching language: Englisch
Part of the modules: eBusiness and Servicemanagement [WI3BWLISM1] (S. 28), Supply Chain Management [WI3BWLISM2] (S. 29)

Learning Control / Examinations
The total grade for this lecture will consist to 50% of the grade achieved in the written mid term examination, to 10% of the assignments during the exercises, and to 40% of a project work, which includes a term paper and a presentation.

Prerequisites
None.

Conditions
None.

Learning Outcomes
The student will become acquainted with the theoretical fundamentals of economic networks and how to manage them. Support of economic networks by information systems will be accomplished by several case studies, which will be worked on by groups autonomously. Basic knowledge of organisation theory, network analysis, strategic & operative management and logic systems will be communicated to the student. Furthermore, he will have a focused view on the mechanisms and supporting tools for interaction between companies, especially in negotiations and negotiation-supporting systems. In small groups, the student is trained in team-oriented and autonomous working techniques. Within this domain, the student will be trained to seek and read relevant technical literature in English, the language of science, and to adopt it to a specific problem.

Content
The significant and lasting impact of web-based business-to-business (B2B) networks has just recently become apparent. The exploratory phase during the first Internet hype bred a variety of approaches which were often bold in business nature, yet simple and unfounded in system architecture. Only very few survived and proved sustainable. Nowadays web-based B2B networks are increasingly reappearing and even promoted by major traditional companies and governments. However, this new wave of networks is more mature and more powerful in functionality than their predecessors. As such they provide not only auction systems but also facilities for electronic negotiation. This implies a shift from price-focused to relationship-oriented trading. But what motivates this shift? Why do firms enter business networks? How can these networks be best supported by IT? The course intends to resolve these questions. Firstly, an introduction in organization theory will be given. Secondly, the problems of networks will be addressed. Thirdly, an analysis of how IT can alleviate those problems will be undertaken.

Media
Powerpoint presentations, recorded lecture available on the internet, (if circumstances allow videoconferencing).

Basic literature
Course: eFinance: Information Engineering and Management for Securities Trading

Course key: [26454]

Lecturers: Christof Weinhardt, Ryan Riordan
Credit points (CP): 4.5  Hours per week: 2/1
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: eBusiness and Servicemanagement [WI3BWLISM1] (S. 28), eFinance [WI3BWLISM3] (S. 30)

Learning Control / Examinations
70% of the mark is based on the written examination and 30% is based on assignments during the exercises.

Prerequisites
None.

Conditions
None.

Learning Outcomes
The goal of the lecture is to make the students familiar with the theoretical as well as the practical aspects of electronic trading and exchanges and the IT systems used in the financial industry. While markets for products and services are discussed, the focus is on the trading of financial securities. Existing centralized equity exchanges face competition from new alternative trading systems made possible by today’s information technology. This course will also examine the impact and implications of this dynamic. The focus is on the economic and technical design of markets as information processing systems.

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.

Media
Powerpoint presentations, recorded lecture available on the internet

Basic literature

Complementary literature
Course: eServices

Lecturers: Christof Weinhardt, Gerhard Satzger
Credit points (CP): 5  Hours per week: 2/1
Term: Sommersemester  Level: 3
Teaching language: Englisch
Part of the modules: eBusiness and Servicemanagement [WI3BWLISM1] (S. 28), Specialization in Customer Relationship Management [WI3BWLISM5] (S. 32)

Learning Control / Examinations
The assessment of this course is a written examination (following §4(2), 1 SPO) and by submitting written papers as part of the exercise (following §4(2), 3 SPO). The total grade for this lecture will consist to 70% of the grade achieved in the written examination and to 30% of the assignments during the exercises.

Prerequisites
None.

Conditions
None.

Learning Outcomes
This lecture presents concepts, methods and application examples for the engineering and management of eServices. The students will get to know the basic principles and elements of eServices and their specific properties compared to physical goods. Creating eServices needs an overall view of information technology with regards to flexibility, safety, data security, measurability and cost allocation.
In addition, problems and solutions in designing and providing eServices are discussed; the elementary relationship to information management will also be treated. Application examples from industry stress the concepts’ application in the economy.

Content
So far, management studies usually focused on physical goods. However, due to the increasing development of information and communication technology, distribution of electronic services is becoming more important. Electronic services are characterized by an increasing degree of intangibility, interactivity and individuality. Traditional, goods-oriented models, methods and tools for are often found to be inadequate for service engineering and management.
In addition, application examples, guest lectures (e.g. business model changes driven by the advent of eServices) and a number of hands-on exercises will illustrate the applicability of the concepts.

Media
PowerPoint slides;
Course: Seminar Service Science, Management & Engineering  

**Course key:** [26470]

**Lecturers:** Stefan Tai

**Credit points (CP):** 3  
**Hours per week:** 2

**Term:** Winter-/Sommersemester  
**Level:** 4

**Teaching language:** Deutsch

**Part of the modules:** Seminar Module [WI3SEM] (S. 86)

---

**Learning Control / Examinations**

**Prerequisites**
See corresponding module information.

**Conditions**
Lecture eServices [26462] is recommended.

**Learning Outcomes**
Autonomously deal with a special topic in the Service Science, Management and Engineering field adhering to scientific standards.

**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.
Course: Customer Relationship Management

Lecturers: Andreas Geyer-Schulz
Credit points (CP): 4.5  Hours per week: 2/1
Term: Wintersemester  Level: 4
Teaching language: Englisch
Part of the modules: CRM and Service Management [WI3BWLISM4] (S. 31)

Learning Control / Examinations
The assessment of this course is a written examination (60 min) (following §4(2), 1 SPO) and by submitting written papers as part of the exercise (following §4(2), 3 SPO). The total grade for this lecture will consist of about 90% of the grade achieved in the written exam (maximum 100 points) and to about 10% of the written papers for the exercise (maximum 12 points). The written exam is considered successfully taken if at least 50 points are acquired.

The grades of this lecture are assigned following the table below. At least 50 points have to be acquired to pass the written exam. All additional points from exercise work will be added to the exam points once 50 points have been achieved:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Minimum points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>104</td>
</tr>
<tr>
<td>1.3</td>
<td>98</td>
</tr>
<tr>
<td>1.7</td>
<td>92</td>
</tr>
<tr>
<td>2.0</td>
<td>86</td>
</tr>
<tr>
<td>2.3</td>
<td>80</td>
</tr>
<tr>
<td>2.7</td>
<td>74</td>
</tr>
<tr>
<td>3.0</td>
<td>68</td>
</tr>
<tr>
<td>3.3</td>
<td>62</td>
</tr>
<tr>
<td>3.7</td>
<td>56</td>
</tr>
<tr>
<td>4.0</td>
<td>50</td>
</tr>
<tr>
<td>4.7</td>
<td>40</td>
</tr>
<tr>
<td>5.0</td>
<td>0</td>
</tr>
</tbody>
</table>

Prerequisites
None.

Conditions
None.

Learning Outcomes
The objective of this course is to make students aware of the goals and different aspects of Service Management. Furthermore, it is intended to embed Service Management and its different aspects in the concepts of business administration. The students should acquire the theoretical and practical knowledge as well as tools to implement projects in this area successfully. The link between Service Management and CRM is also to be taught within this course.

Content
Course: The course begins with an introduction into Service Management as the strategic concepts 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.

Media
Slides

Basic literature

Complementary literature
Course: Operative CRM

Lecturers: Andreas Geyer-Schulz
Credit points (CP): 4.5  Hours per week: 2/1
Term: Wintersemester  Level: 3
Teaching language: Deutsch
Part of the modules: CRM and Service Management [WI3BWLISM4] (S. 31), Specialization in Customer Relationship Management [WI3BWLISM5] (S. 32)

Learning Control / Examinations
Assessment consists of a written exam of 1 hour length following §4, Abs. 2, 1 SPO and by submitting written papers as part of the exercise following §4, Abs. 2, 3 SPO. The total grade for this lecture will consist to about 90% of the grade achieved in the written exam (maximum 100 points) and to about 10% of the written papers for the exercise (maximum 12 points). The written exam is considered successfully taken if at least 50 points are acquired.

The grades of this lecture are assigned following the table below. At least 50 points have to be acquired to pass the written exam. All additional points from excersise work will be added to the exam points once 50 points have been achieved:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Minimum points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>104</td>
</tr>
<tr>
<td>1.3</td>
<td>98</td>
</tr>
<tr>
<td>1.7</td>
<td>92</td>
</tr>
<tr>
<td>2.0</td>
<td>86</td>
</tr>
<tr>
<td>2.3</td>
<td>80</td>
</tr>
<tr>
<td>2.7</td>
<td>74</td>
</tr>
<tr>
<td>3.0</td>
<td>68</td>
</tr>
<tr>
<td>3.3</td>
<td>62</td>
</tr>
<tr>
<td>3.7</td>
<td>56</td>
</tr>
<tr>
<td>4.0</td>
<td>50</td>
</tr>
<tr>
<td>4.7</td>
<td>40</td>
</tr>
<tr>
<td>5.0</td>
<td>0</td>
</tr>
</tbody>
</table>

Prerequisites
None.

Conditions
The attendance of courses 26508 (CRM) and 26522 (Analytical CRM) is advised.

Learning Outcomes
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.

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.

Basic literature

Complementary literature
Chris Todman. Designing a Data Warehouse : Supporting Customer Relationship Management.
Course: Analytical CRM

Lecturers: Andreas Geyer-Schulz
Credit points (CP): 4,5  Hours per week: 2/1
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: CRM and Service Management [WI3BWLISM4] (S. 31), Specialization in Customer Relationship Management [WI3BWLISM5] (S. 32)

Learning Control / Examinations
Assessment will consist of a written exam of 1 hour length following §4, Abs. 2, 1 SPO and by submitting written papers as part of the exercise following §4, Abs. 2, 3 SPO. The total grade for this lecture will consist of about 90% of the grade achieved in the written exam (maximum 100 points) and to about 10% of the written papers for the exercise (maximum 12 points). The written exam is considered successfully taken if at least 50 points are acquired.
The grades of this lecture are assigned following the table below. At least 50 points have to be acquired to pass the written exam. All additional points from excercise work will be added to the exam points once 50 points have been achieved:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Minimum points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>104</td>
</tr>
<tr>
<td>1.3</td>
<td>98</td>
</tr>
<tr>
<td>1.7</td>
<td>92</td>
</tr>
<tr>
<td>2.0</td>
<td>86</td>
</tr>
<tr>
<td>2.3</td>
<td>80</td>
</tr>
<tr>
<td>2.7</td>
<td>74</td>
</tr>
<tr>
<td>3.0</td>
<td>68</td>
</tr>
<tr>
<td>3.3</td>
<td>62</td>
</tr>
<tr>
<td>3.7</td>
<td>56</td>
</tr>
<tr>
<td>4.0</td>
<td>50</td>
</tr>
<tr>
<td>4.7</td>
<td>40</td>
</tr>
<tr>
<td>5.0</td>
<td>0</td>
</tr>
</tbody>
</table>

Prerequisites
None.

Conditions
We expect knowledge about data models and the UML modelling language concerning information systems.

Learning Outcomes
The Student should
- understand the principal scientific methods from statistics and informatics used in analytical CRM and their application to enterprise decision problems and be able to independently apply these methods to standard cases,
- understand the components for creating and managing a data warehouse from operative system sources including the processes and steps involved and should be able to apply these methods to a simple example, and
- use his knowledge to conduct a standard CRM analysis on enterprise data for a business decision problem and deduce and justify a recommendation for appropriate action.

Content
The course Analytical CRM deals with methods and techniques for analysis concerning the management and improval of customer relationships. Knowledge about customers is aggregated and used for enterprise decision problems like product line planning, customer loyalty, etc. A necessary precondition for these analyses is the transformation of data stemming from operative systems into a common data warehouse that assembles all necessary information. This requires transformation of data models and processes for creating and managing a data warehouse, like ETL processes, data quality and monitoring. The generation of customer oriented and flexible reports for different business purposes is covered. The course finally treats several different statistical analysis methods like clustering, regression etc. that are necessary for generating important indicators (like customer lifetime value, customer segmentation).

Media
slides

Basic literature

Complementary literature
Course: Bachelor Seminar in Information Engineering and Management [26524]

Lecturers: Andreas Geyer-Schulz
Credit points (CP): 3  Hours per week: 2
Term: Winter-/Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Seminar Module [WI3SEM] (S. 86)

Learning Control / Examinations

Prerequisites
See corresponding module information.

Conditions
None.

Learning Outcomes
The student is able to
- to perform a literature search for a given topic, to identify, find, value and evaluate the relevant literature.
- to write his seminar thesis (and later on, the bachelors/masters thesis) with the text setting system LaTeX and include format requirements as used by scientific publishers.
- to do a presentation in an adequate scientific manner.
- to write down the results of his investigations in the form of scientific publications.

Content
This seminar serves as an introduction into the process of scientific work. Students write a review for a selected scientific article. A profound literature search is required to judge the article. The review is written with LaTeX by using formating styles similiar to those of scientific publishers.

The seminar treats questions of Customer Relationship Management.

Basic literature
A CRM-specific article is assigned to every student participating in this seminar. The chosen articles are published in the beginning of every term.

Complementary literature
Course: Derivatives

Lecturers: Marliese Uhrig-Homburg
Credit points (CP): 4,5  Hours per week: 2/1
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules:  Topics in Finance I [WI3BWLFBV5] (S. 40), Topics in Finance II [WI3BWLFBV6] (S. 41)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes
The objective of the Derivatives lecture is to become familiar with financial markets, especially derivatives markets. Traded securities and frequently used trading strategies will be introduced. Furthermore the pricing of derivatives will be derived and their use in risk management will be discussed.

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.

Media
Slides, Exercises/Exercise sheets

Basic literature

Complementary literature
Course: International Finance

Lecturers: Marliese Uhrig-Homburg, Walter
Credit points (CP): 3  Hours per week: 2
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Topics in Finance I [WI3BWLFBV5] (S. 40), Topics in Finance II [WI3BWLFBV6] (S. 41)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Investments

Lecturers: Marliese Uhrig-Homburg
Credit points (CP): 4.5  
Hours per week: 2/1
Term: Sommersemester  
Level: 3
Teaching language: Deutsch
Part of the modules: eFinance [WI3BWLISM3] (S. 30), Essentials of Finance [WI3BWLFBV1] (S. 33)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Systems for Electrical Energy

Lecturers: Thomas Leibfried
Credit points (CP): 6  Hours per week: 2/2
Term: Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Electrical Power Engineering [WI3INGETIT1] (S. 73)

Learning Control / Examinations

Prerequisites
For a successful participation knowledge of the content of the course Higher mathematics and especially of complex computation is assumed.

Conditions
The course is an obligatory course within the module and has to be attended.

Learning Outcomes

Content
Course: Elective “Culture - Policy - Science - Technology”  

Course key: [HoC1]

Lecturers: House of Competence  
Credit points (CP): 3  
Hours per week: mehrheitlich 2/0  
Term: Winter-/Sommersemester  
Level: ???  
Teaching language: Deutsch  
Part of the modules: Seminar Module [WI3SEM] (S. 86)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Elective “Workshops for Competence and Creativity”  

**Lecturers:** House of Competence  
**Credit points (CP):** 3  
**Hours per week:** mehrheitlich 2/0  
**Term:** Winter-/Sommersemester  
**Level:** ???  
**Teaching language:** Deutsch  
**Part of the modules:** Seminar Module [WI3SEM] (S. 86)

**Learning Control / Examinations**

**Prerequisites**  
None.

**Conditions**  
None.

**Learning Outcomes**

**Content**
Course: Elective Foreign Languages

Course key: [HoC3]

Lecturers: House of Competence
Credit points (CP): 2-4  Hours per week: 2 bis 4  Level: ???
Term: Winter-/Sommersemester
Teaching language: Deutsch
Part of the modules: Seminar Module [WI3SEM] (S. 86)

Learning Control / Examinations

Prerequisites
Depending on the choice of the language and the level prior knowledge is assumed.

Conditions
Basic level English language courses can only be attended if English language skills were not acquired in school before.

Learning Outcomes

Content
Course: Elective “Tutor Programmes”  

Course key: [HoC4]

Lecturers: House of Competence  
Credit points (CP): 3  
Hours per week: k.A.  
Term: Winter-/Sommersemester  
Level: ???  
Teaching language: Deutsch  
Part of the modules: Seminar Module [WI3SEM] (S. 86)

Learning Control / Examinations

Prerequisites
The participation in this program requires that the student has been or will be a tutor for at least two semesters. The application for this program takes place via the dean's office and in consultation with the corresponding chair.

Conditions
None.

Learning Outcomes

Content
Course: Elective “Personal Fitness & Emotional Competence”

Course key: [HoC5]

**Lecturers:** House of Competence

**Credit points (CP):** 2-3  **Hours per week:** k.A.

**Term:** Winter-/Sommersemester  **Level:** ???

**Teaching language:** Deutsch

**Part of the modules:** Seminar Module [WI3SEM] (S. 86)

---

**Learning Control / Examinations**

**Prerequisites**
None.

**Conditions**
Keine.

---

**Learning Outcomes**

**Content**
Course: Seminar in Enterprise Information Systems  
Course key: [SemAIFB1]

Lecturers: Rudi Studer, Andreas Oberweis, Wolfried Stucky, Thomas Wolf, Ralf Kneuper
Credit points (CP): 3  Hours per week: 2
Term: Winter-/Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Seminar Module [WI3SEM] (S. 86)

Learning Control / Examinations
The assessment of this course is according to §4(2), 3 SPO in form of an examination of the written seminar thesis and a presentation.
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.
The seminar is for bachelor as well as master students. The differentiation will be made by selection of different topics and different standards of evaluation.

Prerequisites
See corresponding module information.

Conditions
None.

Learning Outcomes
Students are able to
- do literature search based on a given topic: identify relevant literature, find, assess and evaluate this literature.
- write the seminar thesis (and later the Bachelor-/Masterthesis) with a minimal learning curve by using format requirements such as those recommended by well-known publishers.
- give presentations in a scientific context in front of an auditorium. These techniques are presented and learned during the seminar.
- present results of the research in written form generally found in scientific publications.

Content
The seminar intensifies and extends specific topics which are discussed within corresponding lectures. Knowledge of these lecture topics is an advantage but not a precondition.
Specific titles and the topics of offered seminars will be announced before the start of a semester in the internet at http://www.aifb.uni-karlsruhe.de/Lehre

Basic literature
Literature will be given individually in the specific seminar.
Course: Seminar Efficient Algorithms

Lecturers: Hartmut Schmeck
Credit points (CP): 3  
Hours per week: 2
Term: Winter-/Sommersemester  
Level: 4
Teaching language: Deutsch
Part of the modules: Seminar Module [WI3SEM] (S. 86)

Learning Control / Examinations

Prerequisites
See corresponding module information.

Conditions
None.

Learning Outcomes

Content
Course: Seminar Complexity Management

Lecturers: Detlef Seese
Credit points (CP): 3  Hours per week: 2
Term: Winter-/Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Seminar Module [WI3SEM] (S. 86)

Learning Control / Examinations
see German part

Prerequisites
See corresponding module information.

Conditions
None.

Learning Outcomes
see German part

Content
see German part

Remarks
The number of participants is limited. Please take notice about the inscription procedure at the institutes website.
In the summer term 2009, the seminar is offered in form of End-to-End-Management komplexer Geschäftsprozesse [25868] and Applications of Intelligent Systems in Finance [25869].
Course: Seminar Knowledge Management

Lecturers: Rudi Studer
Credit points (CP): 3  Hours per week: 2
Term: Wintersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Seminar Module [WI3SEM] (S. 86)

Learning Control / Examinations

Prerequisites
Mandatory lectures from the module.

Conditions
None.

Learning Outcomes
Autonomously deal with a special topic in the knowledge management field.

Content
Each year, the seminar will cover topics from a different selected subfield of knowledge management, e.g.:

- Ontology-based knowledge management,
- Information Retrieval and Text Mining,
- Data Mining,
- Personal Knowledge Management,
- Case Based Reasoning (CBR),
- Collaboration and Social Computing.

Media
Slides.

Basic literature

Complementary literature
None.
Course: Seminar in Insurance Management  

Lecturers: Ute Werner  
Credit points (CP): 3  Hours per week: 2  
Term: Winter-/Sommersemester  Level: 4  
Teaching language: Deutsch  
Part of the modules: Seminar Module [WI3SEM] (S. 86)  

Learning Control / Examinations  

Prerequisites  
See corresponding module information.  

Conditions  
None.  

Learning Outcomes  

Content
Course: Seminar in Operational Risk Management  
Course key: [SemFBV2]

Lecturers: Ute Werner  
Credit points (CP): 3  
Hours per week: 2  
Term: Winter-/Sommersemester  
Level: 4  
Teaching language: Deutsch  
Part of the modules: Seminar Module [WI3SEM] (S. 86)  

Learning Control / Examinations  
Prerequisites  
See corresponding module information.  
Conditions  
None.  
Learning Outcomes  
Content
Course: Seminar in Risk Theory and Actuarial Science  
Course key: [SemFBV3]

Lecturers: Christian Hipp  
Credit points (CP): 3  
Hours per week: 2  
Term: Winter-/Sommersemester  
Level: 4  
Teaching language: Deutsch  
Part of the modules: Seminar Module [WI3SEM] (S. 86)

Learning Control / Examinations

Prerequisites  
See corresponding module information.

Conditions  
Knowledge of statistics and actuary science is an advantage.  
The seminar is a good addition to the Bachelor module Calculation and Control [WI3BWLFBV2] and to the Master modules Applications of Actuarial Sciences I/II [WW4BWLFBV4/5] and Insurance Statistics [WW4BWLFBV8]. However these modules are not a prerequisite for the participation in the seminar.

Learning Outcomes

Content
Course: Seminar in Ergonomics

Lecturers: Peter Knauth, Dorothee Karl
Credit points (CP): 3  Hours per week: 2
Term: Winter-/Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Seminar Module [WI3SEM] (S. 86)

Learning Control / Examinations

Prerequisites
See corresponding module information.

Conditions
None.

Learning Outcomes

Content
Course: Seminar in Industrial Production

Lecturers: Frank Schultmann
Credit points (CP): 3  Hours per week: 2
Term: Winter-/Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Seminar Module [WI3SEM] (S. 86)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Seminar Information Engineering and Management

Lecturers: Christof Weinhardt
Credit points (CP): 3  Hours per week: 2
Term: Winter-/Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Seminar Module [WI3SEM] (S. 86)

Learning Control / Examinations
The student is evaluated based on the written work, a presentation of the results in front of an audience and his contribution to the discussion.

Prerequisites
See corresponding module information.

Conditions
Business Engineering/Economics Engineering: Preferably at least one module offered by the institute should have been chosen before attending this seminar.

Learning Outcomes
The student should be able to do a literature review based on a predefined topic in the context of information engineering and management. The approach comprises the identification of relevant literature according to the topic and an analysis as well as an evaluation of the methods presented in the literature. The student learns to present his results in a paper and in front of an audience on an academic level. This process gives him the knowledge and practice for further research work like a master thesis or a doctoral thesis.

Content
In the seminar the student should learn to apply the research methods to a predefined topic area. The topics are based on research questions in Information Engineering and Management across different industry sectors. This problem analysis requires an interdisciplinary examination.

Media
- Powerpoint,
- eLearning Platform Ilias
- Software Tools, if necessary

Basic literature
The student will receive the necessary literature for his research topic.

Remarks
- Students from Bachelor and Master Course can visit the seminar. The research topic as well as the evaluation of the work and the presentation will have a different focus between Bachelor and Master Course.
- All the seminars offered at the chair of Prof. Dr. Weinhardt can be chosen. The current topics of the seminars are available at the following homepage: http://www.im.uni-karlsruhe.de/lehre.
Course: Seminar in System Dynamics and Innovation

Course key: [SemIWW]

Lecturers: Harriolf Grupp, N.N.

Credit points (CP): 3  Hours per week: 2

Term: Winter-/Sommersemester  Level: 4

Teaching language: Deutsch

Part of the modules: Seminar Module [WI3SEM] (S. 86)

Learning Control / Examinations

Prerequisites
See corresponding module information.

Conditions
The courses Innovation [26274] and Applying Industrial Organization [26287] should preferably be attended beforehand.

Learning Outcomes

Content
Course: Seminar Stochastic Models

Lecturers: Karl-Heinz Waldmann
Credit points (CP): 3  Hours per week: 2
Term: Winter-/Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Seminar Module [WI3SEM] (S. 86)

Learning Control / Examinations
The assessment of this course is in form of an examination of the written seminar thesis and a presentation. The final mark is the result of both the paper and its presentation.

Prerequisites
None.

Conditions
None.

Learning Outcomes
In case studies students comprehend stochastic relationships and gain deep knowledge of modelling, evaluation, and optimization of stochastic systems. In group presentations, students learn basic academic presentation and argument skills.

Content
The actual topic as well as the contemporary issues are available online; cf.
http://www4.wiwi.uni-karlsruhe.de/LEHRE/SEMINARE/

Media
Power Point and related presentation techniques.

Basic literature
Will be presented with the actual topic.
Course: Seminar Economic Theory

Lecturers: Clemens Puppe
Credit points (CP): 3  Hours per week: 2
Term: Winter-/Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Seminar Module [WI3SEM] (S. 86)

Learning Control / Examinations

Prerequisites
See corresponding module information.
At least one of the courses Game Theory I [25525] and Welfare Economics [25517] should have been attended beforehand.

Conditions
None.

Learning Outcomes

Content
Course: Seminar in Experimental Economics

Lecturers: Siegfried Berninghaus
Credit points (CP): 3  Hours per week: 2
Term: Winter-/Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Seminar Module [WI3SEM] (S. 86)

Learning Control / Examinations
Term paper and presentation

Prerequisites
See corresponding module information.
The course Experimental Economics [25373] or an other course in the field of Game Theory should be attended beforehand.

Conditions
None.

Learning Outcomes
The seminar wants to deepen the methods of scientific work. Students shall learn to discuss critical the latest research results in Experimental Economics.
Students learn the technical basics of presentation and to argument scientifically. Also rethoric skills shall be amplified.

Content
The seminar's topic will be announced before the beginning of each semester on the internet (http://www.wior.uni-karlsruhe.de/LS_Berninghaus/Studium/).

Media
Slides.
Course: Seminar in Game and Decision Theory

Lecturers: Siegfried Berninghaus
Credit points (CP): 3  Hours per week: 2
Term: Winter-/Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Seminar Module [WI3SEM] (§ 86)

Learning Control / Examinations
Term paper and presentation

Prerequisites
Completion of all 1st an 2nd year modules of the Bachelor Program.

Conditions
None.

Learning Outcomes
The seminar wants to deepen the methods of scientific work. Students shall learn to discuss critical the latest research results in game theory.
Procurement of SQs: Students learn the technical basics of presentation and to argument scientifically. Also rhetoric skills shall be amplified.

Content
The seminar’s topic will be announced before the beginning of each semester on the internet (http://www.wior.uni-karlsruhe.de/LS_Berninghaus/Studium/).

Media
Slides.
Course: Projectseminar

Lecturers: Bernart, Kunz, Pfaff, Haupt, Grenz, Eisewicht
Credit points (CP): 4  Hours per week: 2
Term: Winter-/Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Sociology/Empirical Social Research [WI3SOZ] (S. 85)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Course: Modelling and Identification

Lecturers: N.N.
Credit points (CP): 4.5  Hours per week: 2/1
Term: Sommersemester  Level: 4
Teaching language: Deutsch
Part of the modules: Control Engineering [WI3INGEIT2] (S. 74)

Learning Control / Examinations

Prerequisites
The course System Dynamics and Control Engineering [23155] has to be completed beforehand.

Conditions
None.

Learning Outcomes

Content
Course: Production Scheduling

Lecturers: N.N.
Credit points (CP): 9   Hours per week: 4/2
Term: Wintersemester   Level: 1
Teaching language: Deutsch
Part of the modules: Methods for Combinatorial Optimization [WI3OR2] (S. 55)

Learning Control / Examinations
Prerequisites
None.

Conditions
None.

Learning Outcomes
Content
Course: Special Sociology

Lecturers: Gerd Nollmann, Pfadenhauer, Pfaff, Haupt, Grenz, Eisewicht
Credit points (CP): 2  Hours per week: 2
Term: Winter-/Sommersemester  Level: 3
Teaching language: Deutsch
Part of the modules: Sociology/Empirical Social Research [WI3SOZ] (S. 85)

Learning Control / Examinations

Prerequisites
None.

Conditions
None.

Learning Outcomes

Content
Neubekanntmachung der Studien- und Prüfungsordnung der Universität Karlsruhe (TH) für den Bachelorstudiengang Wirtschaftsingenieurwesen

in der Fassung vom 15. August 2008


Der Rektor hat seine Zustimmung am 06. März 2007 erteilt.

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

Inhaltsverzeichnis

I. Allgemeine Bestimmungen
   § 1 Geltungsbereich, Ziele
   § 2 Akademischer Grad
   § 3 Regelstudienzeit, Studienaufbau, Leistungspunkte
   § 4 Aufbau der Prüfungen
   § 5 Anmeldung und Zulassung zu den Prüfungen
   § 6 Durchführung von Prüfungen und Erfolgskontrollen
   § 7 Bewertung von Prüfungen und Erfolgskontrollen
   § 8 Erlöschen des Prüfungsanspruchs, Orientierungsprüfungen, Wiederholung von Prüfungen und Erfolgskontrollen
   § 9 Versäumnis, Rücktritt, Täuschung, Ordnungsverstoß
   § 10 Mutterschutz, Elternzeit
   § 11 Bachelorarbeit
   § 12 Berufspraktikum
   § 13 Zusatzmodule, Zusatzleistungen
   § 14 Prüfungsausschuss
   § 15 Prüfer und Beisitzende
   § 16 Anrechnung von Studienzeiten, Anerkennung von Studienleistungen und Modulprüfungen

II. Bachelorprüfung
   § 17 Umfang und Art der Bachelorprüfung
   § 18 Leistungsnachweise für die Bachelorprüfung
   § 19 Bestehen der Bachelorprüfung, Bildung der Gesamtnote
   § 20 Bachelorzeugnis, Bachelorurkunde, Transcript of Records und Diploma Supplement

III. Schlussbestimmungen
   § 21 Bescheid über Nicht-Bestehen, Bescheinigung von Prüfungsleistungen
   § 22 Aberkennung des Bachelorgrades
   § 23 Einsicht in die Prüfungsakten
   § 24 In-Kraft-Treten
I. Allgemeine Bestimmungen

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

(2) Im Bachelorstudium sollen die wissenschaftlichen Grundlagen und die Methodenkompetenz der Fachwissenschaften vermittelt werden. Ziel des Studiums ist die Fähigkeit, das ererbte Wissen berufsfeldbezogen anzuwenden sowie einen konsekutiven Masterstudiengang erfolgreich absolvieren zu können.

§ 2 Akademischer Grad
Aufgrund der bestandenen Bachelorprüfung wird der akademische Grad „Bachelor of Science“ (abgekürzt: „B.Sc.”) für den Bachelorstudiengang Wirtschaftsingenieurwesen verliehen.

§ 3 Regelstudienzeit, Studienaufbau, Leistungspunkte
(1) Die Regelstudienzeit beträgt sechs Semester. Sie umfasst ein Betriebspraktikum, Prüfungen und die Bachelorarbeit.

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


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

(5) Die Leistungspunkte sind in der Regel gleichmäßig auf die Semester zu verteilen.

(6) Lehrveranstaltungen/Prüfungen können auch in englischer Sprache angeboten/abgenommen werden.

§ 4 Aufbau der Prüfungen

(2) Erfolgskontrollen sind:
   1. schriftliche Prüfungen,
   2. mündliche Prüfungen,
   3. Erfolgskontrollen anderer Art.

Erfolgskontrollen anderer Art sind z. B. Vorträge, Marktstudien, Projekte, Fallstudien, Experimente, schriftliche Arbeiten, Berichte, Seminararbeiten und Klausuren, sofern sie nicht als schriftliche oder mündliche Prüfung in der Modul- oder Lehrveranstaltungsbeschreibung im Modulhandbuch ausgewiesen sind.
(3) In den Fachprüfungen (nach § 17 Absatz 2 und Absatz 3 Nr. 1 bis 7) sind mindestens 50 vom Hundert einer Modulprüfung in Form von schriftlichen oder mündlichen Prüfungen (Absatz 2 Nr. 1 und 2) abzulegen, die restliche Prüfung erfolgt durch Erfolgskontrollen anderer Art (Absatz 2 Nr. 3).

§ 5 Anmeldung und Zulassung zu den Prüfungen

(1) Die Zulassung zu den Prüfungen nach § 4 Absatz 2 Nr. 1 und 2 sowie zur Bachelorarbeit erfolgt im Studienbüro.

Um zu Prüfungen in einem Modul zugelassen zu werden, muss beim Studienbüro eine bindende Erklärung über die Wahl des betreffenden Moduls und dessen Zuordnung zu einem Fach, wenn diese Wahlmöglichkeit besteht, abgegeben werden.

(2) Die Zulassung darf nur abgelehnt werden, wenn

1. der Studierende in einem mit Wirtschaftsingenieurwesen vergleichbaren oder einem verwandten Studiengang bereits eine Diplomvorprüfung, Diplomprüfung, Bachelor- oder Masterprüfung endgültig nicht bestanden hat, sich in einem Prüfungsverfahren befindet oder den Prüfungsanspruch in einem solchen Studiengang verloren hat oder

2. die in § 18 genannte Voraussetzung nicht erfüllt ist.

In Zweifelsfällen entscheidet der Prüfungsausschuss.

§ 6 Durchführung von Prüfungen und Erfolgskontrollen

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

(2) Die Art der Erfolgskontrollen (§ 4 Absatz 2 Nr. 1 bis 3) eines Moduls wird im Studienplan oder Modulhandbuch in Bezug auf die Lehrinhalte der betreffenden Lehrveranstaltungen und die Lehrziele des Moduls festgelegt. Die Art der Erfolgskontrollen, ihre Häufigkeit, Reihenfolge und Gewichtung, die Grundsätze zur Bildung der Moduleinzelprüfungsnoten und der Modulnote sowie Prüfer müssen mindestens sechs Wochen vor Semesterbeginn bekannt gegeben werden. Im Einvernehmen von Prüfer und Studierendem kann die Art der Erfolgskontrolle auch nachträglich geändert werden. Dabei ist jedoch § 4 Absatz 3 zu berücksichtigen.


(4) Macht ein Studierender glaubhaft, dass er wegen länger andauernder oder ständiger körperlicher Behinderung nicht in der Lage ist, die Erfolgskontrollen ganz oder teilweise in der vorgeschriebenen Form abzulegen, entscheidet der Prüfungsausschuss über eine alternative Form der Erfolgskontrollen.

(5) Bei Lehrveranstaltungen in englischer Sprache werden die entsprechenden Erfolgskontrollen in der Regel in englischer Sprache abgenommen.

Mündliche Prüfungen (§ 4 Absatz 2 Nr. 2) sind von mehreren Prüfern (Kollegialprüfung) oder von einem Prüfer in Gegenwart eines Beisitzenden als Gruppen- oder Einzelprüfungen abzunehmen und zu bewerten. Vor der Festsetzung der Note hört der Prüfer die anderen an der Kollegialprüfung mitwirkenden Prüfer an. Mündliche Prüfungen dauern in der Regel mindestens 15 Minuten und maximal 45 Minuten pro Studierendem.


Für Erfolgskontrollen anderer Art sind angemessene Bearbeitungsfristen einzuräumen und Abgabetermine festzulegen. Dabei ist durch die Art der Aufgabenstellung und durch entsprechende Dokumentation sicherzustellen, dass die erbrachte Studienleistung dem Studierenden zurechenbar ist.

Schriftliche Arbeiten im Rahmen einer Erfolgskontrolle anderer Art haben dabei die folgende Erklärung zu tragen: „Ich versichere wahrheitsgemäß, die Arbeit selbstständig angefertigt, alle benutzten Hilfsmittel vollständig und genau angegeben und alles kenntlich gemacht zu haben, was aus Arbeiten anderer unverändert oder mit Abänderungen entnommen wurde.“ Trägt die Arbeit diese Erklärung nicht, wird diese Arbeit nicht angenommen.

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

§ 7 Bewertung von Prüfungen und Erfolgskontrollen

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

Im Bachelorzeugnis dürfen nur folgende Noten verwendet werden:

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

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

| 1  | 1.0, 1.3 | sehr gut |
| 2  | 1.7, 2.0, 2.3 | gut |
| 3  | 2.7, 3.0, 3.3 | befriedigend |
| 4  | 3.7, 4.0 | ausreichend |
| 5  | 4.7, 5.0 | nicht ausreichend |
Diese Noten müssen in den Protokollen und in den Anlagen (Transcript of Records und Diploma Supplement) verwendet werden.

(3) Für Erfolgskontrollen anderer Art kann die Benotung „bestanden“ (passed) oder „nicht bestanden“ (failed) vergeben werden.

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

(5) Jedes Modul, jede Lehrveranstaltung und jede Erfolgskontrolle darf jeweils nur einmal angerechnet werden.

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

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


(9) Eine Fachprüfung ist bestanden, wenn die für das Fach erforderliche Anzahl von Leistungspunkten über die im Studienplan oder Modulhandbuch definierten Modulprüfungen nachgewiesen wird.

Die Noten der Module eines Faches gehen in die Fachnote mit einem Gewicht proportional zu den ausgewiesenen Leistungspunkten der Module ein.

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

(11) Innerhalb der Regelstudienzeit, einschließlich der Urlaubssemester für das Studium an einer ausländischen Hochschule (Regelprüfungszeit), können in einem Fach auch mehr Leistungspunkte erworben werden als für das Bestehen der Fachprüfung erforderlich sind. In diesem Fall werden bei der Festlegung der Fachnote nur die Modulnoten berücksichtigt, die unter Abdeckung der erforderlichen Leistungspunkte die beste Fachnote ergeben.

Die in diesem Sinne für eine Fachprüfung nicht gewerteten Erfolgskontrollen und Leistungspunkte können im Rahmen der Zusatzfachprüfung nach § 13 nachträglich geltend gemacht werden.

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

<table>
<thead>
<tr>
<th>Note</th>
<th>Bedeutung</th>
</tr>
</thead>
<tbody>
<tr>
<td>bis 1,5</td>
<td>sehr gut</td>
</tr>
<tr>
<td>1.6 bis 2.5</td>
<td>gut</td>
</tr>
<tr>
<td>2.6 bis 3.5</td>
<td>befriedigend</td>
</tr>
<tr>
<td>3.6 bis 4.0</td>
<td>ausreichend</td>
</tr>
</tbody>
</table>
Zusätzlich zu den Noten nach Absatz 2 werden ECTS-Noten für Fachprüfungen, Modulprüfungen und für die Bachelorprüfung nach folgender Skala vergeben:

<table>
<thead>
<tr>
<th>ECTS-Note</th>
<th>Quote</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>10</td>
<td>gehört zu den besten 10 % der Studierenden, die die Erfolgskontrolle bestanden haben</td>
</tr>
<tr>
<td>B</td>
<td>25</td>
<td>gehört zu den nächsten 25 % der Studierenden, die die Erfolgskontrolle bestanden haben</td>
</tr>
<tr>
<td>C</td>
<td>30</td>
<td>gehört zu den nächsten 30 % der Studierenden, die die Erfolgskontrolle bestanden haben</td>
</tr>
<tr>
<td>D</td>
<td>25</td>
<td>gehört zu den nächsten 25 % der Studierenden, die die Erfolgskontrolle bestanden haben</td>
</tr>
<tr>
<td>E</td>
<td>10</td>
<td>gehört zu den letzten 10 % der Studierenden, die die Erfolgskontrolle bestanden haben</td>
</tr>
<tr>
<td>FX</td>
<td>nicht bestanden (failed) – es sind Verbesserungen erforderlich, bevor die Leistungen anerkannt werden</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>nicht bestanden (failed) – es sind erhebliche Verbesserungen erforderlich</td>
<td></td>
</tr>
</tbody>
</table>

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

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

(1) Die Modulteilprüfung Mikroökonomie (VWL I) im Fach Volkswirtschaftslehre (gemäß § 17 Absatz 2 Nr. 2) und die Modulteilprüfung Statistik I im Fach Statistik (gemäß § 17 Absatz 2 Nr. 7) sind bis zum Ende des Prüfungszeitraums des zweiten Fachsemesters abzulegen (Orientierungsprüfungen).

Wer die Orientierungsprüfungen einschließlich etwaiger Wiederholungen bis zum Ende des Prüfungszeitraums des dritten Fachsemesters nicht abgelegt hat, verliert den Prüfungsanspruch im Studiengang, es sei denn, dass er die Fristüberschreitung nicht zu vertreten hat, hierüber entscheidet der Prüfungsausschuss auf Antrag des Studierenden. Eine zweite Wiederholung der Orientierungsprüfungen ist ausgeschlossen.

(2) Studierende können eine nicht bestandene schriftliche Prüfung (§ 4 Absatz 2 Nr. 1) einmal wiederholen. Wird eine schriftliche Wiederholungsprüfung mit „nicht ausreichend“ bewertet, so findet eine mündliche Nachprüfung im zeitlichen Zusammenhang mit dem Termin der nicht bestandenen Prüfung statt. In diesem Falle kann die Note dieser Prüfung nicht besser als 4.0 (ausreichend) sein.

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


(5) Die Wiederholung einer Erfolgskontrolle anderer Art (§ 4 Absatz 2 Nr. 3) wird im Modulhandbuch geregelt.

Bei nicht bestandener Erfolgskontrolle sind dem Kandidaten Umfang und Frist der Wiederholung in geeigneter Weise bekannt zu machen.

Die Wiederholung einer bestandenen Erfolgskontrolle ist nicht zulässig.

Eine Fachprüfung ist nicht bestanden, wenn mindestens ein Modul des Faches nicht bestanden ist.


Ist gemäß § 34 Absatz 2 Satz 3 LHG die Bachelorprüfung bis zum Beginn der Vorlesungszeit des zehnten Fachsemesters einschließlich etwaiger Wiederholungen nicht vollständig abgelegt, so erlischt der Prüfungsanspruch im Studiengang, es sei denn, dass der Studierende die Fristüberschreitung nicht zu vertreten hat. Die Entscheidung darüber trifft der Prüfungsausschuss.

Der Prüfungsanspruch erlischt endgültig, wenn mindestens einer der folgenden Gründe vorliegt:
1. Der Prüfungsausschuss lehnt einen Antrag auf Fristverlängerung nach Absatz 1 oder Absatz 10 ab.
2. Die Bachelorarbeit ist endgültig nicht bestanden.
3. Eine Erfolgskontrolle nach § 4 Absatz 2 Nr. 1 und 2 ist in einem Fach endgültig nicht bestanden.

Eine Erfolgskontrolle ist dann endgültig nicht bestanden, wenn keine Wiederholungsmöglichkeit im Sinne von Absatz 2 mehr besteht oder gemäß Absatz 6 genehmigt wird. Dies gilt auch sinngemäß für die Bachelorarbeit.

§ 9 Versäumnis, Rücktritt, Täuschung, Ordnungsverstoß

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

Die Anerkennung des Rücktritts ist ausgeschlossen, wenn bis zum Eintritt des Hinderungsgrundes bereits Prüfungsleistungen erbracht worden sind und nach deren Ergebnis die Prüfung nicht bestanden werden kann.

Wird der Grund anerkannt, wird ein neuer Termin anberaumt. Die bereits vorliegenden Prüfungsergebnisse sind in diesem Fall anzurechnen.

Bei Modulprüfungen, die aus mehreren Prüfungen bestehen, werden die Prüfungsleistungen dieses Moduls, die bis zu einem anerkannten Rücktritt bzw. einem anerkannten Versäumnis einer Prüfungsleistung dieses Moduls erbracht worden sind, angerechnet.

(4) Versucht der Studierende das Ergebnis einer Erfolgskontrolle durch Täuschung oder Benutzung nicht zugelassener Hilfsmittel zu beeinflussen, gilt die betreffende Erfolgskontrolle als mit „nicht ausreichend“ (5.0) bewertet.


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

§ 10 Mutterschutz, Elternzeit


§ 11 Bachelorarbeit

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

Vor Zulassung sind Betreuer, Thema und Anmeldedatum dem Prüfungsausschuss bekannt zu geben und im Falle einer Betreuung außerhalb der Fakultät für Wirtschaftswissenschaften durch den Prüfungsausschuss zu genehmigen.

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


(4) Die Bachelorarbeit kann von jedem Prüfer nach § 15 Absatz 2 vergeben und betreut werden. Soll die Bachelorarbeit außerhalb der Fakultät angefertigt werden, so bedarf dies der Genehmigung des Prüfungsausschusses gemäß Absatz 1. Dem Studierenden ist Gelegenheit zu geben, für das Thema Vorschläge zu machen. Die Bachelorarbeit kann auch in Form einer Gruppenarbeit zugelassen werden, wenn der als Prüfungsleistung zu bewertende Beitrag des einzelnen Studierenden aufgrund objektiver Kriterien, die eine eindeutige Abgrenzung ermöglichen, deutlich unterscheidbar ist und die Anforderung nach Absatz 3 erfüllt.

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


§ 12 Berufspraktikum

(1) Während des Bachelorstudiums ist ein mindestens achtwöchiges Berufspraktikum, welches mit acht Leistungspunkten bewertet wird, abzuleisten.

(2) Der Studierende setzt sich dazu in eigener Verantwortung mit geeigneten Unternehmen in Verbindung. Der Praktikant wird von einem Prüfer nach § 15 Absatz 2 und einem Mitarbeiter des Unternehmens betreut.

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

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

(1) Der Studierende kann sich weiteren Prüfungen in Modulen unterziehen. § 3, § 4 und § 8 Absatz 10 der Prüfungsordnung bleiben davon unberührt.

(2) Maximal zwei Zusatzmodule mit jeweils mindestens neun Leistungspunkten werden auf Antrag des Studierenden in das Bachelorzeugnis aufgenommen und entsprechend gekennzeichnet.

Zusatzmodule müssen nicht im Studienplan oder Modulhandbuch definiert sein. Im Zweifelsfall entscheidet der Prüfungsausschuss.


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

§ 14 Prüfungsausschuss


(2) Der Vorsitzende, sein Stellvertreter, die weiteren Mitglieder des Prüfungsausschusses sowie deren Stellvertreter werden vom Fakultätsrat bestellt, die Mitglieder der Gruppe der wissenschaftlichen Mitarbeiter nach § 10 Absatz 1 Satz 2 Nr. 2 LHG und der Vertreter der Studierenden auf Vorschlag der Mitglieder der jeweiligen Gruppe; Wiederbestellung ist möglich. Der Vorsitzende und dessen Stellvertreter müssen Professor oder Juniorprofessor sein. Der Vorsitzende des Prüfungsausschusses nimmt die laufenden Geschäfte wahr und wird durch ein Prüfungsekretariat unterstützt.

(3) Der Prüfungsausschuss regelt die Auslegung und die Umsetzung der Prüfungsordnung in die Prüfungspraxis der Fakultät. Er achtet darauf, dass die Bestimmungen der Prüfungsordnung eingehalten werden. Er berichtet regelmäßig dem Fakultätsrat über die Entwicklung der Prüfungen und Studienzeiten sowie über die Verteilung der Fach- und Gesamtnoten und gibt Anregungen zur Reform des Studienplans und der Prüfungsordnung.

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


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

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

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

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

(4) Zum Beisitzenden darf nur bestellt werden, wer einen dem jeweiligen Prüfungsgegenstand entsprechenden akademischen Abschluss erworben hat.

§ 16 Anrechnung von Studienzeiten, Anerkennung von Studienleistungen und Modulprüfungen

(2) Werden Leistungen angerechnet, so werden die Noten – soweit die Notensysteme vergleichbar sind – übernommen und in die Berechnung der Modulnoten und der Gesamtnote einbezogen. Falls es sich dabei um Leistungen handelt, die im Rahmen eines Auslandsstudiums erbracht werden, während der Studierende an der Universität Karlsruhe (TH) für Wirtschaftsingenieurwesen immatrikuliert ist, kann der Prüfungsausschuss für ausgewählte Sprachen die Dokumentation anerkannter Studienleistungen im Transcript of Records mit ihrer fremdsprachlichen Originalbezeichnung festlegen. Liegen keine Noten vor, wird die Leistung nicht anerkannt. Der Studierende hat die für die Anrechnung erforderlichen Unterlagen vorzulegen.

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

(4) Absatz 1 gilt auch für Studienzeiten, Studienleistungen und Modulprüfungen, die in staatlich anerkannten Fernstudien und an anderen Bildungseinrichtungen, insbesondere an staatlichen oder staatlich anerkannten Berufsaademien erworben wurden.

(5) Die Anerkennung von Teilen der Bachelorprüfung kann versagt werden, wenn in einem Studiengang mehr als die Hälfte aller Erfolgskontrollen und/oder mehr als die Hälfte der erforderlichen Leistungspunkte und/oder die Bachelorarbeit anerkannt werden sollen.

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

§ 17 Umfang und Art der Bachelorprüfung


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

   1. Betriebswirtschaftslehre im Umfang von 15 Leistungspunkten,
   2. Volkswirtschaftslehre im Umfang von 10 Leistungspunkten,
   3. Informatik im Umfang von 15 Leistungspunkten,
   4. Operations Research im Umfang von 9 Leistungspunkten,
   5. Ingenieurwissenschaften im Umfang von 10 Leistungspunkten,
   6. Mathematik im Umfang von 21 Leistungspunkten,
   7. Statistik im Umfang von 10 Leistungspunkten.

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

(3) Im vierten bis sechsten Semester sind Fachprüfungen im Umfang von sieben Modulen mit je neun Leistungspunkten abzulegen. Die Module verteilen sich folgendermaßen auf die Fächer:

   1. Betriebswirtschaftslehre,
   2. Volkswirtschaftslehre,
   3. Informatik,
   4. Operations Research,
   5. Ingenieurwissenschaften,
   6. Betriebswirtschaftslehre oder Ingenieurwissenschaften,

   Die in den Fächern zur Auswahl stehenden Module sowie die diesen zugeordneten Lehrveranstaltungen werden im Studienplan oder Modulhandbuch bekannt gegeben. Der Studienplan oder das Modulhandbuch kann auch Mehrfachmodule definieren, die aus 18 Leistungspunkten (Doppelmodul) bzw. 27 Leistungspunkten (Dreifachmodul) bestehen und für Fachprüfungen nach 1. bis 7. bei in Summe mindestens gleicher Leistungspunktezahl entsprechend anrechenbar sind. Auch die Mehrfachmodule mit ihren zugeordneten Lehrveranstaltungen, Leistungspunkten und Fächern bzw. Fächerkombinationen sind im Studienplan oder Modulhandbuch geregelt.


(6) Prüfungen nach § 17 Absatz 3 können in einem Fach nur absolviert werden, wenn eine eventuelle Prüfung dieses Fachs nach § 17 Absatz 2 erfolgreich absolviert wurde. Auf Antrag eines Studierenden kann der Prüfungsausschuss hierzu Ausnahmen genehmigen.
§ 18 Leistungsnachweise für die Bachelorprüfung

Voraussetzung für die Anmeldung zur letzten Prüfung der Bachelorprüfung nach § 17 Absatz 1 ist die Bescheinigung über das erfolgreich abgeleistete Berufspraktikum nach § 12. In Ausnahmefällen, die der Studierende nicht zu vertreten hat, kann der Prüfungsausschuss die nachträgliche Vorlage dieses Leistungsnachweises genehmigen.

§ 19 Bestehen der Bachelorprüfung, Bildung der Gesamtnote

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

(2) Die Gesamtnote der Bachelorprüfung errechnet sich als ein mit Leistungspunkten gewichteter Notendurchschnitt. Dabei werden die Noten gemäß § 17 Absatz 3 und 4 sowie der Bachelorarbeit jeweils mit dem doppelten Gewicht der Noten gemäß § 17 Absatz 2 berücksichtigt.

(3) Hat der Studierende die Bachelorarbeit mit der Note 1.0 und die Bachelorprüfung mit einem Durchschnitt von 1.1 oder besser abgeschlossen, so wird das Prädikat „mit Auszeichnung“ (with distinction) verliehen.

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


(2) Das Zeugnis enthält die in den Fachprüfungen, den zugeordneten Modulprüfungen sowie dem Seminarmodul und der Bachelorarbeit erzielten Noten, deren zugeordnete Leistungspunkte und ECTS-Noten und die Gesamtnote und die ihr entsprechende ECTS-Note. Das Zeugnis ist vom Dekan der Fakultät und vom Vorsitzenden des Prüfungsausschusses zu unterzeichnen.


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

§ 21 Bescheid über Nicht-Bestehen, Bescheinigung von Prüfungsleistungen

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

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

§ 22 Aberkennung des Bachelorgrades

(1) Hat der Studierende bei einer Prüfungsleistung getäuscht und wird diese Tatsache nach der Aushändigung des Zeugnisses bekannt, so können die Noten der Modulprüfungen, bei denen getäuscht wurde, berichtigt werden. Gegebenenfalls kann die Modulprüfung für „nicht ausreichend“ (5.0) und die Bachelorprüfung für „nicht bestanden“ erklärt werden.

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

(3) Vor einer Entscheidung ist Gelegenheit zur Äußerung zu geben.

(4) Das unrichtige Zeugnis ist zu entziehen und gegebenenfalls ein neues zu erteilen. Mit dem unrichtigen Zeugnis ist auch die Bachelorurkunde einzuziehen, wenn die Bachelorprüfung auf Grund einer Täuschung für nicht bestanden erklärt wurde.


(6) Die Aberkennung des akademischen Grades richtet sich nach den gesetzlichen Vorschriften.

§ 23 Einsicht in die Prüfungsakten

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


(3) Prüfungsunterlagen sind mindestens fünf Jahre aufzubewahren.

§ 24 In-Kraft-Treten


Karlsruhe, den 06. März 2007

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

#### A

<table>
<thead>
<tr>
<th>Course</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Course on strength of materials</td>
<td>152</td>
</tr>
<tr>
<td>Advanced Microeconomic Theory</td>
<td>231</td>
</tr>
<tr>
<td>Advanced Programming - Application of Business Software</td>
<td>252</td>
</tr>
<tr>
<td>Advanced Programming - Java Network Programming</td>
<td>251</td>
</tr>
<tr>
<td>Air Port Logistics</td>
<td>129</td>
</tr>
<tr>
<td>Algorithms for Internet Applications</td>
<td>240</td>
</tr>
<tr>
<td>Analytical CRM</td>
<td>289</td>
</tr>
<tr>
<td>Applied Game Theory (Modul)</td>
<td>44</td>
</tr>
<tr>
<td>Applied Informatics I - Modelling</td>
<td>203</td>
</tr>
<tr>
<td>Applied Informatics II - IT Systems for e-Commerce</td>
<td>200</td>
</tr>
<tr>
<td>Applying Industrial Organization</td>
<td>271</td>
</tr>
<tr>
<td>Automotive Engineering (Modul)</td>
<td>61</td>
</tr>
<tr>
<td>Automotive Engineering (Modul)</td>
<td>62</td>
</tr>
<tr>
<td>Autotative Logistics</td>
<td>134</td>
</tr>
</tbody>
</table>

#### B

<table>
<thead>
<tr>
<th>Course</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor Seminar in Foundations of Marketing</td>
<td>214</td>
</tr>
<tr>
<td>Bachelor Seminar in Information Engineering and Management</td>
<td>291</td>
</tr>
<tr>
<td>Bachelor Thesis (Modul)</td>
<td>88</td>
</tr>
<tr>
<td>Bankmanagement und Finanzmärkte, Ökonometrische Anwendungen</td>
<td>222</td>
</tr>
<tr>
<td>basic of ground born guided systems</td>
<td>117</td>
</tr>
<tr>
<td>Basics and Methods for Integration of Tires and Vehicles</td>
<td>190</td>
</tr>
<tr>
<td>Basics in Transport Planning and Traffic Engineering</td>
<td>145</td>
</tr>
<tr>
<td>Basics of Automotive Engineering I</td>
<td>169</td>
</tr>
<tr>
<td>Basics of Automotive Engineering II</td>
<td>176</td>
</tr>
<tr>
<td>Brand Management</td>
<td>213</td>
</tr>
<tr>
<td>Business Administration (Modul)</td>
<td>17</td>
</tr>
<tr>
<td>Business Administration and Management Science A</td>
<td>90</td>
</tr>
<tr>
<td>Business Administration and Management Science B</td>
<td>91</td>
</tr>
<tr>
<td>Business Administration and Management Science C</td>
<td>92</td>
</tr>
<tr>
<td>Business Strategies of Banks</td>
<td>220</td>
</tr>
</tbody>
</table>

#### C

<table>
<thead>
<tr>
<th>Course</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAN-Bus Release Control</td>
<td>137</td>
</tr>
<tr>
<td>Chemical Technology of Water</td>
<td>187</td>
</tr>
<tr>
<td>Civil Law for Beginners</td>
<td>196</td>
</tr>
<tr>
<td>Climatology for Students of other Faculties</td>
<td>110</td>
</tr>
<tr>
<td>Combinatorial Optimization</td>
<td>205</td>
</tr>
<tr>
<td>Combustion Engines</td>
<td>86</td>
</tr>
<tr>
<td>Combustion Engines A</td>
<td>140</td>
</tr>
<tr>
<td>Combustion Engines B</td>
<td>145</td>
</tr>
<tr>
<td>Competition in Networks</td>
<td>265</td>
</tr>
<tr>
<td>Complexity Management</td>
<td>245</td>
</tr>
<tr>
<td>Computer Integrated Planning of New Products</td>
<td>157</td>
</tr>
<tr>
<td>Constitution and Properties of Wear-resistant materials</td>
<td>163</td>
</tr>
<tr>
<td>Control Engineering (Modul)</td>
<td>74</td>
</tr>
<tr>
<td>Corporate Planning and Operations Research</td>
<td>212</td>
</tr>
<tr>
<td>CRM and Service Management (Modul)</td>
<td>31</td>
</tr>
<tr>
<td>Customer Relationship Management</td>
<td>286</td>
</tr>
<tr>
<td>Cycles and Global Development</td>
<td>186</td>
</tr>
</tbody>
</table>

#### D

<table>
<thead>
<tr>
<th>Course</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Mining</td>
<td>227</td>
</tr>
<tr>
<td>Datenbanksysteme</td>
<td>241</td>
</tr>
<tr>
<td>Derivatives</td>
<td>292</td>
</tr>
<tr>
<td>Design Basics in Highway Engineering</td>
<td>114</td>
</tr>
<tr>
<td>Design, Construction and Assessment of Green Buildings I</td>
<td>1280</td>
</tr>
<tr>
<td>Diagnostics of Electrical Equipment</td>
<td>191</td>
</tr>
<tr>
<td>Dynamics of Machines</td>
<td>150</td>
</tr>
</tbody>
</table>

#### E

<table>
<thead>
<tr>
<th>Course</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>eBusiness and Servicemanagement (Modul)</td>
<td>28</td>
</tr>
<tr>
<td>Economic Policy (Modul)</td>
<td>48</td>
</tr>
<tr>
<td>Economics (Modul)</td>
<td>18</td>
</tr>
<tr>
<td>Economics I: Microeconomics</td>
<td>93</td>
</tr>
<tr>
<td>Economics II: Macroeconomics</td>
<td>94</td>
</tr>
<tr>
<td>Economics III: Introduction in Econometrics</td>
<td>199</td>
</tr>
<tr>
<td>Economics of Uncertainty</td>
<td>223</td>
</tr>
<tr>
<td>Efficient Algorithms</td>
<td>239</td>
</tr>
<tr>
<td>eFinance (Modul)</td>
<td>30</td>
</tr>
<tr>
<td>eFinance: Information Engineering and Management for Securities Trading</td>
<td>283</td>
</tr>
<tr>
<td>Elective “Culture - Policy - Science - Technology”</td>
<td>296</td>
</tr>
<tr>
<td>Elective “Personal Fitness &amp; Emotional Competence”</td>
<td>300</td>
</tr>
<tr>
<td>Elective “Tutor Programmes”</td>
<td>299</td>
</tr>
<tr>
<td>Elective “Workshops for Competence and Creativity”</td>
<td>297</td>
</tr>
<tr>
<td>Elective Foreign Languages</td>
<td>298</td>
</tr>
<tr>
<td>Elective Module Law (Modul)</td>
<td>84</td>
</tr>
<tr>
<td>Electives in Informatic (Modul)</td>
<td>53</td>
</tr>
<tr>
<td>Electric Power System Engineering I</td>
<td>192</td>
</tr>
<tr>
<td>Electrical Engineering (Modul)</td>
<td>21</td>
</tr>
<tr>
<td>Electrical Engineering I</td>
<td>108</td>
</tr>
<tr>
<td>Electrical Engineering II</td>
<td>189</td>
</tr>
<tr>
<td>Electrical Power Engineering (Modul)</td>
<td>73</td>
</tr>
<tr>
<td>Emphasis Informatics (Modul)</td>
<td>52</td>
</tr>
<tr>
<td>Emphasis Material Science (Modul)</td>
<td>71</td>
</tr>
<tr>
<td>Energy Economics (Modul)</td>
<td>43</td>
</tr>
<tr>
<td>Energy Generation</td>
<td>190</td>
</tr>
<tr>
<td>Energy Policy</td>
<td>258</td>
</tr>
<tr>
<td>Engine Development (Modul)</td>
<td>65</td>
</tr>
<tr>
<td>Engine Measurement Technologies</td>
<td>146</td>
</tr>
<tr>
<td>Engineering Mechanics (Modul)</td>
<td>23</td>
</tr>
<tr>
<td>Engineering Mechanics I</td>
<td>107</td>
</tr>
<tr>
<td>Engineering Mechanics II</td>
<td>151</td>
</tr>
<tr>
<td>Enterprise Risk Management</td>
<td>274</td>
</tr>
<tr>
<td>eServices</td>
<td>284</td>
</tr>
<tr>
<td>Essentials of Finance (Modul)</td>
<td>33</td>
</tr>
<tr>
<td>Exchanges</td>
<td>219</td>
</tr>
<tr>
<td>Experimental Economics</td>
<td>226</td>
</tr>
</tbody>
</table>

#### F

<table>
<thead>
<tr>
<th>Course</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Accounting and Cost Accounting</td>
<td>89</td>
</tr>
<tr>
<td>Financial Intermediation</td>
<td>217</td>
</tr>
<tr>
<td>Financial Management</td>
<td>216</td>
</tr>
<tr>
<td>Financial Sciences (Modul)</td>
<td>49</td>
</tr>
<tr>
<td>Fiscal Policy</td>
<td>263</td>
</tr>
<tr>
<td>Fluid Power Systems</td>
<td>138</td>
</tr>
<tr>
<td>Foundations of Guided Systems (Modul)</td>
<td>76</td>
</tr>
<tr>
<td>Foundations of Informatics I</td>
<td>96</td>
</tr>
<tr>
<td>Foundations of Informatics II</td>
<td>97</td>
</tr>
<tr>
<td>Foundations of Marketing (Modul)</td>
<td>34</td>
</tr>
<tr>
<td>Fundamentals for Design of Motor-Vehicle Bodies I</td>
<td>174</td>
</tr>
<tr>
<td>Fundamentals for Design of Motor-Vehicle Bodies II</td>
<td>178</td>
</tr>
<tr>
<td><strong>Fundamentals in the Development of Commercial Vehicles I</strong></td>
<td>173</td>
</tr>
<tr>
<td><strong>Fundamentals in the Development of Commercial Vehicles II</strong></td>
<td>148</td>
</tr>
<tr>
<td><strong>Fundamentals in the Development of Passenger Vehicles I</strong></td>
<td>172</td>
</tr>
<tr>
<td><strong>Fundamentals in the Development of Passenger Vehicles II</strong></td>
<td>179</td>
</tr>
<tr>
<td><strong>Fundamentals of Production Management</strong></td>
<td>257</td>
</tr>
<tr>
<td><strong>Fundamentals of Spatial and Infrastructural Development (Modul)</strong></td>
<td>75</td>
</tr>
<tr>
<td><strong>Fundamentals of Technical Logistics</strong></td>
<td>133</td>
</tr>
</tbody>
</table>

**G**

| **Game Theory I** | 230 |
| **Game Theory II** | 224 |
| **GeoInformatics I** | 122 |
| **GeoInformatics II** | 123 |
| **Global Optimization** | 207 |

**H**

| **Handling Characteristics of Motor Vehicles (Modul)** | 60 |
| **Handling Characteristics of Motor Vehicles I** | 171 |
| **Handling Characteristics of Motor Vehicles II** | 177 |

**I**

| **Industrial Application of Material Handling Systems in Sorting and Distribution Systems** | 136 |
| **Industrial Organization** | 225 |
| **Industrial Organization (Modul)** | 46 |
| **Industrial Production I (Modul)** | 42 |
| **Industrial Safety and Environmental Management** | 127 |
| **Innovation** | 270 |
| **Insurance Contract Law** | 275 |
| **Insurance Game** | 276 |
| **Insurance Management (Modul)** | 38 |
| **Insurance Marketing** | 273 |
| **Insurance Models** | 272 |
| **Insurance: Calculation and Control (Modul)** | 35 |
| **Integrated Production Planning** | 166 |
| **Intelligent Systems in Finance** | 247 |
| **Internal Combustion Engines and Exhaust Gas Aftertreatment Technology** | 147 |
| **International Economic Policy** | 267 |
| **International Economics** | 266 |
| **International Economics (Modul)** | 47 |
| **International Finance** | 293 |
| **International Production and Logistics** | 167 |
| **Internship (Modul)** | 87 |
| **Introduction in Ceramics** | 105 |
| **Introduction in to Energy Economics** | 260 |
| **Introduction to General Geophysics** | 111 |
| **Introduction to Informatics (Modul)** | 19 |
| **Introduction to Operations Research (Modul)** | 20 |
| **Introduction to Operations Research I** | 98 |
| **Introduction to Operations Research II** | 99 |
| **Introduction to Programming with Java** | 95 |
| **Introduction to Technical Logistics (Modul)** | 59 |
| **Investments** | 294 |

**K**

| **Knowledge Management** | 243 |

**L**

| **Lab Course Experimental Solid Mechanics** | 153 |
| **Life Science Engineering II** | 185 |
| **Logistics** | 132 |

**M**

| **Machine Tools** | 164 |
| **Macroeconomic Theory (Modul)** | 51 |
| **Macroeconomic Theory I** | 233 |
| **Macroeconomic Theory II** | 234 |
| **Management Accounting** | 215 |
| **Management and Strategy** | 253 |
| **Management of Business Networks** | 282 |
| **Management and Organisation of Projects in Developing Countries** | 268 |
| **Managing Organizations** | 254 |
| **Manufacturing Technology** | 165 |
| **Marketing and Consumer Behavior** | 209 |
| **Marketing and Operations Research** | 211 |
| **Mass and Energy Balances for Reacting Systems (Modul)** | 24 |
| **Material and Energy Flows in the Economy** | 259 |
| **Material Aspects of Tribology** | 162 |
| **Material Science (Modul)** | 22 |
| **Material Science I** | 106 |
| **Material Science II for Business Engineers** | 168 |
| **Material Science III** | 158, 161 |
| **Materialflow** | 128 |
| **Materials of Leightweight Construction** | 159 |
| **Mathematics (Modul)** | 25 |
| **Mathematics I** | 100 |
| **Mathematics II** | 101 |
| **Mathematics III** | 102 |
| **Measurement Techniques in Hydrology and Water Resources Management** | 118 |
| **Mechanical Modelling for Technical Applications (Modul)** | 63 |
| **Meteorological Natural Hazards** | 109 |
| **Methods for Combinatorial Optimization (Modul)** | 55 |
| **Methods for Continuous Optimization (Modul)** | 56 |
| **Methods for Discrete Optimization (Modul)** | 54 |
| **Methods in Analyzing Internal Combustion** | 144 |
| **Microeconomic Theory (Modul)** | 50 |
| **Mixed-integer Optimization** | 208 |
| **Mobile Machines** | 131 |
| **Mobile Machines (Modul)** | 64 |
| **Modelling and Identification** | 317 |
| **Modern Market Research** | 210 |
| **Motor Fuels for Combustion Engines and their Verifications** | 141 |

**N**

| **Non-linear Optimization** | 204 |

**O**

| **Occupational Health and Safety Management and Systems** | 126 |
| **Operations Management** | 235 |
| **Operative CRM** | 287 |
| **Optimization on Graphs and Networks** | 228 |
| **OR Methods and Models in Information Engineering and Management** | 238 |

**P**

<p>| <strong>Power Distribution Systems</strong> | 193 |</p>
<table>
<thead>
<tr>
<th>Subject</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Grid Supervisory and Control</td>
<td>195</td>
</tr>
<tr>
<td>Power Transformations</td>
<td>194</td>
</tr>
<tr>
<td>Principles of Insurance Management</td>
<td>202</td>
</tr>
<tr>
<td>Principles of Life Science Engineering (Modul)</td>
<td>77</td>
</tr>
<tr>
<td>Principles of Process Engineering referring to Food</td>
<td>184</td>
</tr>
<tr>
<td>Private and Social Insurance</td>
<td>201</td>
</tr>
<tr>
<td>Product Lifecycle Management</td>
<td>155</td>
</tr>
<tr>
<td>Product Lifecycle Management (Modul)</td>
<td>72</td>
</tr>
<tr>
<td>Production Scheduling</td>
<td>318</td>
</tr>
<tr>
<td>Production Technology I (Modul)</td>
<td>67</td>
</tr>
<tr>
<td>Production Technology II (Modul)</td>
<td>68</td>
</tr>
<tr>
<td>Production Technology III (Modul)</td>
<td>69</td>
</tr>
<tr>
<td>Project Workshop-Automotive Engineering</td>
<td>181</td>
</tr>
<tr>
<td>Projectseminar</td>
<td>316</td>
</tr>
<tr>
<td>Public Law I - Basic Principles</td>
<td>197</td>
</tr>
<tr>
<td>Public Law II - Public Economic Law</td>
<td>198</td>
</tr>
<tr>
<td>Public Revenues</td>
<td>262</td>
</tr>
<tr>
<td>Radiation Protection and Nuclear Emergency Protection</td>
<td>182</td>
</tr>
<tr>
<td>Railway Logistics, Management and Operating - Part I</td>
<td>120</td>
</tr>
<tr>
<td>Reaction Engineering</td>
<td>183</td>
</tr>
<tr>
<td>Reaction Engineering I (Modul)</td>
<td>78</td>
</tr>
<tr>
<td>Real Estate Management (Modul)</td>
<td>36</td>
</tr>
<tr>
<td>Real Estate Management I</td>
<td>278</td>
</tr>
<tr>
<td>Remote Sensing I</td>
<td>124</td>
</tr>
<tr>
<td>Remote Sensing II</td>
<td>125</td>
</tr>
<tr>
<td>Renewable Energy Sources - Technologies and Potentials</td>
<td>261</td>
</tr>
<tr>
<td>Risk and Insurance Management (Modul)</td>
<td>37</td>
</tr>
<tr>
<td>Safe Engineering</td>
<td>130</td>
</tr>
<tr>
<td>Safety Management in Highway Engineering</td>
<td>121</td>
</tr>
<tr>
<td>Safety Science I (Modul)</td>
<td>81</td>
</tr>
<tr>
<td>Safety Science II (Modul)</td>
<td>82</td>
</tr>
<tr>
<td>Selection and Usage of Material</td>
<td>160</td>
</tr>
<tr>
<td>Semantic Web Technologies I</td>
<td>244</td>
</tr>
<tr>
<td>Seminar Complexity Management</td>
<td>303</td>
</tr>
<tr>
<td>Seminar Economic Theory</td>
<td>313</td>
</tr>
<tr>
<td>Seminar Efficient Algorithms</td>
<td>302</td>
</tr>
<tr>
<td>Seminar Financial Sciences</td>
<td>264</td>
</tr>
<tr>
<td>Seminar in Continuous Optimization</td>
<td>206</td>
</tr>
<tr>
<td>Seminar in Enterprise Information Systems</td>
<td>301</td>
</tr>
<tr>
<td>Seminar in Ergonomics</td>
<td>308</td>
</tr>
<tr>
<td>Seminar in Experimental Economics</td>
<td>314</td>
</tr>
<tr>
<td>Seminar in Finance</td>
<td>218</td>
</tr>
<tr>
<td>Seminar in Game and Decision Theory</td>
<td>315</td>
</tr>
<tr>
<td>Seminar in Industrial Production</td>
<td>309</td>
</tr>
<tr>
<td>Seminar in Insurance Management</td>
<td>305</td>
</tr>
<tr>
<td>Seminar in Operational Risk Management</td>
<td>306</td>
</tr>
<tr>
<td>Seminar in Risk Theory and Actuarial Science</td>
<td>307</td>
</tr>
<tr>
<td>Seminar in System Dynamics and Innovation</td>
<td>311</td>
</tr>
<tr>
<td>Seminar Information Engineering and Management</td>
<td>310</td>
</tr>
<tr>
<td>Seminar Knowledge Management</td>
<td>304</td>
</tr>
<tr>
<td>Seminar Module (Modul)</td>
<td>86</td>
</tr>
<tr>
<td>Seminar on Network Economics</td>
<td>269</td>
</tr>
<tr>
<td>Seminar Service Science, Management &amp; Engineering</td>
<td>285</td>
</tr>
<tr>
<td>Seminar Stochastic Models</td>
<td>312</td>
</tr>
<tr>
<td>Seminar: Management and Organization</td>
<td>256</td>
</tr>
<tr>
<td>Service-oriented Computing I</td>
<td>249</td>
</tr>
<tr>
<td>Service-oriented Computing II</td>
<td>250</td>
</tr>
<tr>
<td>Simulation I</td>
<td>236</td>
</tr>
<tr>
<td>Simulation II</td>
<td>237</td>
</tr>
<tr>
<td>Simulation Methods in Product Development Process</td>
<td>154</td>
</tr>
<tr>
<td>Simulation of coupled systems</td>
<td>139</td>
</tr>
<tr>
<td>Simulation of Spray and Mixture Formation in Internal Combustion Engines</td>
<td>143</td>
</tr>
<tr>
<td>Social structures of modern societies</td>
<td>113</td>
</tr>
<tr>
<td>Sociology/Empirical Social Research (Modul)</td>
<td>85</td>
</tr>
<tr>
<td>Software Engineering</td>
<td>242</td>
</tr>
<tr>
<td>Soil Erosion and Soil Conservation</td>
<td>119</td>
</tr>
<tr>
<td>Spatial Planning and Planning Law</td>
<td>116</td>
</tr>
<tr>
<td>Special Sociology</td>
<td>319</td>
</tr>
<tr>
<td>Special Topics in Management: Management and IT</td>
<td>255</td>
</tr>
<tr>
<td>Specialization in Customer Relationship Management (Modul)</td>
<td>32</td>
</tr>
<tr>
<td>Statistics (Modul)</td>
<td>26</td>
</tr>
<tr>
<td>Statistics and Econometrics in Business and Economics</td>
<td>221</td>
</tr>
<tr>
<td>Statistics I</td>
<td>103</td>
</tr>
<tr>
<td>Statistics II</td>
<td>104</td>
</tr>
<tr>
<td>Stochastic Methods and Simulation (Modul)</td>
<td>57</td>
</tr>
<tr>
<td>Strategic Games (Modul)</td>
<td>45</td>
</tr>
<tr>
<td>Strategy and Organization (Modul)</td>
<td>39</td>
</tr>
<tr>
<td>Supercharging of Internal Combustion Engines</td>
<td>142</td>
</tr>
<tr>
<td>Supply Chain Management (Modul)</td>
<td>29</td>
</tr>
<tr>
<td>Sustainability Assessment of Construction Works</td>
<td>279</td>
</tr>
<tr>
<td>Sustainable Construction (Modul)</td>
<td>27</td>
</tr>
<tr>
<td>Systems Dynamics and Control Engineering</td>
<td>188</td>
</tr>
<tr>
<td>Systems for Electrical Energy</td>
<td>295</td>
</tr>
<tr>
<td>Tectonic Stress in Petroleum Rock Mechanics</td>
<td>112</td>
</tr>
<tr>
<td>Theory of Economic Growth</td>
<td>232</td>
</tr>
<tr>
<td>Theory of Mechanical Vibrations</td>
<td>149</td>
</tr>
<tr>
<td>Topics in Finance I (Modul)</td>
<td>40</td>
</tr>
<tr>
<td>Topics in Finance II (Modul)</td>
<td>41</td>
</tr>
<tr>
<td>Topics of Sustainable Management of Housing and Real Estate</td>
<td>281</td>
</tr>
<tr>
<td>Understanding and Prediction of Disasters I (Modul)</td>
<td>79</td>
</tr>
<tr>
<td>Understanding and Prediction of Disasters II (Modul)</td>
<td>80</td>
</tr>
<tr>
<td>Unscheduled Engineering Module (Modul)</td>
<td>83</td>
</tr>
<tr>
<td>Understanding and Prediction of Disasters I (Modul)</td>
<td>79</td>
</tr>
<tr>
<td>Understanding and Prediction of Disasters II (Modul)</td>
<td>80</td>
</tr>
<tr>
<td>Unscheduled Engineering Module (Modul)</td>
<td>83</td>
</tr>
<tr>
<td>Vehicle Comfort and Acoustics I</td>
<td>170</td>
</tr>
<tr>
<td>Vehicle Mechatronics I</td>
<td>175</td>
</tr>
<tr>
<td>Warehouse and Distribution Systems</td>
<td>135</td>
</tr>
<tr>
<td>Welfare Economics</td>
<td>229</td>
</tr>
</tbody>
</table>