

| Module Code | Course Title                                                                | ECTS Credits for Incomings | Teaching Language | Teacher           | Comments                                                       | Link to module description |
|-------------|-----------------------------------------------------------------------------|----------------------------|-------------------|-------------------|----------------------------------------------------------------|----------------------------|
| 1212646     | Concurrency Theory                                                          | 6                          | English           | Noll              |                                                                | <a href="#">Link</a>       |
| 1212328     | Introduction to Model Checking                                              | 7                          | English           | Katoen            |                                                                | <a href="#">Link</a>       |
| 1212650     | Probabilistic Programming                                                   | 6                          | English           | Katoen            |                                                                | <a href="#">Link</a>       |
| 1212341     | Satisfiability Checking                                                     | 6                          | English           | Ábrahám           | <i>Limited number of places (300)</i>                          | <a href="#">Link</a>       |
| 1222882     | Model-Based Systems Engineering                                             | 6                          | English-friendly  | Rumpe             | Note: taught together with "Model-based Software Engineering"  | <a href="#">Link</a>       |
| 1215686     | Model-Based Software Engineering                                            | 6                          | English-friendly  | Rumpe             | Note: taught together with "Model-based Systems Engineering"   | <a href="#">Link</a>       |
| 1215755     | The Digital Lifecycle of Vehicles as a Part of the Internet of Things (IoT) | 3                          | English           | Fischer           |                                                                | <a href="#">Link</a>       |
| 1212356     | Software Quality Assurance                                                  | 6                          | English           | Lichter           | <i>Limited number of places (90). Not sure if it is taught</i> | <a href="#">Link</a>       |
| 1212349     | Communication Systems Engineering                                           | 6                          | English           | Thißen            |                                                                | <a href="#">Link</a>       |
|             | Advanced Operating Systems                                                  | 6                          | English           | Gouicem           | New course - no more details available yet.                    |                            |
| 1216860     | Algorithmic Foundations of Datascience                                      | 6                          | English           | Schaub            |                                                                | <a href="#">Link</a>       |
| 1227956     | Industrial Network Security                                                 | 6                          | English           | Henze             |                                                                | <a href="#">Link</a>       |
| 1212675     | Semantic Web                                                                | 6                          | English           | Decker            |                                                                | <a href="#">Link</a>       |
| 1211903     | Introduction to Bioinformatics                                              | 5                          | English           | Berlage           | <i>Not sure if it is taught</i>                                | <a href="#">Link</a>       |
| 1215694     | Introduction to Artificial Intelligence                                     | 7                          | English           | Geffner           |                                                                | <a href="#">Link</a>       |
| 1230106     | Fundamentals of Automatic Speech Recognition                                | 6                          | English           | Schlüter          |                                                                | <a href="#">Link</a>       |
| 1227996     | Machine Learning with Graphs: Foundations and Applications                  | 6                          | English           | Morris            |                                                                | <a href="#">Link</a>       |
| 1217537     | Algorithmic Learning Theory                                                 | 7                          | English           | Grohe             |                                                                | <a href="#">Link</a>       |
| 1212336     | Infinite Computations and Games                                             | 7                          | English           | Löding            |                                                                | <a href="#">Link</a>       |
| 1212331     | Complexity Theory                                                           | 7                          | English           | Grohe             |                                                                | <a href="#">Link</a>       |
| 1212310     | Basic Techniques in Computer Graphics                                       | 7                          | English           | Kobbelt           |                                                                | <a href="#">Link</a>       |
| 1212372     | Data Analysis and Visualization                                             | 4                          | English           | Kobbelt           |                                                                | <a href="#">Link</a>       |
| 1215862     | Physically-Based Animation                                                  | 6                          | English           | Bender            |                                                                | <a href="#">Link</a>       |
| 1216861     | Introduction to Data Science                                                | 6                          | English           | van der Aalst     |                                                                | <a href="#">Link</a>       |
| 1211914     | Introduction to Web Technologies                                            | 6                          | German            | Schroeder         |                                                                | <a href="#">Link</a>       |
| 1227457     | Fundamentals of Business Process Management                                 | 6                          | English           | Leemans           |                                                                | <a href="#">Link</a>       |
| 1229150     | Business Process Modeling & Computation                                     | 6                          | English           | Leemans           |                                                                | <a href="#">Link</a>       |
| 1215698     | Designing Interactive Systems I                                             | 7                          | English           | Borchers          | <i>Limited number of places (120)</i>                          | <a href="#">Link</a>       |
| 1215681     | iOS Application Development                                                 | 6                          | English           | Borchers          | <i>Very limited number of places (42)</i>                      | <a href="#">Link</a>       |
| 1212666     | Formal Methods for Logic Control Software                                   | 6                          | English           | Kowalewski/Völker | <i>Not sure if it is taught</i>                                | <a href="#">Link</a>       |
| 1215720     | High-Performance Computing                                                  | 7                          | English           | Müller, Terboven  |                                                                | <a href="#">Link</a>       |
| 1221327     | Introduction to Algorithmic Differentiation                                 | 6                          | English           | Naumann           |                                                                | <a href="#">Link</a>       |
| 1211911     | High-performance Matrix Computations                                        | 7                          | English           | Naumann           |                                                                | <a href="#">Link</a>       |
| 1211909     | Introduction to Virtual Reality (VR I)                                      | 6                          | English           | Kuhlen            |                                                                | <a href="#">Link</a>       |
| 1215744     | Machine Learning                                                            | 7                          | English           | Leibe             |                                                                | <a href="#">Link</a>       |
| 1226970     | Elements of Machine Learning and Data Science                               | 6                          | English           | Leibe             |                                                                | <a href="#">Link</a>       |
| 1229347     | Post-Quantum Cryptography                                                   | 6                          | English           | Unruh             | <i>Not sure if it is taught</i>                                | <a href="#">Link</a>       |
| 1226971     | IT-Security                                                                 | 6                          | English           | Meyer             |                                                                | <a href="#">Link</a>       |
| 1230527     | Advanced Network Security                                                   | 6                          | English           | Meyer             |                                                                | <a href="#">Link</a>       |