

*Only the german version of the module description as part of the study regulations is legally binding.*

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| Module name                     | <b>Model-Driven Software Development in Technical Spaces</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Module number                   | INF-25-Ma-FSP-MOST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Responsible lecturer            | Prof. Dr. Uwe Aßmann<br>uwe.assmann@tu-dresden.de                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Qualification objectives        | Students are familiar with advanced principles of software modeling for heterogeneous systems, such as those required for software factories. In addition, students are familiar with the concept of technical space and metalanguage and can use them together with design patterns. They are also familiar with the concept of the consistent multi-model and can assess its areas of application.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Content                         | The module covers advanced model-driven software development for both information systems and cyber-physical systems. Further content includes metamodeling and domain-specific languages, macromodels and technology space bridges as well as various technology spaces, such as hierarchical or graph-based models, with query and transformation languages.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Teaching and learning methods   | The module comprises lectures of 2 SWS, exercises of 2 SWS and the selfbststudium. The language of instruction for the lectures and exercises is English.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Prerequisites for participation | In the Diploma degree program in Computer Science, the competencies to be acquired in the modules INF-25-Ba-SWT Software Technology, INF-25-Ba-DMF Data Management Foundations, INF-25-Ba-SWTP Software Technology Project and INF-25-Ba-KI Artificial Intelligence are required.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Applicability                   | The module is a compulsory elective module in the Diplom degree course in Computer Science in the main course in the subject area Software Technology and Programming Languages, which must be selected in accordance with Annex 2 to the examination regulations. In the Master's degree program in Computer Science, the module is a compulsory elective module in the Open Track in the subject area of Software Technology and Programming Languages and the supplement, which must be selected in accordance with Annex 2 to the Examination Regulations, and in the Distributed Systems Engineering Track, which must be selected in accordance with Annex 3 to the Examination Regulations. The module can only be chosen once in the Master's degree program in Computer Science. The module cannot be chosen in the Master's degree program in Computer Science if this module or a module with essentially the same content from a degree program with which the admission requirements according to § 3 of the study regulations have already been met has already been completed. The module creates the prerequisites for the modules listed under prerequisites for participation. |
| Requirements for earning credit | The credit points are earned if the module examination is passed. The module examination consists of a non-public oral examination as an                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

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| points                   | individual examination lasting 15 minutes. Bonus achievement for r oral examination is the solving of computer-based exercises of 15 hours and hours. The examination language is English. |
| Credit points and grades | 6 credit points can be earned through the module. The module grade corresponds to the grade of the examination.                                                                            |
| Module frequency         | The module is offered every winter semester.                                                                                                                                               |
| Workload                 | The total workload is 180 hours.                                                                                                                                                           |
| Module duration          | The module comprises one semester.                                                                                                                                                         |