

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

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| Module name                    | <b>Engineering and Management of Industrial Networks</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Module number                  | INF-25-Ma-FCP-EMIN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Responsible lecturer           | Prof. Dr. Martin Wollschlaeger<br>martin.wollschlaeger@tu-dresden.de                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Qualification objectives       | Students are familiar with the basic functions, procedures, architectures and principles of action for designing, monitoring and influencing industrial communication systems. You can describe and classify the functions. They are able to model the relevant elements of the systems and components appropriately. Students can transfer the functions and processes to new application systems and apply them in an integrated way.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| contents                       | Contents of the module are networked systems in industrial real-time applications, methods for their design and management, requirements of the field of application and the mirroring of existing solutions from both the IT domain and automation. Further contents are description tools and tools as well as developments and trends for novel systems.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Forms of teaching and learning | The module includes lectures in the scope of 3 SWS, exercises in the scope of 1 SWS and self-study. The teaching language of the lectures and the exercises can be German or English and will be specified by the lecturer at the beginning of each semester and announced in the usual way.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Requirements for participation | The competences to be acquired in the modules INF-25-Ba-RN Computer Networks, INF-25-Ba-SWT Software Technology, INF-25-Ba-DMF Data Management Foundations and INF-25-Ba-AI Artificial Intelligence are required in the Computer Science Diploma Programme.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| usability                      | The module is a compulsory elective module in the field of Cyber Physical Systems in the diploma course Computer Science in the main course of study, which must be chosen in accordance with Annex 2 to the examination regulations. The module in the Master's program Computer Science is a compulsory elective module in the Open Track in the subject area Cyber Physical Systems as well as the supplement, which must be selected in accordance with Annex 2 to the examination regulations. The module can only be selected once in the Master's programme Computer Science. In the Master's programme in Media Informatics, the module is a compulsory elective module in the field of supplementary modules, which must be chosen in accordance with Section 27(3) of the Examination Regulations. The module cannot be selected in the Master's degree program Computer Science and the Master's degree program Media Informatics if this or a substantially identical module from a degree program with which the admission requirements according to § 3 of the study regulations have been fulfilled, has already been completed. The module creates the prerequisites for the modules, which it names under prerequisites for participation. |

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| Conditions for awarding credits | The credit points are earned when the module examination has been passed. The module examination consists of a non-public oral examination performance as an individual examination of 30 minutes duration. The language of the examination can be German or English and will be specified by the lecturer at the beginning of each semester and announced in the usual manner. |
| Credits and grades              | 6 credit points can be earned through the module. The module grade corresponds to the grade of the examination performance.                                                                                                                                                                                                                                                     |
| Frequency of the module         | The module is offered every winter semester.                                                                                                                                                                                                                                                                                                                                    |
| workload                        | The total workload is 180 hours.                                                                                                                                                                                                                                                                                                                                                |
| Duration of the module          | The module covers one semester.                                                                                                                                                                                                                                                                                                                                                 |