

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

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| Module name                            | <b>Microkernel-Based Operating Systems</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Module number                          | INF-25-Ma-FSA-MOS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Responsible lecturer                   | Prof. Dr. Horst Schirmeier<br>horst.schirmeier@tu-dresden.de                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Qualification objectives               | Students are able to design and implement microkernel-based operating systems and to assess and evaluate their functional and non-functional properties.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Content                                | The module covers various aspects and concepts in the design and implementation of microkernel-based operating systems. This includes basic design principles as well as real systems, in particular the microkernel work at TU Dresden. Further contents are the examination of research papers from the microkernel field and the implementation of components of a microkernel-based operating system and application software based on it.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Teaching and learning methods          | The module comprises lectures of 2 SWS, exercises of 4 SWS and the self-study. 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-RN Computer Networks, INF-25-Ba-BS Operating Systems, INF-25-Ba-RA Computer Architecture and Hardware Laboratory, INF-25-Ba-SWT Software Technology, INF-25-Ba-DMF Data Management Foundations and INF-25-Ba-SWTP Software Technology Project are required.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Applicability                          | The module is a compulsory elective module in the Diploma program in Computer Science in the main course in the subject area of Systems Architecture, which is to be selected in accordance with Appendix 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 Systems Architecture 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 selected once in the Master's degree program in Computer Science. The module cannot be selected in the Master's degree program in Computer Science if this module or a module with essentially the same content from a degree program in which the admission requirements according to Section 3 of the study regulations have already been met has already been completed. The module fulfills the prerequisites for the modules listed under prerequisites for participation. |
| Requirements for earning credit points | The credit points are earned if the module examination is passed. The module examination consists of a non-public oral examination as an individual examination lasting 30 minutes. The examination language                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

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|                          | may be German or English and will be specified by the lecturer at the beginning of each semester and announced in the usual manner. |
| Credit points and grades | 9 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 270 hours.                                                                                                    |
| Module duration          | The module comprises one semester.                                                                                                  |