

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

Module name	Computational Laser Metrology Basics
Module number	INF-25-Ma-NGR-CLM
Responsible lecturer	Prof. Dr. Jürgen Czarske juergen.czarske@tu-dresden.de
Qualification objectives	Students will be familiar with the fundamentals, basic principles and technical terminology and will have mastered the methodical principles of measurement uncertainty analysis. They are familiar with analog methods for recording electrical and non-electrical variables and can calculate systematic and random measurement deviations and interpret them. They can process classic image processing tasks with neural networks and apply metrological analysis tools. They are able to understand problems in the field of application and understand how to develop solutions using computer science approaches. They are particularly qualified to work in interdisciplinary projects and teams.
Content	The module covers the basics of measurement and the fundamentals of image processing using neural networks.
Teaching and learning methods	The module comprises lectures of 2 SWS, exercises of 1 SWS, practicals of 1 SWS and self-study. The teaching language of the lectures, exercises and practicals may be German or English and will be specified by the lecturer at the beginning of each semester and announced in the usual manner.
Prerequisites for participation	No knowledge is required.
Applicability	The module is a compulsory module of the non-computer science supplement Computational Laser Metrology in the Diplom degree program in Computer Science. In the Master's degree program in Computer Science, the module is an elective module of the open track supplement, which must be selected in accordance with Annex 2 to the examination regulations. The module can only be selected in combination with the module INF-25-Ma-NVE-CLM Computational Laser Metrology Vertiefung 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 with which the admission requirements according to § 3 of the study regulations have already been fulfilled. 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 of 20 minutes and a portfolio of 20 hours. Both examinations are relevant for passing the module. The examination language of the oral examination and the portfolio 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	6 credit points can be earned through the module . The module grade is calculated from the weighted average of the grades of the individual examinations . The oral examination is weighted fourfold and the portfolio is weighted once.
Module frequency	The module is offered every winter semester.
Workload	The total workload is 180 hours.
Module duration	The module comprises one semester.