

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

Module name	Photogrammetry specialization
Module number	INF-25-Ma-NSP-PGB
Responsible lecturer	Prof. Dr. Hans-Gerd Maas hans-gerd.maas@tu-dresden.de
Qualification objectives	Students have knowledge of current developments in photogrammetric sensor technology and the automation of evaluation procedures as well as the competence to apply these in a targeted manner to tasks in geodata acquisition. They have in-depth knowledge of vision metrology and image engineering as well as the competence to solve demanding industrial-technical measurement tasks using optical 3D measurement methods.
Content	Contents of the module are current methods of photogrammetric geodata acquisition, in particular methods of direct georeferencing, automatic aerotriangulation and image analysis methods for automatic extraction of 3D GIS information as well as technologies of photogrammetric aerial cameras and mobile mapping systems. Further contents are optical 3D measurement methods, technological basics of digital cameras, sensor modelling methods, camera calibration and accuracy optimization, subpixel measurement operators, high-precision 3D coordinate measurement methods, concepts of fully automatic industrial measurement systems, methods of generating surface models and 3D motion analysis, 3D cameras and their applications in industrial metrology, medicine image processing and virtual reality as well as current problems in photogrammetry and image analysis.
Teaching and learning methods	The module comprises lectures of 2.5 SWS, exercises of 3 SWS, seminars of 2 SWS at and self-study. The language of instruction for lectures, tutorials and seminars is German.
Prerequisites for participation	In the Diploma degree program in Computer Science, the competencies to be acquired in the module INF-25-Ma-NVE-PGB Photogrammetry Specialization are a prerequisite.
Applicability	The module is a compulsory module of the non-computer science supplement Photogrammetry in the Diploma program in Computer Science. The module creates 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 and a complexed performance lasting 60 hours. The examination language of the oral examination and the complex performance is German.
Credit points and grades	12 credit points can be earned through the module. The module grade is calculated from the weighted average of the grades of the individual examination performances. The oral examination is weighted three fold

	and the complex examination is weighted once.
Module frequency	The module is offered every winter semester.
Workload	The total workload is 360 hours.
Module duration	The module comprises one semester.