

|  |                          |   |
|--|--------------------------|---|
| <b>Module title</b>  |                          | <b>Abbreviation</b>                         |
| Introduction to Core Avionics Hardware   |                          | 10-I-MEC-141-m01                            |
| <b>Module coordinator</b>  |                          | <b>Module offered by</b>                    |
| holder of the Chair of Computer Science VIII   |                          | Institute of Computer Science               |
| <b>ECTS</b>  | <b>Method of grading</b> | <b>Only after succ. compl. of module(s)</b> |
| 10   | numerical grade          | --  |
| <b>Duration</b>  | <b>Module level</b>      | <b>Other prerequisites</b>                  |
| 1 semester   | undergraduate            | --  |
| <b>Contents</b>  |                          |   |
| Fundamental principles of data processing, especially for aerospace applications. What is information? Guidance for reliable systems, analogue, digital, FPGAs, radiation effects, micro programming, CPUs, DMAs, memory, memory organisation, system architecture, input and output, sensors and actuators, energy systems, reliability, fault tolerance. Programming of embedded systems in C++. |                          |   |
| <b>Intended learning outcomes</b>  |                          |   |
| Understanding of analogue and digital data processing in embedded systems. Structure of hardware and programming. Embedded programming in C++, knowledge about common sensors and actuators as well as input and output systems.   |                          |   |
| <b>Courses</b> (type, number of weekly contact hours, language – if other than German)   |                          |   |
| V + Ü + Ü (no information on SWS (weekly contact hours) and course language available)   |                          |   |
| <b>Method of assessment</b> (type, scope, language – if other than German, examination offered – if not every semester, information on whether module is creditable for bonus)   |                          |   |
| written examination (approx. 120 minutes) and approx. 6 practical exercises (approx. 6 exercises, approx. 4 hours each), weighted 1:1  |                          |   |
| <b>Allocation of places</b>  |                          |   |
| --   |                          |   |
| <b>Additional information</b>  |                          |   |
| --   |                          |   |
| <b>Workload</b>  |                          |   |
| --   |                          |   |
| <b>Teaching cycle</b>  |                          |   |
| --   |                          |   |
| <b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)   |                          |   |
| --   |                          |   |
| <b>Module appears in</b>   |                          |   |
| Bachelor' degree (1 major) Aerospace Computer Science (2014)   |                          |   |