

<b>Module title</b>		<b>Abbreviation</b>
Advanced On-Board Data Processing		10-I=ADP-182-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>
6	numerical grade	--
<b>Duration</b>	<b>Module level</b>	<b>Other prerequisites</b>
1 semester	graduate	--
<b>Contents</b>		
<p>On-board payload data processing encompasses the data acquisition, transfer, storage, data compression or reduction and transmission to ground of instrument and sensor data. Quite often the amount of raw data generated by modern instruments is in excess of what can be transmitted to ground. This makes it necessary to use various signal processing and compression techniques to reduce the amount of data. It is equally important to have high speed data links, large on-board storage capabilities and digital signal processors available that are fast enough handle data in the range of gigabytes per second.</p>		
<b>Intended learning outcomes</b>		
<p>The student learns how to use an on-board computer (OBC) that is reliable, usually with redundant processors and to enable this processing power for other applications which support the spacecraft bus, such as attitude control algorithms, thermal control, failure detection isolation and recovery.</p>		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
<p>V (4) + Ü (2) Module taught in: English</p>		
<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)		
<p>written examination (approx. 90 to 120 minutes) Language of assessment: English creditable for bonus</p>		
<b>Allocation of places</b>		
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<b>Additional information</b>		
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<b>Workload</b>		
180 h		
<b>Teaching cycle</b>		
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<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)		
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<b>Module appears in</b>		
Master's degree (1 major) Satellite Technology (2018)		