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| Module title | | Abbreviation |
| Radar systems and missions | | 10-I=RSM-182-m01 |
| Module coordinator | | Module offered by |
| holder of the Chair of Computer Science VII | | Institute of Computer Science |
| ECTS | Method of grading | Only after succ. compl. of module(s) |
| 5 | numerical grade | -- |
| Duration | Module level | Other prerequisites |
| 1 semester | graduate | -- |
| Contents | | |
| <p>Introduction to the radar systems. Radar equation. Radar targets. Information from the radar signals. Fundamentals of coherent and incoherent radar systems. Configuration of the radar system and optimisation. Radar hardware incl. antennas, transmitter, receiver. Signal processing and data analysis. Radar systems applications for space research. This class introduces the student to the fundamentals of radar system engineering. The radar range equation in its many forms is developed and applied to different situations. Radar transmitters, antennas, and receivers are covered. The concepts of matched filtering, pulse compression, and the radar ambiguity function are introduced, and the fundamentals of radar target detection in a noise background are discussed. Target radar cross-section models are addressed, as well as the effects of the operating environment, including propagation and clutter. MTI and pulsed Doppler processing and performance are addressed. Range, angle, and Doppler resolution/accuracy, as well as fundamental tracking concepts, will also be discussed.</p> | | |
| Intended learning outcomes | | |
| Student should have knowledge about physical principles, techniques and applications for radar systems. | | |
| Courses (type, number of weekly contact hours, language — if other than German) | | |
| V (2) + Ü (2) Module taught in: English | | |
| Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus) | | |
| written examination (approx. 90 to 120 minutes) Language of assessment: English creditable for bonus | | |
| Allocation of places | | |
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| Additional information | | |
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| Referred to in LPO I (examination regulations for teaching-degree programmes) | | |
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| Module appears in | | |
| Master's degree (1 major) Satellite Technology (2018) | | |