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**Aktuelle Modulbeschreibung**

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| **Module Number:** | **11864** |
| **Module Title:** | **Wireless Sensor Networks: Concepts, Protocols and Applications** |
|  | Drahtlose Sensornetze: Konzepte, Protokolle und Anwendungen |
| **Department:** | Faculty 1 - Mathematics, Computer Science, Physics, Electrical Engineering and Information Technology |
| **Responsible Staff Member:** | * Prof. Dr. rer. nat. Langendörfer, Peter |
| **Language of Teaching / Examination:** | English |
| **Duration:** | 1 semester |
| **Frequency of Offer:** | Every winter semester |
| **Credits:** | 6 |
| **Learning Outcome:** | Participants know the architecture of wireless sensor networks. They can select and classify protocols for different applications. Participants can design and understand complex protocols. They understand the connection between physical impacts on communication and necessary technical means to keep the network alive. They can design own networks and argue about the design decisions. They can judge about future developments. |
| **Contents:** | Architecture of sensor networks, node-architectures, MAC protocols, addressing, routing, synchronisation, operating systems, topology management, applications, security and key-exchange protocols. |
| **Recommended Prerequisites:** | Basic knowledge of technical computer science concepts and communication systems. |
| **Mandatory Prerequisites:** | None |
| **Forms of Teaching and Proportion:** | * Lecture / 2 Hours per Week per Semester * Exercise / 1 Hours per Week per Semester * Self organised studies / 135 Hours |
| **Teaching Materials and Literature:** | Lecture slides; book recommendation; additional literature |
| **Module Examination:** | Final Module Examination (MAP) |
| **Assessment Mode for Module Examination:** | * Written examination, 90 min. **OR** * Oral examination, 30 min. (with small number of participants)   In the first lecture it will be anounced, if the examination will be offered in written or oral form. |
| **Evaluation of Module Examination:** | Performance Verification – graded |
| **Limited Number of Participants:** | None |
| **Part of the Study Programme:** | * Abschluss im Ausland / Cyber Security / keine Prüfungsordnung * M.Sc. / Cyber Security (research-oriented profile) / Prüfungsordnung 2017 * B.Sc. / Informatik (research-oriented profile) / Prüfungsordnung 2008 - 1. SÄ 2017 * M.Sc. / Informations- und Medientechnik (research-oriented profile) / Prüfungsordnung 2017 * Abschluss im Ausland / Power Engineering / keine Prüfungsordnung |
| **Remarks:** | * Study programme Computer Science B. Sc.: Compulsory elective module in complex "Applied and Technical Computer Science" (level 300). * Study programme Information and Media Technology M.Sc.: compulsory elective module in „Dependable HW/SW-Systems". * Study programme Cyber Security M.Sc.: Compulsory elective module in complex "Computer Science". |
| **Module Components:** | * Lecture/Exercise: Wireless Sensornetworks: Concepts, Protocolls and Applications * Related examination |
| **Components to be offered in the Current Semester:** | * [122130 Lecture/Exercise Wireless Sensor Networks: Concepts, Protocolls and Applications - 3 Hours per Week per Semester](https://www.b-tu.de/qisserver3/rds?state=verpublish&status=init&vmfile=no&moduleCall=webInfo&publishConfFile=webInfo&publishSubDir=veranstaltung&veranstaltung.veranstid=79513) * [122131 Examination Wireless Sensor Networks: Concepts, Protocolls and Applications - 3 Hours per Week per Semester](https://www.b-tu.de/qisserver3/rds?state=verpublish&status=init&vmfile=no&moduleCall=webInfo&publishConfFile=webInfo&publishSubDir=veranstaltung&veranstaltung.veranstid=79514) |
| **Phase-out Module:** | Follow-up Module since: 06.10.2017   * [12343 Drahtlose Sensornetze: Konzepte, Protokolle und Anwendungen](https://www.b-tu.de/qisserver3/rds?state=modulBeschrDetailInfo&moduleParameter=modDescr&struct=auswahlBaum&nextdir=qispos/modulBeschr/bearbeiter&next=redTree.vm&createInfoTree=Y&create=blobs&expand=1&nodeID=auswahlBaum|modul:pordnr=9953&lastState=modulBeschrBearbeiter&rest=A&objLanguage=de&pord.pordnr=9953&purge=y&topitem=modules&subitem=&asi=) |