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**Aktuelle Modulbeschreibung**

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| **Module Number:** | **11884** |
| **Module Title:** | **Introduction into Concurrency** |
|  | Einführung in die Nebenläufigkeit |
| **Department:** | Faculty 1 - Mathematics, Computer Science, Physics, Electrical Engineering and Information Technology |
| **Responsible Staff Member:** | * Prof. Dr.-Ing. Heiner, Monika |
| **Language of Teaching / Examination:** | English |
| **Duration:** | 1 semester |
| **Frequency of Offer:** | Each winter semester even year |
| **Credits:** | 8 |
| **Learning Outcome:** | Students acquire a general understanding of Petri net theory and its basic notions and gain a deeper understanding of the foundations of concurrent systems using Petri net models. Furthermore, students learn how Petri net models can be used to systematically construct concurrent software. |
| **Contents:** | * Foundations: Petri nets for the modelling of causality, and thus for the graphic description of concurrency, synchronisation and communication * Typical language constructs for programming of concurrency * Standard problems of mutual exclusion and event synchronisation |
| **Recommended Prerequisites:** | Knowledge in object-oriented programming, software technology, foundations. |
| **Mandatory Prerequisites:** | No successful participation in module *12348 Einführung in die Nebenläufigkeit*. |
| **Forms of Teaching and Proportion:** | * Lecture / 4 Hours per Week per Semester * Exercise / 2 Hours per Week per Semester * Self organised studies / 150 Hours |
| **Teaching Materials and Literature:** | Will be provided at the beginnning of the course. |
| **Module Examination:** | Prerequisite + Final Module Examination (MAP) |
| **Assessment Mode for Module Examination:** | **Prerequisite:**   * Successful completion of exercise assignments (75% must be reached)   **Final module examination:**   * Written examination, 120 min. **OR** * Oral examination, 30-45 min. (with small number of participants)   In the first lecture it will be announced, 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:** | * M.Sc. / Angewandte Mathematik (research-oriented profile) / Prüfungsordnung 2008 * 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 |
| **Remarks:** | * Study programme Computer Science B. Sc.: Compulsory elective module in complex "Foundations of Computer Science" (level 300). * Study programme Information and Media Technology M. Sc.: Compulsory elective module in "Fundamental Methods". * Study programme  Applied Mathematics M. Sc.: Compulsory elective module in field of application "Computer Science". * Study programme Cyber Security M.Sc.: Compulsory elective module in complex "Computer Science".   If there is no need that the module is taught in English, alternatively the german version 12348  "Einführung in die Nebenläufigkeit" may be offered instead.  Modules 11884 "Introduction into Concurrency" and 12348  "Einführung in die Nebenläufigkeit" can not be combined. |
| **Module Components:** | * Lecture: Introduction into Concurrency * Accompanying exercise * Related examination |
| **Components to be offered in the Current Semester:** | * [128110 Lecture Einführung in die Nebenläufigkeit / Introduction into Concurrency - 4 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=74699) * [128111 Exercise Einführung in die Nebenläufigkeit / Introduction into Concurrency - 2 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=74700) * [128113 Examination Einführung in die Nebenläufigkeit / Introduction into Concurrency](https://www.b-tu.de/qisserver3/rds?state=verpublish&status=init&vmfile=no&moduleCall=webInfo&publishConfFile=webInfo&publishSubDir=veranstaltung&veranstaltung.veranstid=75958) |