**Sommersemester 2024**

| Course | Diagnosis and Prognosis (2V, 1Ü) |
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| **Zielgruppe** | Master Program: <br> Mechanical Engineering – all programs <br> Automation and Safety - Safe Systems <br> and all programs Maschinenbau <br> **NOTE: please check the actual status of allowed courses of your program specialization** |
| **URL of the course** | https://moodle.uni-due.de/course/view.php?id=19649 |
| **Lecturer** | Univ.-Prof. Dr.-Ing. Dirk Söffker |
| **Assistant** | Jonathan Liebeton, M.Sc. |
| **About course** | In SoSe 2024, the course will be realized in presence at the university. <br><br> The realization is carried out via: <br> - Lecture and exercise material (pdf) <br><br> Additional material is offered: <br> - Lecture video material <br> - Exercise video material <br><br> The commented material is published online 3 days before the lecture/exercise date in the Moodle course and can be downloaded. Downloading the commented versions after the lecture/exercise date is not possible. **Learning exclusively with the video material is not recommended.** <br><br> The basis of the course is the specified literature resources, available from the library or the WWW. The central teaching materials are available as encrypted PDF documents in the Moodle course. <br><br> For each lecture unit a raw manuscript is published which can be downloaded in the Moodle course **from the beginning of the course**. This serves to structure the personal/personalizable notes. <br><br> For preparation/postprocessing of the lecture it is strongly recommended to <br><br> ➢ **preparation of the previous material,** <br><br> ➢ **as well as reading the upcoming material in the given chapters in advance (in the specified textbook/textbook).** <br><br> **Please note that this course is partly identical with the new course 'Machine Learning'.** |
| **Material** | Moodle: Diagnosis and Prognosis – DaP (https://moodle.uni-due.de/course/view.php?id=19649) |

|  | The password can be requested via the e-mail address srs-pw@uni-due.de. The subject must contain the word **DaP**. |
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| **Day** | Tuesday |
| **Time** | 3:00 – 7:00 pm |
| **Room** | MB 242 |
| **First course** | April 09 |
| **No course** | April 16 |
| **Last course** | May 21 |
| **Literature** | • Gertler, J.J.: Fault detection and diagnosis in engineering systems. New York, Dekker, 1998<br>• Isermann, R.: (Hrsg.): Überwachung und Fehlerdiagnose. Moderne Methoden und ihre Anwendung bei technischen Systemen. VDI Verlag, Düsseldorf, 1994<br>• Klein, U.: Schwingungsdiagnostische Beurteilung von Maschinen und Anlagen. 2., überarbeitete Auflage. Düsseldorf, Stahleisen, 2000<br>• Lunze, J.: Automatisierungstechnik, Oldenbourg, 2003 |
| **Additional reading material** | Stated in the manuscript |
| **Content** | Methods of fault detection and diagnosis I - Signal-based<br>Methods of fault detection and diagnosis II - Model-based<br>Methods of fault detection and diagnosis III – Data driven<br>Prediction of service life and remaining useful lifetime<br>Applications<br>Practical courses and exercises are carried out to illustrate the course contents |
| **Exam** | Written exam in **English language**,<br>90 min, closed-book, registration via examination office |