

# Lecture Winter Term 2017/2018

## Industry 4.0

Prof. Dr.-Ing. Torsten Kröger  
Engler-Bunte-Ring 8, Bldg. 40.28  
D-76131 Karlsruhe  
Tel.: +49 721 608-43898  
E-Mail: torsten@kit.edu  
<http://ipr.kit.edu/>  
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Lecture period: **Fridays, 09:45-11:15, Oct. 20, 2017 - Feb. 9, 2018**

## ***New LECTURE***

*For students of the Dept. of Computer Science*

Location: **Seminar room 001, Building 40.28**

Lecturer: Prof. Dr.-Ing. Torsten Kroeger

### Content:

- Basics and foundations of Industry 4.0 and IoT
- Distributed systems
- Real-time and non-real-time systems
- Software and safety
- Security in Industry 4.0
- Middleware: definition and concepts
- Software technologies
  - Data Distribution Service (DDS)
  - OPC Unified Architecture (OPC UA)
- Extensibility
- Data collection, storage, and analytics
  - Information modeling
  - Parameter identification
  - Big data in Industry 4.0
  - Condition monitoring
  - Machine learning
- Human-centered developments and user interfaces
- Application examples
  - Automated guided vehicles
  - Distributed machine control
  - Automated warehouses
  - Industrial process optimization
  - Home automation, assistants, and robots

