Hochschule Konstanz
University of Applied Sciences

This course provides a practice-oriented introduction to the core concepts of IoT, focusing on the development of devices and applications. Key foundational topics include definitions, historical evolution, and motivating scenarios (e.g., smart hotels). The curriculum emphasizes the architecture of smart devices (sensors, actuators, communication interfaces) and the IoT landscape, covering protocols (MQTT, CoAP, Bluetooth, ZigBee) and standards.

Practical components explore using Raspberry Pi as an IoT device, Web APIs (HTTP, REST, WebSockets), and integrating IoT systems with existing web technologies. Challenges such as competing standards, security, data privacy, and energy efficiency are critically analyzed. The course highlights web-based approaches to streamline development, maintenance, and scalability.

The lecture is complemented by hands-on exercises in Node.js, networks, and protocols, aiming to apply knowledge in professional contexts. A final written exam concludes the course.