UNIVERSITAS MATARAM

(University of Mataram)

FAKULTAS TEKNIK

(Faculty of Engineering)

PROGRAM STUDI TEKNIK INFORMATIKA

(Department of Informatics Engineering)

MODULE HANDBOOK DESCRIPTION

Application of Internet of Things (P22B02)

Module designation	Application of Internet of Things
Semester(s) in which the module is taught	*Elective Courses / fourth year*
Person responsible for the module	*Dr.Eng I Gde Putu Wirarama Wedashwara Wirawan ST., MT.*
Language	*Indonesian*
Relation to curriculum	*Compulsory*
Teaching methods	*Lectures, Discussions, Project*
Workload (incl. contact hours, self-study hours)	Contact Hours every week, each week of the 16 weeks/semester including Evaluation ● 2 x 50 minutes lecturer/week ● 2 x 60 minutes class exercise/week ● Self Study hours = 120 minutes/week Total workload 340 minutes/week
Credit points	*2 (~ 3,2 ECTS)*
Required and recommended prerequisites for joining the module	-

Module objectives/intended learning outcomes	The main objective of IoT application is to discusses data communication (Bluetooth, nRF, LoRa, Internet), energy sources for data processing for solution design and the role of IoT and its evaluation in robotics, electric vehicles, agriculture, tourism, health to industry. Project-based courses train students to be responsible and independent for the given project. Based on these main objectives, the application of IoT courses have subject learning outcomes, namely: 1. Be able and responsible for working individually and in a group to update students' knowledge (sustainable learning) of the current information technology. 2. Able to design IoT solutions, including data communication (Bluetooth, nRF, LoRa, Internet), energy sources for data processing. *3.* Able to design solutions and the role of IoT and its evaluation in robotics, electric vehicles, agriculture, tourism, health to industry.
Content	The application of IoT discusses data communication (Bluetooth, nRF, LoRa, Internet), energy sources for data processing for solution design and the role of IoT and its evaluation in robotics, electric vehicles, agriculture, tourism, health to industry. Project-based courses train students to be responsible and independent for the given project.
Examination forms	*Assignments, Quiz, Simulation, Project Based Assignments*
Study and examination requirements	*Assignments 25%,* *Quiz 25%,* *Project based assignments 50%*

Reading list	1. Ashton, K. (2009). That 'internet of things' thing. RFID journal, 22(7), 97-114. 2. Xia, F., Yang, L. T., Wang, L., & Vinel, A. (2012). Internet of things. International journal of communication systems, 25(9), 1101. 3. Devices, P. Embedded Systems. In Mobile HCI. 4. Heath, S. (2002). Embedded systems design. Elsevier. 5. Tarbell, J. M., & Ebong, E. E. (2008). The endothelial glycocalyx: a mechano-sensor and-transducer. Science signaling, 1(40), pt8-pt8. 6. Tree, S. (2014). Wireless sensor networks. Self, 1(R2), C0. 7. Light, R. A. (2017). Mosquitto: server and client implementation of the MQTT protocol. Journal of Open Source Software, 2(13), 265. 8. Yokotani, T., & Sasaki, Y. (2016, September). Comparison with HTTP and MQTT on required network resources for IoT. In 2016 international conference on control, electronics, renewable energy and communications (ICCEREC) (pp. 1-6). IEEE. 9. Kurniawan, A. (2019). Internet of Things Projects with ESP32: Build exciting and powerful IoT projects using the all-new Espressif ESP32. Packt Publishing Ltd.