Module Description

Module name	Wireless Sensor Networks
Module level, if applicable	Bachelor of Informatics
Code, if applicable	21D12131704
Subtitle, if applicable	-
Course, if applicable	**-**
Semester(s) in which the module is taught	6th
Person responsible for the module	Prof. Dr. Ir. Andani, MT.
Lecturer	Prof. Dr. Ir. Andani, MT. Dr. Ir. Zahir Zainuddin, MT
Language	Indonesian Language [Bahasa Indonesia]
Relation to Curriculum	This course is a compulsory course for the Internet of Things research group and is offered in the 6th semester.
Type of teaching, contact hours	Teaching methods: [project-based learning]. Teaching forms: [lecture], [tutorial]. CH : 08.00 - 16.00
Workload	For this course, students are required to meet a minimum of 181.33 hours in one semester, which consist of: - 53.33 hours for lecture, - 64 hours for structured assignments, - 64 hours for private study
Credit points	4 credit points (equivalent with 6.8 ECTS)
Requirements according to the	Students have participated in at least 80% of the learning activities (Academic Regulations, Chapter VII)

examination regulations	
Recommended prerequisites	-
Module objectives/intended learning outcomes	After completing the course, Students are able: **Intended Learning Outcomes (ILO):** **ILO 1 :** Have the knowledge of fundamental in Computing Science that includes basic theory and concepts of computer science, Mathematics and Statistics, Programming Algorithm, Software Engineering, Information Management and Digital Resilience, also the advance topics of either Artificial Intelligence, Data Science, Computer Network, Cloud Computing or Internet of Things. **ILO 3 :** Apply the knowledge of computing and other related disciplines to analyse and identify solutions for any computing-based problem. **Course Learning Objective (CLO):** After taking the Wireless Sensor Network course for 1 (one) semester, students are able to use theoretical concepts of technological knowledge in wireless sensor networks independently, of good quality and measurable, and able to analyze and design quality Wireless Sensor Networks. In Wireless Sensor Networks students are able to formulate problem-solving as outlined in the form of analytical documentation. **Sub CLO :** ILO 1 ⇒ CLO 1 : Students are able to understand the basic concepts of wireless networks and master the concept of Wifi and its technology, BWA technology, infrastructure, regulations, network architecture, protocols, services, communication processes on ISDN & IN, the structure of cellular networks, concept, structure, and network protocol in wireless sensor network (WSN) technology ILO 3 ⇒ CLO 2 : Students are able to apply the theory of Wireless Sensor Networks

Content	Students will learn about : 1. Broadband Wireless Access 2. Wifi 3. Wimax 4. AdHoc 5. Wireless Sensor Network 6. BWA 7. Manet 8. Femtocell
Forms of Assessment	Assessment techniques: [observation], [written test]. Assessment forms: [midterm exam], [final term exam], [assignment], [report], [presentation]. Assignment = 55%, mid term exam = 15%, report = 15%, Final term exam (Presentation) = 15%, CLO 1 => ILO 1: 70% (Assignment and Mid term exam: written test) CLO 2==>ILO 3: 30% (Report and Presentation, Final term exam : Observation)
Study and examination requirements and forms of examination	**Study and examination requirements:** - Students must attend 15 minutes before the class starts. - Students must switch off all electronic devices. - Students must inform the lecturer if they will not attend the class due to sickness, etc. - Students must submit all class assignments before the deadline. - Students must attend the exam to get final grade. **Form of examination:** Written exam: Essay
Media employed	Video conference, slide presentation, Learning Management System (LMS)
Reading list	**Main :** Callaway.H.Edgar, "Wireless Sensor Networks : Architectures and Protocols", CRCPress, 2004 **Support :** Zheng Jun, Jamalipour Abbas, "Wireless Sensor Networks : A Networking Perspective", John Wiley&Sons Inc Publication, 2009.