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MODULE HANDBOOK

Module name	**Intelligent Environments**
Module level, if applicable	Undergraduate
Code, if applicable	
Courses, if applicable	
Semester(s) in which the module is taught	Spring (Even)
Person responsible for the module	Muhammad Idham Ananta Timur, S.T., M.Kom.
Lecturer(s)	Muhammad Idham Ananta Timur, S.T., M.Kom.
Language	English and Indonesia
Relation to curriculum	1. Undergraduate degree program, optional, 6th semester. 2. International undergraduate program, optional, 6th semester.
Teaching methods	Project-Based Learning
Workload (incl. contact hours, self-study hours)	1. Lectures: 3 x 50 = 150 minutes per week. 2. Exercises and Assignments: 2 x 50 = 100 minutes per week. 3. Private study: 1 x 50 = 50 minutes per week.
Credit points	3
Requirements according to the examination regulations	Minimum attendance at lectures is 75% (according to UGM regulation). Final score is evaluated based on assignments (20%), mid semester exam (40%), and end semester exam (40%).
Required and recommended prerequisites for joining the module	
Learning outcomes and their corresponding PLOs	After completing this module, a student is expected to: CO1. Able to explain and identify the concepts and characteristics of intelligent systems for monitoring and controlling environment CO2. Able to perform analysis and design of intelligent environment systems. CO3. Be able to show professional attitudes, responbility, and team works
Content	1. Definition and Concept of Intelligent Environments

PLO		CO1	CO2	CO3
Program Learning Outcome (PLO)	**PLO3**	√		
	PLO4		√	
	PLO5			√

<table>
<tr><td></td><td>2. Air and Water Quality monitoring using intelligent systems
3. Fire Detection
4. Activity learning in Smart Home
5. Adaptive Traffic Signal Controller</td></tr>
<tr><td>Study and examination requirements and examination forms</td><td>The evaluation is done in 2 forms, namely:
1. Trial, either midterm or semester test,
2. One individual quiz and assignment
3. Group Presentation
Assessment is done using benchmark assessment, with the aim of measuring the level of student understanding related to the target and class rank.</td></tr>
<tr><td>Media employed</td><td>e-learning Platform, LCD, glass board, and websites.</td></tr>
<tr><td>Assessments and evaluation</td><td>
<table>
<tr><th>Type</th><th>Percentage</th><th>CO1</th><th>CO2</th><th>CO3</th></tr>
<tr><td>Quiz</td><td>10</td><td>√</td><td></td><td></td></tr>
<tr><td>Assignment</td><td>15</td><td>√</td><td>√</td><td></td></tr>
<tr><td>Mid Term Exam</td><td>25</td><td>√</td><td>√</td><td></td></tr>
<tr><td>Group Project 1</td><td>10</td><td></td><td>√</td><td>√</td></tr>
<tr><td>Group Project 2</td><td>15</td><td></td><td>√</td><td>√</td></tr>
<tr><td>Final Presentation</td><td>25</td><td></td><td>√</td><td>√</td></tr>
<tr><td>Total</td><td>100</td><td></td><td></td><td></td></tr>
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<tr><td>Reading list</td><td>1. Least Squares Neural Network-based Wireless E-nose System using SnO2 Sensor Array, Areej Shahid, Jong-Hyeok Choi, Abu ul Hassan Sarwar Rana and Hyun-Seok Kim, MDPI SENSOR 2018
2. Automated Water Quality Survey and Evaluation Using an IoT Platform with Mobile Sensor Nodes, Teng Li, Min Xia, Jiahong Chen, Yuanjie Zhao and Clarence de Silva, MDPI Sensor 2017
3. Activity Learning: Discovering, Recognizing, and Predicting Human Behavior from Sensor Data, Wiley Series on Parallel and Distributed Computing 2015, Diane J Cook, Narayanan C. Krishnan
4. Smart Environments: Technologies, Protocols, and Applications, Diane J. Cook and Sajal K. Das, Wiley Series on Parallel and Distributed Computing, 2005
5. Next Generation Intelligent Environments Ambient Adaptive Systems Second Edition, Stefan Ultes, Florian Nothdurft, Tobias Heinroth, Wolfgang Minker (eds.), 2016
6. Intelligent Transportation Systems – Problems and Perspectives, Aleksander Sładkowski · Wiesław Pamuła Springer International Publishing Switzerland 2016</td></tr>
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Created date : December 29, 2022

Revision date :