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MODULE HANDBOOK

Module name	**Digital Electronics**
Module level, if applicable	Undergraduate
Code, if applicable	MII-1301
Courses, if applicable	NA
Semester(s) in which the module is taught	Even Semester
Person responsible for the module	Nia Gella Augoestien, S.Si., M.Cs.,
Lecturer(s)	Nia Gella Augoestien, S.Si., M.Cs., ...
Language	Bahasa Indonesia and English
Relation to curriculum	1. It is a mandatory course for the undergraduate degree program in 2nd semester 2. It is a mandatory course for the international undergraduate degree program in 2nd semester
Teaching methods	1. Undergraduate degress program delivered using lectures and practicum instruction with students less than 60. 2. Internatioan undergraduater degree program delivered using lectures and practicum instruction with student less than 30.
Workload (incl. contact hours, self-study hours)	1. Lectures : 2 x 50 = 100 minutes per week 2. Excercise and assignment : 1 x 50 = 50 minutes per week 3. Self study : 1 x 50 = 50 minutes per week
Credit points	2 Credit Points
Requirements according to the examination regulations	A student must have attended at least 75% of the lectures to sit in the exams.
Required and recommended prerequisites for joining the module	-
Learning outcomes and their corresponding PLOs	After completing this module, a student is expected to: CO1. Understand about numbering system and its relationship with digital electronics. CO2. Able to use boolean algebra, truth table and Karnaugh map as a tools of analysis and synthesis digital circuit.

CO3. Able to analyze and synthesis kombinational logic circuit.

CO4. Able to use universal logic gates (NAND and NOR) to design logic circuits.

CO.5 Understand about MSI and PLDs type that often used in digital networks and implement it on combinational logic circuit.

PLO		CO1	CO2	CO3	CO4	CO5
Program Learning Outcome (PLO)	**PLO1**					
	PLO2	√			√	
	PLO3		√			√
	PLO4			√		
	PLO5					

Content

1. Introduction to digital circuit and boolean algebra
   a. Sistem digital and binary number
   b. Boolean algebra and logic gate
2. Gate level minimazation
   a. Basic theorems and properties of Boolean Algebra
   b. Karnaugh Map
   c. Quine Mc Cluesky
3. Combinational circuit
   a. Analisis Procedure
   b. Design Procedure
   c. Case Study
   d. NAND-NOR Implementation
4. MSI and PLD
   a. Decoder and Encoder
   b. Demultiplexer and multiplexer
   c. ROM, PLA and PAL

Study and examination requirements and examination forms

The evaluation is done in 2 forms, namely:
1. Exam, either midterm or final exam
2. Two group assignments are to be completed within a specific timeframe
3. Final Project

Assessment is done using a rubric to measure student understanding related to the target and class rank.

Media employed

Projector, whiteboard, presentation. And e-learning platform (eLok)

Assessments and evaluation

Type	Percentage	CO1	CO2	CO3	CO4	CO5
Group Task 1	15.0		√			
Group Task 2	15.0					√
Final Project	25.0			√		
Midterm	22.5	√	√			
Final Exam	22.5			√	√	√
Total	100.0					

Reading list	1. Mano, M. M. dan Ciletti, M. D., 2008, Digital Design, Prentice Hall , New Jersey. 2. Tocci, R. J., dkk, 2007,Digital Systems – Principles and Applications, 10th Edition, Pearson Education.

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