**UNIVERSITAS MATARAM**
***(University of Mataram)***
**FAKULTAS TEKNIK**
***(Faculty of Engineering)***
**PROGRAM STUDI TEKNIK INFORMATIKA**
***(Department of Informatics Engineering)***

# MODULE HANDBOOK DESCRIPTION

Blockchain (P22B04)

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| Module designation | Blockchain |
| Semester(s) in which the module is taught | *8 / fourth year* |
| Person responsible for the module | *Heri Wijayanto ST MT Ph.D* |
| Language | *Indonesian* |
| Relation to curriculum | *Electives* |
| Teaching methods | *Lectures, Discussions, Project* |
| Workload (incl. contact hours, selfstudy hours) | Contact Hours every week, each week of the 16 weeks/semester including Evaluation<br>● 2 x 50 minutes lecturer/week<br>● 120 minutes class exercise/week<br>● Self Study hours = 120 minutes/week<br>● Midterm Exam = 60 minutes<br>● Final Exam = 75 minutes<br>Total workload 81,58 hours/semester |
| Credit points | *2 (~ 3,26 ECTS)* |

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| Required and recommended prerequisites for joining the module | Big Data |

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| Module objectives/intended learning outcomes | The main objective of PR courses is to provide students with knowledge, simulation techniques, application techniques, and analysis of a physical object/data/event in one or more categories. The learning outcomes of the BlockChain course are:<br>1. Be able to differentiate between the centralized and distributed trust system<br>2. Be able to simulate the simple calculation of public key cryptography, and digital signature<br>3. Be able to simulate the hash function and basic blockchain<br>4. Be able to use Ethereum network<br>5. Be able to use Truffle framework<br>6. Be able to construct Smart Contract |
| Content | This course provides students with knowledge, design, and analysis about the pattern of object/event and how to apply it to solve certain cases. This course contains important topics:<br>1. Blockchain technology: Why, What, How<br>2. Technological and Cryptographic Elements in Blockchain<br>3. Blockchain Platforms<br>4. Blockchain Applications<br>5. The Limitations, Opportunities and Challenges of Blockchain<br>6. The “Evil Sides” of Blockchain and Legal Regulations for Blockchain |
| Examination forms | *Assignments, Quiz, Simulation, Project (Oral Presentation)* |

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| Study and examination requirements | *Assignments 10%,*<br>*Quiz 25%,*<br>*Simulation 25%,*<br>*Project 40%* |
| Reading list | 1. Hirsh, S., & Alman, S. W. (2019). Blockchain (Library Futures Series, Book 3). ALA Neal-Schuman..<br>2. Bashir, I. (2017). Mastering blockchain. Packt Publishing Ltd.<br>3. Angraal, S., Krumholz, H. M., & Schulz, W. L. (2017). Blockchain technology: applications in health care. Circulation: Cardiovascular quality and outcomes, 10(9), e003800.<br>4. Lim, M. K., Li, Y., Wang, C., & Tseng, M. L. (2021). A literature review of blockchain technology applications in supply chains: A comprehensive analysis of themes, methodologies and industries. Computers & Industrial Engineering, 154, 107133.<br>5. Miraz, M. H., & Ali, M. (2018). Applications of blockchain technology beyond cryptocurrency. arXiv preprint arXiv:1801.03528. |