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

### MODULE HANDBOOK DESCRIPTION

Data Mining (P22B05)

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| Module designation | Data Mining |
| 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<br>● 2 x 50 minutes lecturer/week<br>● 2 x 60 minutes class exercise/week<br>● Self Study hours = 120 minutes/week<br>Total workload 340 minutes/week |
| Credit points | *2 (~ 3,2 ECTS)* |
| Required and recommended prerequisites for joining the module | Big Data |

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| Module objectives/intended learning outcomes | The main objective of IoT application is to do an statistical analysis for the design of pre-processing requirements for feature selection and extraction data on numeric and text data, as well as the implementation of supervised processing, namely unsupervised classification, and regression, namely clustering, association rule mining, and skyline queries along with their evaluation using python and spark programming libraries. Problem-based courses to train students' analytical skills and independence in solving given problems. Based on these main objectives, the application of IoT courses have subject learning outcomes, namely:<br><br>1. Able to be responsible, creative, and independent in solving data mining problems.<br>2. Able to analyze using a statistical approach to design pre-processing requirements for feature selection and extraction data on numeric and text data.<br>3. *Able to perform analysis and implementation of data mining in supervised processing, namely classification and regression, as well as unsupervised, namely clustering, association rule mining, and skyline query, along with their evaluation using python and spark programming libraries.* |
| Content | Data mining discusses statistical analysis for the design of pre-processing requirements for feature selection and extraction data on numeric and text data, as well as the implementation of supervised processing, namely unsupervised classification, and regression, namely clustering, association rule mining, and skyline queries along with their evaluation using python and spark programming libraries. Problem-based courses to train students' analytical skills and independence in solving given problems. |
| Examination forms | *Assignments, Quiz, Simulation, Project Based Assignments* |
| Study and examination requirements | *Assignments 25%,*<br>*Quiz 25%,*<br>*Project based assignments 50%* |

| Reading list | 1. Rutkowski, L., Jaworski, M., & Duda, P. (2020). Stream data mining: Algorithms and their probabilistic properties. Cham, Switzerland: Springer. |
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| | 2. Olson, D. L., & Lauhoff, G. (2019). Descriptive data mining. In Descriptive Data Mining (pp. 129-130). Springer, Singapore. |
| | 3. Aggarwal, C. C. (2015). Data mining: the textbook. Springer. |
| | 4. Gupta, G. K. (2014). Introduction to data mining with case studies. PHI Learning Pvt. Ltd. |
| | 5. Xu, R., & Wunsch, D. (2008). Clustering (Vol. 10). John Wiley & Sons. |
| | 6. Sinaga, K. P., & Yang, M. S. (2020). Unsupervised K-means clustering algorithm. IEEE Access, 8, 80716-80727. |
| | 7. Saxena, A., Prasad, M., Gupta, A., Bharill, N., Patel, O. P., Tiwari, A., ... & Lin, C. T. (2017). A review of clustering techniques and developments. Neurocomputing, 267, 664-681. |
| | 8. Abdel-Basset, M., Mohamed, M., Smarandache, F., & Chang, V. (2018). Neutrosophic association rule mining algorithm for big data analysis. Symmetry, 10(4), 106. |
| | 9. Zhang, C., & Zhang, S. (2003). Association rule mining: models and algorithms (Vol. 2307). Springer. |
| | 10. Haddache, M., Hadjali, A., & Azzoune, H. (2019, June). Reducing skyline query results: An approach based on fuzzy satisfaction of concepts. In International Conference on Flexible Query Answering Systems (pp. 191-202). Springer, Cham. |
| | 11. Zong, C., Xia, R., & Zhang, J. (2021). Text Data Mining (pp. 1-333). Springer Singapore. |
| | 12. Bouveyron, C., Celeux, G., Murphy, T. B., & Raftery, A. E. (2019). Model-based clustering and classification for data science: with applications in R (Vol. 50). Cambridge University Press. |