



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

MODULE HANDBOOK DESCRIPTION

Artificial Neural Network (K22P71)

Module designation	Artificial Neural Network (ANN)
Semester(s) in which the module is taught	7 / fourth year
Person responsible for the module	Prof. Dr. Eng. I Gede Pasek Suta Wijaya, S.T., M.T.
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 • 2 x 50 minutes lecturer/week • 120 minutes class exercise/week • Self Study hours = 150 minutes/week • Midterm Exam = 60 minutes • Final Exam = 60 minutes Total workload 88,33 hours/semester
Credit points	2 (~ 3,53 ECTS)
Required and recommended prerequisites for joining the module	Numerical Method and Artificial Intelligence.

Module objectives/intended learning outcomes	The main objective of ANN courses is to provide an understanding of the basic principles, application techniques, and implementation of ANN for the resolution of certain cases. Based on these main objectives, the ANN courses have subject learning outcomes, namely: 1. Able to understand the basic concepts of several ANN architectures, training techniques, testing techniques, and their applications 2. Able to apply ANN architecture for solving simple cases manually and with computer assistance (independently) 3. Able to create ANN programs to solve real cases using own/online datasets (as a group).
Content	This course provides students with knowledge, design, and analysis about ANN and how to apply it to solve certain cases. This course contains important topics such as Fundamentals of ANN and its Architecture, Design Principles and Training Techniques, Back Propagation, associative memory, Bidirectional Associative Memory (BAM), Learning Vector Quantization (LVQ), Kohonen, Convolution Neural Network, and Application Simulation.
Examination forms	<i>Assignments, Quiz, Simulation, Project (Oral Presentation)</i>
Study and examination requirements	<i>Assignments 10%, Quiz 25%, Simulation 25%, Project 40%</i>
Reading list	1. Faussett, Laurene. Fundamental of Neural Networks: Architectures, Algorithms, and Applications. Englewood Cliffs, New Jersey: Prentice-Hall,1994. 2. Hagan, Martin, Howard Demuth and Mark Belle, T, Neural Network Design, PWS Publishing Company, Boston, 1996. 3. Demuth, Howard and Mark Belle, Neural Network Toolbox : for use with MATLAB, (online available), Mathworks. 4. Simon Haykin, Neural Networks and Learning Machines Third Edition, Prentice Hall, 2009 5. Implementation of Artificial Neural Network(ANN) in Python (https://www.mltut.com/implementation-of-artificial-neural-network-in-python/)

