MODULE HANDBOOK
Formal Verification

MASTER DEGREE PROGRAM
DEPARTMENT OF MATHEMATICS
FACULTY OF SCIENCE AND DATA ANALYTICS
INSTITUT TEKNOLOGI SEPULUH NOPEMBER

MODULE HANDBOOK

Formal Verification

Module name	**Formal Verification**
Module level	Postgraduate
Code	KM185272
Course (if applicable)	**Formal Verification**
Semester	Fall
Person responsible for the module	Dr. Dieky Adzkiya, S.Si, M.Si
Lecturer	Dr. Dieky Adzkiya, S.Si, M.Si
Language	Bahasa Indonesia and English
Relation to curriculum	Master degree program, **mandatory**, 3rd semester.
Type of teaching, contact hours	Lectures, <60 students
Workload	1. Lectures: 2 x 50 = 100 minutes per week. 2. Exercises and Assignments: 2 x 60 = 120 minutes (3 hours) per week. 3. Private learning: 2 x 60 = 120 minutes (3 hours) per week.
Credit points	2 credit points (sks)
Requirements according to the examination regulations	A student must have attended at least 80% of the lectures to sit in the exams.
Mandatory prerequisites	-
Learning outcomes and their	Course Learning Outcome (CLO) after completing this module, 1. Students are able to explain the formal verification methods and models

corresponding PLOs	system where formal verification methods can be applied. 2. Students are able to explain some of the methods of verification systems and the development of a system of verification methods. 3. Students can apply the model checking system model transitions, both theoretically and using software 4. Students are able to explain and apply various algorithms on system verification.
Content	In this course will be given an insight to students about the background and verification processes on the system transition. In addition to theoretical studies, students are also introduced to some of the software for the verification of the model, such as SPIN or NuSMV. Study paper / paper on the topic is presented in the form of discussions and presentations. Understanding verification system: Why it is needed, the difference with the simulation, the advantages of the methods of verification systems, the boundaries of the verification system, the models used in the verification of the system: the system transition, a few specifications that are commonly used: linear-time property, linear temporal logic, computation tree logic, some software for system verification: SPIN, NuSMV, case studies verify the application of the system
Study and examination requirements and forms of examination	● In-class exercises ● Assignment 1, 2, 3 ● Mid-term examination ● Final examination
Media employed	LCD, whiteboard, websites (myITS Classroom), zoom.
Reading list	1. Baier, C. and Katoen, J-.P, 2008, Principles of Model Checking, The MIT Press 2. Ben-Ari, M., 2008, Principles of the SPIN model of checkers, Springer