

Course Code	TKIT162104	
Course Name	Modelling and Simulation	
Course Instructors	Teguh Bharata Aji	
Course Type	Required	
Course Classification	Engineering Topics	
Credit / Contact Hour per Week	2 / 100 minutes per Week	
Course Description	This course deals with model modelling and dynamic system modelling. It includes "Data-Driven Models", "Monte Carlo Simulations"; and "Agent-Based Modelling." In addition, advanced simulation techniques will also be of concern in this course.	
Prerequisites Courses		
<b>Covered Student Outcome</b>	<b>Fundamental Engineering Knowledge (a) Development of Engineering Solution (b) Modern Tools Utilization (e)</b>	
<b>Learning Outcome</b>		
		Study Program Student Outcome
No	Learning Outcome	SO (a) – SO (k)
1.	Student able to understand applying process modeling and dynamic system modeling	Fundamental Engineering Knowledge
2.	Student able to understand and explain the models commonly used in literature such as data-driven models and agent-based models	Development of Engineering Solution
3.	Student able to design and apply Monte-Carlo simulation for simple problems	Development of Engineering Solution
4.	Student understand the latest simulation techniques	Modern Tools Utilization
Topic	1.	
<b>Direct Assessment</b>	<b>Direct Assessment Plan</b>	<b>Measured Learning Outcome</b>
	Mid Exam	LO1, LO2
	Final Exam	LO3, LO4
Indirect Assesment	Questionnaire and direct communication	
References	Angela B. Shiflet and George W. Shiflet, Introduction to Computational Science: Modeling and Simulation for the Sciences (Second Edition),2014, Princeton University Press, ISBN: 978-0-691-16071-9	