

MODULE HANDBOOK Complex Variable Functions



INSTITUT TEKNOLOGI SEPULUH NOPEMBER

MODULE HANDBOOK

Complex Variable Functions

Module name	Complex Variable Functions		
Module level	Undergraduate		
Code	KM184602		
Course (if applicable)	Complex Variable Functions		
Semester	Spring (Genap)		
Person responsible for	Drs. Sentot Didik Surjanto, M.Si		
the module			
Lecturer	Drs. Sentot Didik Surjanto, M.Si		
Language	Bahasa Indonesia and English		
Relation to curriculum	Undergradute degree program, mandatory, 6 th semester.		
Type of teaching,	Lectures, <60 students		
contact hours			
Workload	1. Lectures: 3 x 50 = 150 minutes per week.		
	2. Exercises and Assignments : 3 x 60 = 180 minutes (3 h	ours) per	
	week.		
	3. Private learning: 3 x 60 = 180 minutes (3 hours) per wee	k.	
Credit points	3 credit points (sks)		
Requirements	A student must have attended at least 75% of the lectures to join		
according to the	the exams.		
examination			
regulations			
Mandatory	-		
prerequisites			
Learning outcomes	Course Learning Outcome (CLO) after completing this		
and their	module,		
corresponding ILOs	CLO-1 Be able to explain the nature of algebra in complex	CLO-01	
	numbers, determine limits, continuity and derivation of		
	complex functions and can explain the properties of		
	elementary functions: exponential functions, logarithms,		
	and trigonometry, hyperbolic functions, and trigonometric		
	invers.		
	CLO-2 Be able to calculate the integral complex functions	61.0.00	
	using appropriate properties and theorems.	CLO-02	
	as 5 appropriate properties and meorems.		

	CLO-3 Be able to explain the mapping / transformation by CLO-03 elementary functions and conformal mapping /	
	transformation. CLO-4 Be able to explain the residual theorem and its use to compute the integral complex functions.	
	CLO-5 Be able to investigate series convergence, decompose complex functions in power series, Taylor, Maclaurin and Lourent series.	
Content	This course discusses problems: complex numbers, complex functions / mappings, limits, continuous, derivatives, complex integrals, Green, Cauchy, Morera and Liouvile's Theorem, convergence / divergence of sequences and series, singularities, residual theorems and are used in complex integrals, conformal map.	
Study and examination requirements and forms of examination	 In-class exercises Assignment 1,2 Mid-term examination Final examination 	
Media employed	LCD, whiteboard, websites (myITS Classroom), zoom.	
Reading lists	 Main: Churchil, R., "Complex Variables and Applications 8th edition", McGraw-Hill, New York, 2009. Mathews, J.H, "Complex Variables for Mathematics and Engineering", 6th edition, WM C Brown Publiser, Iowa, 2010. Supporting: Poliouras, J.D., Meadows D. S, "Complex Variables for Scientists and Engineers 2nd edition", New York, 2014. 	