

ME3101 - Weather and Climate Data Analysis

COURSE LESSON PLAN				
STUDY PROGRAM: METEOROLOGY				
FACULTY/SCHOOL: FACULTY OF EARTH SCIENCES AND TECHNOLOGY				
INSTITUT TEKNOLOGI BANDUNG				
Course Code: ME3101		Credits: 3	Semester: 5	Course Type: Compulsory course
Course Name		Analisis Data Cuaca dan Iklim		
		Weather and Climate Data Analysis		
Related Course	ME2201	Meteorologi Statistik		Pre-requisite
Study Materials	Time-series analysis in the time domain (Markov chains and autoregressive models).			Explore
	Time-series analysis in the frequency domain (harmonic analysis, spectral analysis including Fourier and wavelet transforms).			Explore
	Multivariate statistical methods for spatio-temporal data (principal component analysis / EOF).			Explore
	Discrimination and classification methods, and cluster analysis (hierarchical clustering and k-means clustering).			Explore
Learning Outcomes				
Code		LO		
PLO-3.2		Able to process large-scale digital weather and climate data to understand weather and climate phenomena. (C3)		
PLO-3.3		Able to operate computing devices in accordance with the learned algorithms to solve standard scientific problems in meteorology. (C3)		
PLO-4.2		Able to interpret and analyze data processing and/or simulation results to obtain new information or knowledge related to meteorological problems. (C4)		
Code	CO	Elements of Course Learning Outcomes (CO)		
PLO-3.2	1	Students are able to use Fourier and wavelet transforms to explain weather and climate phenomena from meteorological time-series data. (C3)		
PLO-3.3	2	Students are able to construct and use simple time-series models to explain temporal weather and climate variability. (C3)		
PLO-4.2	3	Students are able to analyze the main spatial and temporal patterns of meteorological spatio-temporal data through the EOF method. (C4)		
	4	Students are able to identify spatial and temporal clusters in meteorological spatio-temporal data and their relationship to weather and climate phenomena. (C4)		
Learning Methods		Lecture Group Discussion Cooperative Learning Problem-based Learning		
Learning Modalities		Synchronous learning Blended/Online Asynchronous		
Assessment Method		Assessment components: Midterm Examination (20%), Final Examination (35%), Laboratory/Practicum (35%), Assignments (5%), and Quizzes (5%). Grading Scale: 80–100% A (maximum competency) 75–80% AB (very good competency) 65–75% B (good competency) 60–65% BC (satisfactory competency) 55–60% C (minimum competency) 45–54% D (below minimum competency) <45% E (far below minimum competency)		