

ME2104 - Dynamical Meteorology

COURSE LESSON PLAN			
STUDY PROGRAM: METEOROLOGY			
FACULTY/SCHOOL: FACULTY OF EARTH SCIENCES AND TECHNOLOGY			
INSTITUT TEKNOLOGI BANDUNG			
Course Code: ME2104	Credits: 3	Semester: 3	Course Type: Compulsory course
Course Name	Meteorologi Dinamik		
	Dynamical Meteorology		
Related Course	MA1011	Matematika	Pre-requisite
	FI1011	Fisika	
Study Materials	Definition and mathematical formulation of physical quantities relevant to the atmosphere, fundamental forces acting on the atmosphere.		Expose
	Quantification of atmospheric motion in the form of governing equations derived from mass and energy conservation principles: momentum equation, continuity equation, thermodynamic energy equation.		Expose
	Equations of motion on a rotating earth coordinate, curvature effects, and alternative vertical coordinates.		Expose
	Scale analysis of atmospheric motion and application of simplified motion equations.		Expose
	Static stability, Brunt-Vaisala frequency, and vertical atmospheric motion.		Expose
	Thermal wind equations and baroclinic atmosphere.		Expose
	Quantification of atmospheric motion in the form of vorticity, Ertel potential vorticity, Rossby potential vorticity, and Rossby wave formation.		Expose
Learning Outcomes			
Code		LO	
PLO-1.1		Able to use basic science and mathematics as a foundation.	
PLO-2.2		Able to demonstrate an understanding of basic meteorological knowledge.	
Code	CO	Elements of Course Learning Outcomes (CO)	
PLO-1.1	1	Students are able to calculate the equations of forces acting in the atmosphere that influence atmospheric motion. (C3)	
PLO-2.2	2	Students are able to determine atmospheric motion using the balanced flow approach. (C3)	
	3	Students are able to use basic concepts and techniques of atmospheric motion quantification within a theoretical framework to explain specific relevant weather and climate phenomena. (C3)	
Learning Methods		Lectures, Group discussions, Cooperative learning, Problem-based learning	
Learning Modalities		Synchronous Offline, Blended/Asynchronous Online	
Assessment Method		Assessment components: Mid-term exam (35%), Final exam (40%), Assignments (20%), and Quizzes (5%). Grading scale: 80-100% A (Maximum competency) 75-80% AB (Excellent competency) 65-75% B (Good competency) 60-65% BC (Fairly good competency) 55-60% C (Minimum competency) 45-54% D (Below minimum competency) <45% E (Far below minimum competency).	