

ME2204 - Introduction to Atmospheric Waves

COURSE LESSON PLAN				
STUDY PROGRAM: METEOROLOGY				
FACULTY/SCHOOL: FACULTY OF EARTH SCIENCES AND TECHNOLOGY				
INSTITUT TEKNOLOGI BANDUNG				
Course Code: ME2204		Credits: 3	Semester: 4	Course Type: Compulsory course
Course Name		Pengantar Gelombang Atmosfer		
		Introduction to Atmospheric Waves		
Related Course		ME2104	Meteorologi Dinamik	Pre-requisite
Study Materials		Simple boundary layer dynamics theory: Ekman theory and its relationship to secondary circulation in the troposphere.		Expose
		Atmospheric wave dynamics; atmospheric instability in relation to atmospheric waves and eddies.		Expose
		General atmospheric circulation theory introduced through the Eulerian mean concept and Earth's angular momentum balance.		Expose
		Selected stratospheric dynamics phenomena related to minor constituent transport and their role in the global climate.		Expose
		Equatorial stratospheric dynamics.		Expose
Learning Outcomes				
Code		LO		
PLO-2.1		Able to describe the atmosphere and weather and climate phenomena. (C2)		
PLO-2.2		Able to demonstrate understanding of basic meteorological knowledge to explain weather or climate phenomena. (C3)		
Code	CO	Elements of Course Learning Outcomes (CO)		
PLO-2.1	1	Students are able to explain turbulent motion and the role of turbulent fluxes and their relationship to boundary layer phenomena (Ekman layer, secondary circulation, and spin-down) using the momentum equation and simple turbulence parameterization. (C2)		
	2	Students are able to explain the factors affecting hydrodynamic instability in barotropic and baroclinic flows. (C2)		
	3	Students are able to explain the general atmospheric circulation in both the troposphere and stratosphere, based on zonal mean, Eulerian mean, Transformed Eulerian Mean equations, and angular momentum balance. (C2)		
PLO-2.2	4	Students are able to apply linear perturbation methods to analytically solve atmospheric dynamics equations for studying atmospheric waves (topographic, inertia-gravity) and equatorial waves (Rossby, Kelvin). (C3)		
Learning Methods		Lecture Group Discussion Cooperative Learning Problem-based Learning		
Learning Modalities		Synchronous learning Blended/Online Asynchronous		
Assessment Method		Assessment components: Midterm Examination (35%), Final Examination (40%), Assignments (20%), 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)		