

Semester	AUG 2022
Open to semester	7,21
Course code	<b>EC4114/EC6134</b>
Course title	<b>Atmosphere and Ocean Dynamics</b>
Credits	4 /4
Course Coordinator & participating faculty (if any)	Suhas Ettammal
Nature of Course	Lectures and Tutorials
Pre-requisites	Geophysical fluid dynamics or fluid dynamics course offered by the Physics department.
Objectives (goals, type of students for whom useful, outcome etc)	The course helps students understanding the complex interactions governing the Earth's atmosphere and Ocean by exploring the basic fluid dynamic and thermodynamic principles.
Course contents (details of topics /sections with no. of lectures for each)	<p>Wave fundamentals</p> <p>Restoring forces, group velocity, Phase velocity, dispersion relation, wave vector, different types of waves in the atmosphere and Ocean.</p> <p>Common wave modes observed in the atmosphere and Ocean: Surface gravity waves, Internal gravity waves, Inertio-gravity waves, Rossby waves.</p> <p>Geostrophic adjustment.</p> <p>Mid-latitude and equatorial shallow water wave models</p> <p>Normal modes</p> <p>Mid-latitude and equatorial wave modes</p> <p>Horizontal and vertical structure and propagations of waves</p> <p>Forced waves</p> <p>Steady forced motion</p> <p>Transient forced motion</p> <p>Thermal and Orographically forced waves</p>
Evaluation /assessment	<p>End-Sem Examination-40%</p> <p>Mid-Sem Examination-40%</p> <p>Others-Projects and assignments: 20% %</p>
Suggested readings (with full list of authors, publisher, year, edn etc.)	<p>1) Atmosphere-Ocean Dynamics, A. E. Gill, Academic press, 1982.</p> <p>2) Geophysical Fluid Dynamics, Joseph Pedlosky, Springer, 1987.</p>

	3) Middle Atmosphere Dynamics, D. G. Andrews, J. R. Holton, and C. B. Leovy, Academic press, 1987.
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