

Class: Third	Semester: First		
Subject: Weather Forecasting I	Units:3	Thr.:2	Lab:2

Part	Subjects
1	Introduction to weather forecasting Outline of weather forecasting, types of forecasting, method of weather forecasting.
2	Weather maps Types of weather maps, meteorological coordinates, gradients, slope and curvature of surface, the continuity of weather maps.
3	Forecasting using satellites Meteorological satellite types and their properties, images and data obtained from meteorological satellites, using meteorological satellites in weather forecasting.
4	pressure systems & fronts Synoptic pressure systems, fronts & their types, pressure systems influence in Iraq weather,
5	Movement of pressure systems Moving systems of coordinate, digital representation of pressure systems, derive the velocity laws of pressure systems.
6	Forecasting Methods in pressure systems movement: part 1 Extension method, the base of equal lines of the dual pressure conduct, the base of inclination axis.
7	Forecasting Methods in pressure systems movement: part 2 The base of pressure lines equal of warm section, predicting in depressions center site (or heights) in Peterson method, the base of oriented stream.
8	Forecasting in Intensification of pressure system Intensity of pressure systems, vertical composition of ideal front, forecasting in intensity of front decline by terms of meteorological variables.
9	Vorticity & Circulation Vorticity motion, absolute vorticity, relationship between rotation and circulation motion, relationship between circulation and vorticity motion.

Textbooks:

1-Weather Analysis & forecasting, by T. Vasquez, Weather Graphics Technologies, 2011.

2-Weather Analysis and Forecasting, by S, Petterssen, McGraw-Hill; First Edition, 1956.

3- تجارب عملية في الرصد والتحليل والتنبؤ الجوي ، منعم حكيم خلف ، سناء عباس عبد الجبار ، مؤسسة مصر مرتضى للكتاب العراقي للنشر ، مطبعة جعفر العصامي ، بغداد ، 2010.

Class: Third	Semester: second		
Subject: Weather Forecasting II	Units:3	Thr.:2	Lab:2

Part	Subjects
1	Forecasting by Vorticity Definition of Rossby index (parameter), the relation between Rossby parameter and vorticity, deriving Rossby index from absolute vorticity.
2	Forecasting by Long Waves: part 1 What are the long waves, characteristics of long waves, methods of determining the long waves.
3	Forecasting by Long waves: part 2 The importance of long waves, deriving the velocity of long waves, the properties of Rossby waves.
4	Forecasting by Vertical Motion: part 1 Vertical wind motion, the reasons of generation vertical motion and development, determinants of vertical motion Account.
5	Forecasting by Vertical Motion: part 2 Calculate the vertical motion dynamically & adiabatically, the relationship of divergence (or convergence) in vertical motion, predicting by using the vertical motion.
6	Geostrophic & Thermal wind Geostrophic wind definition, thermal wind definition, thermal geostrophic wind equation, the importance of thermal wind, thickness equation.
7	Forecasting by Thermal wind The determinants of the using thermal wind equation, Practical formulas to the thermal geostrophic wind, Predicting using the thermal wind.
8	Fronts equilibrium: part 1 What is fronts equilibrium, the relationship between pressure gradient and front gradient.
9	Fronts equilibrium: part 2 The relationship between front gradient and the geostrophic wind, the relationship between front gradient and temperature.

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3- تجارب عملية في الرصد والتحليل والتنبؤ الجوي ، منعم حكيم خلف ، سناء عباس عبد الجبار ، مؤسسة مصر مرتضى للكتاب العراقي للنشر ، مطبعة جعفر العصامي ، بغداد ، 2010.