**MET 3202 Weather Forecasting Principles II (3CU)**

**Description**

This course deals with a detailed description of weather forecasting principles for socio-economic applications.

**Objectives**

The course will help the students to achieve the following objectives

* Understand how weather forecasts are made
* Describe how different weather parameters are measured
* Analyze and describe important meteorological diagrams like tephigrams and weather charts

**Learning outcomes**

By the end of the course, a student should be able to;

* Analyze and interpret the main weather charts used in weather forecasting
* Compute vorticity and divergence and describe its application in weather forecasting
* Describe the role of modeling in weather forecasting

**Intellectual, Practical and transferable skills**

* Creative and innovative
* Problem solving
* Analytical
* Communication

**Teaching and learning patterns**

* Use of practical examples
* Case studies
* Class discussions
* Lectures
* Group presentations

**Indicative content**

* Analysis and interpretation of the main weather charts.
* Analysis of scalar and vector fields: three dimensional analysis of atmospheric systems
* Cross sections and time sections of upper air charts, contour and streamline analysis: pattern continuity, confluence and diffluence;
* Computation of vorticity and divergence
* Identification, analysis and forecasting of synoptic and mesoscale systems,
* use of climatology in daily forecasting,
* monthly and seasonal atlases of the dominant synoptic and regional systems and mean weather anomalies,
* Model assembling in forecasting,
* Contribution of vertical motion to development of tropical weather systems.

Practicals: Analysis of weather charts and tephigrams

**Assessment Method**

The assessment method is structured to include course work, and final examination. Course work consists of assignments, reports, practicals and tests and accounts for 40% of the final grade. The final examination will account for 60% of the final grading

**Core Reference materials**

* **Sverre Pettersen** (1956): Weather Analysis and Forecasting, Volume 1, Published by ***McGraw-Hill****.*
* **WMO Bulletin** (1997): Workbook on Numerical weather Prediction in the Tropics, Volume 46