**MET 3105 Agro meteorology (3CU)**

**Description**

This course describes surface- atmosphere interaction and its relevancy to agriculture. It also explains the various requirements for crop growth and how crop production can be improved.

**Objectives**

The course will help the students to achieve the following objectives

* Describe the profiles of different atmospheric elements within a plant canopy
* Understand the different stages of crop growth
* Describe the methods of climate modifications
* Derive relationships between crops and weather elements

**Learning outcomes**

By the end of the course the student should be able to:

* Explain the profiles of temperature, wind, carbon dioxide and humidity within a plant canopy.
* Describe the different processes that determine crop growth and development
* Describe the major climatic influences on growth and development of crops.
* Describe the different methods used for modifying microclimates of crops.
* Describe the different crop models available and their applicability to crop growth and development.

**Intellectual, Practical and transferable skills**

* Creative and innovative
* Problem solving
* Analytical
* Communication

**Teaching and learning patterns**

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

**Indicative content**

* Near surface Climate: Temperature, wind, carbon dioxide and humidity profiles within plant canopies.
* Crop water needs photosynthesis and evapotranspiration.
* Growing seasons, influence of weather and climate on agricultural operations, irrigation requirements, diseases and pests.
* Modification of micro climate: wind breaks and shelter belts, irrigation and mulching
* Soil water and methods of measurements, soil erosion and conservation.
* Climate weather hazards and agricultural output; agricultural droughts, floods , frost, strong winds.
* Agro meteorology of arid and semiarid lands
* Weather and crop inter-relationships; Crop weather model for yield forecasts.

**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**

* **V. I. Vitkevich** (1963): Agricultural Meteorology, I*srael programme for scientific translators, Jerusalem*
* **Molga M**. (1962): Agricultural Meteorology Part II: Outline of Agro-meteorological Problems*, Published for the National Science Foundation and the Dept. of Agriculture by Centralny Instytut Informacji Naukowo-Technicznej i Ekonomicznej*