**Abstract of the discipline work program**

**TEACHING ABOUT THE ATMOSPHERE**

Direction of preparation - 05.03.05 – Applied hydrometeorology

Direction (profile) — aviation meteorology

Graduate qualification - Bachelor's degree

**The purpose of the discipline «**Teaching about the atmosphere» is to provide bachelors with primary scientific knowledge that allows them to understand the processes taking place in the atmosphere.

**The main objectives** of the discipline "Teaching about the Atmosphere" are to familiarize students with the basic principles of atmospheric physics, the structure and composition of the atmosphere, changes in atmospheric pressure and cloudiness. The discipline contains a minimum amount of material required for the study of general professional disciplines in the field of Applied Hydrometeorology and special disciplines.

**As a result of practical training the trainee should:**

**To know:**

**-** Structure, composition and properties of the atmosphere,

- distribution and change in the atmosphere,

- conditions of formation and classification of clouds;

**Be able to do so:**

- calculate hydrometeorological values based on the results of measurements at the station;

- Analyze the features of vertical pressure and temperature distribution based on radio sounding data of the atmosphere;

**Possess** тo methods of calculation of hydrometeorological parameters of the atmosphere based on radio sounding data;

Skills in calculating isobaric surface heights using barometric formulas.

**Content of discipline:**

**Meteorological observations**

Subject and method of meteorology, its place among other sciences and the relationship between them. Historical overview of atmospheric research. Organization of meteorological observations. Major meteorological variables and atmospheric phenomena.

**Composition and structure of the atmosphere**

The composition and structure of the atmosphere. The equation of state of dry and moist air. Virtual temperature. Characteristics of humid air and connection between them.

**Pressure in the atmosphere**

Forces operating in the atmosphere in a state of equilibrium. Static equation, its consequence. Baric gradient and baric step. Barometric formulas Standard atmosphere. Horizontal inhomogeneities of the pressure field.

**Clouds**

Characteristics of moisture characteristics in the atmosphere. Clouds. Morphological classification of clouds.