MARE -Marine Coastal and Delta Sustainability for Southeast Asia

Co-funded by the Erasmus+ Programme of the European Union

Bachelor's course

Hydrometeorology

A. Introduction

Description: The course Hydrometeorology provides basic knowledge of meteorology and hydrogeology. Besides, the course also equips learners with basic knowledge about rivers and river flow formation, main meteorological features, hydrological characteristics of basins and rivers, principles of surveying hydrological features hydrological calculation methods, calculating design hydrological features, knowing how to collect hydrological data, principles of tidal monitoring and forecasting.

Objectives: Students can explain and distinguish the types of river nets, the formation of river flows, the hydrological features of the basins and rivers, the methods of hydrological calculation, the main meteorological features, the calculation of get basic features on the plan and cross-section of the river; know how to draw the water level-flow relationship, transfer the connection line from one section to another. Students understand methods to draw frequency lines of hydrological quantities. Students can recognize tides and observe tides, hydrological characteristics of rivers affected by tides, determine and predict tides for any area, calculate design hydrological characteristics. next. Students with career skills; engineer qualities.

Learning outcomes: Students understand the concepts and characteristics of hydrological phenomena and hydrological research methods. Students understand river systems and river flow formation. Draw the longitudinal section, cross-section of the river and calculate the hydraulic characteristics on the river cross-section. Students know how to observe the water level, flow velocity, calculate the main hydrological features in the river, draw a line connecting water level - discharge. Students understand the methods and draw frequency lines commonly used in hydrology. Students understand the characteristics of the earth's atmosphere. Students understand the main meteorological features and draw a wind flower chart. Students understand basic tidal concepts and classify tides according to tidal waves. Students know how to observe and predict tides. Students calculate harmonic constant from water level monitoring data for 30 days. Students understand the hydrological regime of the river affected by tides and calculate the design hydrological features. Students identify calculation goals; Analysis of monitoring data and determination of statistical parameters, methods of drawing experimental and theoretical frequency lines, determination of annual average flow volume and design flood flow. Students know how to search for documents in a variety of media. Students show a positive and honest attitude in the learning process.

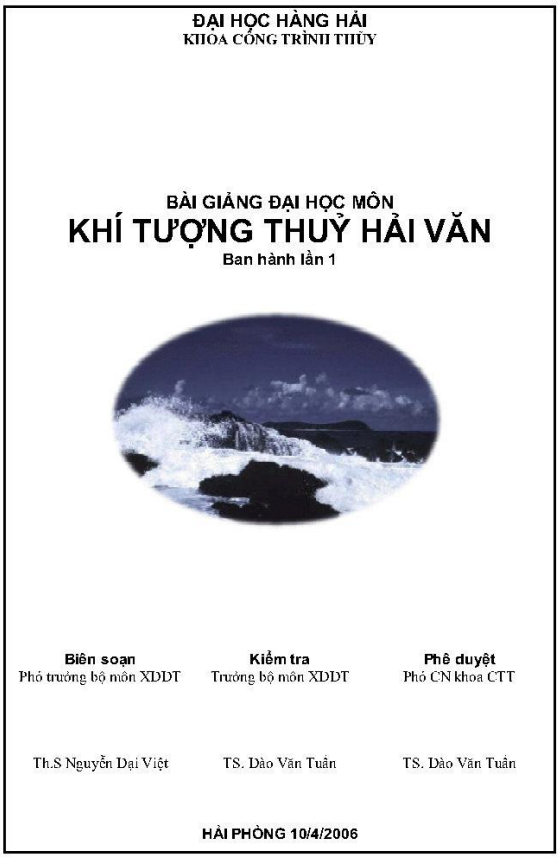
Contents: The course consist of the following topics:

1. Overview and outline of rivers and the formation of river flows
2. Hydrological characteristics of basins and rivers
3. Hydrologic methods
4. Features of the Earth's Atmosphere
5. Main meteorological features
6. Basic concepts of tides and waves

7. Tidal observing and forecasting
8. Estimate harmonic constant from 30-day observed water level data
9. Calculation of hydrology in river areas affected by tides

B. Literature & References

Lecture notes of Hydro-meteorology
Nguyen Dai Viet



Lecture notes's abstract

Hydrometeorology is an important basic subject for students of majors related to water resources in general and for students of construction industry in particular. The subject's mission is to provide Basic knowledge about the formation of river flows, methods to calculate design hydrological characteristics for planning, design, construction, management and operation of irrigation works system. , hydroelectricity, transportation and other construction works. The lecture note "Hydrometeorology" is compiled based on domestic and foreign references related to the field of hydrology - water resources and approaches to methods. modern calculations in the world in the field of hydrological calculations.

Table of contents

- Chapter 2: Hydrological characteristics of basins and rivers
- Chapter 3: Hydrologic methods
- Chapter 4: Features of the Earth's Atmosphere
- Chapter 5: Main meteorological features
- Chapter 6: Basic concepts of tides and waves
- Chapter 7: Tidal observing and forecasting
- Chapter 8: Estimate harmonic constant from 30-day observed water level data
- Chapter 9: Calculation of hydrology in river areas affected by tides

Target group

The book is intended for bachelors, masters of all engineering specialties related with hydrometeorology.

Book imprints

Nguyen Dai Viet. Lecture note of Hydrometeorology. Faculty of Civil Engineering, Vietnam Maritime University, 2006.