



HYDROLOGICAL MODELLING (3 ECTS)

Summary

In this 3 ECTS course, students will be provided systematically about the basic concepts of modeling and the process of building and simulating applied mathematical modeling. Expertise in math modeling currently applied in the field of hydrology and problems related to water resource use in the Mekong Delta, Vietnam and around the world.

Aims and objectives

- Students grasp common mathematical modeling processes and concepts
- Knowledge of basic concepts and calculation methods of all kinds of hydrological problems.
- Applying mathematical model to hydrological problems related to exploitation use, water resource management such as calculation of flow characteristics, hydrological forecasting, balance calculation and water resource use planning, flood prevention planning, integrated management in the original country.

Authentic Tasks:

Desired learning outcomes:

By the end of the course, successful students will:

Knowledge

- Understand the concept and process of building general mathematical models
- Applying the mathematical model to the hydrological problem related to the exploitation and management of water resources such as calculating the flow characteristics, hydrological forecasts, calculating balance and planning the use of water resources., flood prevention planning, integrated management in the whole country.
- Apply random and statistical models to the analysis of hydrological data.

Skills

- Skills to simulate hydrostatic math models
- Proficient skills in using some computational software
- Self-study and research skills

Attitude / capacity of autonomy and responsibility

- Active, willing to learn and self-study
- Has a positive attitude in research

Overview of sessions and teaching methods

The course will make most of interactive and self-reflective methods of teaching and learning and, where possible, avoid standing lectures and presentations.

Learning methods

- Project Based Learning
- Literature review
- Stakeholder analysis / customer consultation





Literature

- [1] Tran Van Ty, Huynh Vuong Thu Minh, 2019. Mô hình toán thủy văn lưu – NXB Đại học Cần Thơ.
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- [3] Đặng Văn Bảng, 2001. Bài giảng Mô hình toán thủy văn, Khoa Thủy văn môi trường, Trường Đại học Thủy lợi.
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- [6] Maidment, David R. Handbook of Hydrology, 1993. New York, USA, McGraw-Hill Book company.
- [7] Mark Ole and David Luketina, 2003. Hydrological Modelling - Lecture notes. AIT. Thailand.
- [8] Huynh Vuong Thu Minh, Giáo trình Thủy Văn Công Trình – NXB Đại học Cần Thơ, 2010.
- [9] Hair Jr, J.F. Multivariate Data Analysis Joseph F. Hair Jr. William C. Black Barry J. Babin Rolph E. Anderson Seventh Edition.