

PROGRESSIVE LEARNING PROGRAM

Specialization: Water Resources Engineering

Code: 62 85 02 12

Type of training: Focused/Unfocused

(Issued in Decision No: 4234 dated December 29, 2015

by the Director of the Vietnam Academy of Agriculture)

1. Training objectives and output standards

1.1. Training Objectives

1.1.1. General objective

To train doctors with in-depth knowledge, independent research capacity and scientific research organization in the field of water resources engineering, serving the cause of sustainable development of water resources in Vietnam.

1.1.2. Detail goal

- Provides advanced knowledge about hydraulics, hydrology, water requirements of plants, transfer processes (water, plant nutrients, other substances) in saturated and unsaturated environments. , field irrigation techniques and information technology applications (GIS, remote sensing, databases and modeling) in the design, operation and management of irrigation systems in agriculture. After the learning process, learners will have a broader view of macro issues in integrated water resource management and the organic relationship between integrated water resource management and basin management;
- Ability to update, detect and propose research issues in the field of water use and management in agriculture;
- Mastering research methods, proposing suitable solutions, gathering and organizing the implementation of research programs.

1.2. Output standard

Upon completion of the training program, learners have the following knowledge, skills, attitudes and professional responsibilities:

1.2.1. Knowledge

- + Understand, analyze and evaluate philosophical knowledge, train worldview, philosophical methodology for learners in perceiving and studying objects in the field of natural science and technology; theoretical and philosophical basis of Vietnam's revolutionary line, especially the development strategy of Vietnam's science and technology. Apply philosophical knowledge to real life;
- + Apply modern scientific and technological methodologies in the management and use of water resources;
- + Applying statistical models in basin management and water resource engineering works;
- + Apply knowledge of hydrology, hydraulics, irrigation, drainage, water quality, erosion, climate change... to control the water environment and calculate the impact of economic activities on quality water;
- + Analyze, evaluate and apply the basic principles and laws of water transport in the atmosphere, on the surface and below the ground, focusing on the characteristics of the tropics, serving the goal of improving the efficiency of water transport. water use efficiency in irrigated agricultural systems, drylands;
- + Apply professional knowledge combined with independent and creative research thinking in the field of water resources engineering;
- + Apply professional knowledge of water resources engineering to conduct scientific research, develop new knowledge and propose solutions to solve complex problems arising in water resource engineering;
- + Synthesize specialized knowledge of water resources engineering into planning, managing and exploiting water resources in a sustainable way and protecting the environment.

1.2.2. Skill

- + Proficiently use modern equipment and technologies for water use and management;
- + Detecting professional problems of the water resources engineering industry, thereby proposing solutions to handle and improve the management and use of water;
- + Analyze and evaluate the influence of water-saving irrigation on productivity, crop quality, and soil characteristics to design a reasonable water-saving irrigation system;

- + Developing a network of cooperation with foreign partners in the implementation of research topics and projects related to the field of water resources engineering;
- + Analyze and evaluate environmental issues and impacts of climate change on irrigation and drainage systems, crops and biodiversity in order to have new solutions in sustainable water management and use;
- + Analyze and evaluate the results of scientific research on irrigation and water management in agriculture; on integrated management of basins (sloping land, plains, estuaries);
- + Minimum English level of B2 according to the Common European Framework of Reference or equivalent. Understand and write scientific reports, specialized reports and texts on a variety of topics. Explain and analyze their views on a problem, advantages and disadvantages of different options.

1.2.3. Autonomy and responsibility

- + Improve and develop knowledge in order to improve personal capacity and apply it to professional work; detect and solve professional problems thereby giving valuable new initiatives to apply in the field of water resources;
- + Adapt well to the international integration working environment;
- + Updating socio-political information, State and international policies and laws, thereby connecting and solving problems arising in the field of water management and use in the region and the world. economic;
- + Reasonable human resource management; effectively coordinate and administer the group and professional activities;
- + Develop and decide on working plans and manage research activities, develop knowledge, new ideas, new processes in the field of water resources;
- + Strong political stance; love the job, have a sense of discipline and responsibility for the assigned work; strictly implement the Party and State's policies and laws; honesty in scientific research, reporting to superiors and colleagues;
- + Present well in front of the crowd and inspire the audience.

2. Training time

The training period for those with a master's degree is 3 years, for those without a master's degree, it is 04 years.

3. The volume of knowledge of the whole course

No	Knowledge block	Credits
1	General required knowledge	6
2	Elective knowledge	8

3	General essay	2
4	Thematic	4
5	Thesis	70
	Total	90

- If the student does not have a master's degree, they must take an additional 30 credits of the master's program in Water Resources Engineering, excluding the philosophy and English courses.

- For students who already have a master's degree but are in the same discipline or have a master's degree in the same discipline but graduated for many years or have been granted by another training institution, depending on the specific case, the researcher must take some additional courses. necessary according to the requirements of the training industry and the field of study.

4. Subjects of enrollment

Comply with the current Regulations and Regulations of the Ministry of Education and Training and the Vietnam Academy of Agriculture on doctoral training.

4.1. Right and appropriate industry/specialization

Water resource engineering, Irrigation, Irrigation and soil improvement, Water resource management, Water resource planning and management, Hydrology and water resources, Irrigation works.

4.2. Near field/specialization

Soil Science, Agrochemistry, Environment, Soil Management, Crop Science, Natural Resources.

5. Training process, graduation conditions

Comply with the current Regulations and Regulations of the Ministry of Education and Training and the Vietnam Academy of Agriculture on doctoral training.

6. Score scale

Rating on a 10-point scale.