

PHD IN ENVIRONMENTAL SCIENCES

1. GENERAL INFORMATION ABOUT THE PROGRAM

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|-------------------------|--|
| Program code: | 9440301 |
| Major: | ENVIRONMENTAL SCIENCES |
| Degree: | PhD |
| Duration: | 3 years |
| Total required credits: | 90 credits |
| Name of the degree | DEGREE OF PHD OF ENVIRONMENTAL SCIENCES |
| Education institution: | Vietnam National University of Agriculture |

2. OBJECTIVES OF TRAINING PROGRAM

2.1. General objective

The PhD. program aims to provide students with specialized competencies, including theoretical and practical knowledge and skills in the field of environmental science. Students are expected to develop their independent and creative research, to be able to discover and solve scientific and realistic problems and to be capable of teaching and guiding scientific research in the field of environmental science.

2.2. Specific objectives

PO1: Provide knowledge about environmental management and protection; foster in-depth, advanced and comprehensive knowledge in the field of environmental science; develop the principles of environmental science and theoretical solutions for environmental problems.

PO2: Help students develop the integrated skills in the system analysis, simulation, experiment and monitoring of complex systems to offer practical solutions for environmental issues.

PO3: Help students develop academic exchange skills nationally and internationally through scientific reports in general and environmental specialization in particular.

PO4: Train students with professional skills by demonstrating responsible and ethical conduct, effective collaboration and informed decision making. Students are expected to be able to conduct scientific research of professional quality in the field of environmental science based on societal needs.

3. EXPECTED LEARNING OUTCOMES

Upon the completion of the PhD program in Environmental science, the graduates will be able to

KNOWLEDGE

• General knowledge:

- ELO1: Apply scientific research methodology to solve practical problems in the field of environment;

• Professional knowledge

- ELO2: Apply innovatively advanced knowledge on environmental science to interpret theoretical and practical issues in natural resource management and environmental protection.

- ELO3: integrate knowledge of environmental management, ecological ecology, and environmental technology to propose solutions for sustainable development.

SKILLS

• General skills:

- ELO4 (Informatics): Apply proficiently specialized software in advanced data analysis and solving problems in the field of environmental sciences.

- ELO5 (Foreign Language): Communicate proficiently foreign language and exchange academic knowledge, including writing scientific reports, specialized reports and presentation of reports in English.

- ELO6 (Teamwork): work actively in national, international and interdisciplinary teams.

- ELO7 (Management and leadership): manage expertise in research, influence the strategic development orientation of the collective; make decisions about work plans, manage research activities, knowledge development, and new processes in environmental planning.

- ELO8 (Communication skills): Transfer proficiently knowledge such as writing documents, presentations, consulting, and technology transfer through the media, having communication strategies on specialized fields.

- ELO9 (Other soft skills): Develop personal and career development skills; self-study, self-update information in the field of science; IT application skills, electronic library.

• **Professional skills:**

- ELO10: Evaluate environmental problems; make and implement plans for solving environmental problems.

- ELO11: Identify problems, developed hypotheses and organize research and field surveys to develop and criticize scientific discourse specialized in environmental science.

- ELO12: apply innovative knowledge and skills to research topics related to environmental expertise and evaluate the projects in the field of the environment.

• **Ethics, attitudes and social responsibility**

- ELO13 (Citizenship): Willing to participate and mobilize the government and people to participate in environmental protection and sustainable development.

- ELO14 (Ethics and professional behavior, service attitude): Have professional ethics responsibility, enthusiasm and passion in work in order to create innovative ideas and knowledge in different circumstances.

-ELO15 (Social responsibility): Manage the research and study in order to generate environmental knowledge and practical solutions for protecting and improving living environment of the communities.

4. TRAINING PLAN

Training length:

- For the candidate holding a MSc degree in environmental sciences: 03 years (90 credits),

- For the candidate holding BSc degree in Environmental science: 04 years (120 credits).

The credit allocation of the program

| No. | Knowledge | Number of credits |
|-----|---------------------|-------------------|
| 1 | Compulsory subjects | 6 |
| 2 | Elective subjects | 8 |
| 3 | Overview | 2 |
| 4 | Essay | 4 |
| 5 | Thesis | 70 |
| | Total | 90 |

5. The structure of the curriculum

| No. | Course code | Course names | Number of credits |
|------------|------------------------------------|--|-------------------|
| I | Compulsory courses | | 6 |
| 1. | MT08001 | Modern environment issues | 2 |
| 2. | MT08002 | Integrated natural resources and environmental management | 2 |
| 3. | MT08003 | Climate change and natural disasters | 2 |
| II | Elective courses | | 8/28 |
| 1. | MT08004 | Advanced in Environmental System Analysis | 2 |
| 2. | CN08009 | Advanced statistics in environmental science | 2 |
| 3. | MT08005 | Advanced environmental modeling | 2 |
| 4. | MT08006 | Advanced spatial analysis | 2 |
| 5. | MT08007 | Environment and sustainable agriculture | 2 |
| 6. | MT08008 | Chemical technology in environmental research | 2 |
| 7. | MT08009 | Environmental toxicology control | 2 |
| 8. | MT08010 | Application of microbiological technology in environmental pollution control | 2 |
| 9. | MT08011 | Air pollution control | 2 |
| 10. | MT08012 | Environmental risk management | 2 |
| 11. | MT08013 | Biodiversity conservation | 2 |
| 12. | MT08014 | Control hazardous waste | 2 |
| 13. | KT08016 | Economic Analysis in Natural Resource and Environmental Management | 2 |
| 14. | QL808 | Advanced Integrated Watershed Management | 2 |
| III | Research overview and Essay | | 6 |
| 15. | CĐ | Essay 1 | 2 |
| 16. | CĐ | Essay 1 | 2 |
| 17. | TLTQ | Overview essay | 2 |
| IV | PhD dissertation | | 70 |
| 18. | | Dissertation | 70 |