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| NONG LAM UNIVERSITY  FACULTY OF ENVIRONMENT AND NATURAL RESOURCES | SOCIALIST REPUBLIC OF VIETNAM  Independence - Freedom - Happiness |

**COURSE DETAILED OUTLINES**

**UNDERGRADUATE EDUCATION PROGRAM**

**Major: Environmental Engineering Level: Undergraduate**

1. General information of the course

* Name in Vietnamese: Kiểm toán Môi trường
* Name in English: Environmental Audit
* Module: 212531
* Number of credits: 2
* Conditions for participating in the course

*+ Prerequisite: Environmental Science*

*+ Prior study: EIA, ISO 14000*

Department: Environmental Technology

* Duration: 10 weeks
* Semester: 2 (3rd year)

The course belongs to the knowledge block:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fundamental □ | | Fundamental specialized □ | | Specialized 🗹 | |
| Mandatory □ | Optional □ | Mandatory □ | Optional □ | Mandatory 🗹 | Optional |

* **Teaching language**: English Vietnamese 🗹

1. Information of lecturer

* Name: Bui Thi Cam Nhi
* Position, title, degree: Lecturer, M.Sc
* Phone, email: 0283-37220291-0902 995 776; [buicamnhi@hcmuaf.edu.vn](mailto:buicamnhi@hcmuaf.edu.vn)
* Time and place of work: Office hours, Department: Environmental Technology
* Address: Nong Lam University, quarter 6, Linh Trung ward, Thu Duc district, Ho Chi Minh city, Vietnam
* The main research orientations: Environmental Management, Cliamte change, HSE, Energy management
* Information about tutors/lecturers who teach together (if any) (full name, phone number, email): MSc Hoang Bao Phu

1. **Course description**

The course aims to equip students with basic knowledge in the environmental audit process. Focusing mainly on auditing the conformity of the environmental management system according to ISO 14001 and auditing waste reduction in production and business activities. In addition, guiding the implementation of audits in solid waste and hazardous waste management, and compliance audits in environmental impact assessment reports.

IV. Course goals and Expected Learning Outcomes

Course goals:

After completing this course, students will be able to: Understand the basics of environmental auditing. Set up an environmental audit program according to ISO 14000 or audit to reduce waste for a production unit to find out the nonconformities. From there, propose solutions to reduce pollution and protect the environment for the organization.

The course contributes to the following Output Standards of the training program according to the following levels:

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Mã HP** | **Tên HP** | **Mức độ đóng góp của học phần cho CĐR của CTĐT** | | | | | | | | | | | | | | | |
| 212531 | Environmental Audit | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| H | S | H | H | H | S | S | H | S | N | H | H | S | S | N | S |

* Note:

*N: none supporting*

*S: small supporting*

*H: high supporting*

* Course learning outcomes (*according to Bloom measurement scale*) :

|  |  |  |
| --- | --- | --- |
| **Symbol** | Course learning outcomes  Completing this module, students can implement | **Symbol** |
| **Knowledge** | | |
| CLO1 | Understand the stages in the environmental audit process | PLO1, 2 |
| CLO2 | Find out the inconsistencies in the organization's environmental management | PLO5, 6, 12 |
| CLO3 | Recommend measures to correct inappropriate activities | PLO5, 9, 12 |
| **Skills** | | |
| CLO4 | Enhance teamwork skills, access English documents | PLO7, 8 |
| CLO5 | Enhance thinking, perception and problem-solving skills. | PLO3, 6, 16 |
| Attitude and moral qualities | | |
| CLO6 | Have a high sense of responsibility and autonomy at work | PLO14, 16 |

V. Teaching and learning methods

1. Teaching methods

* Combine lectures, slides
* Give teaching materials, homework, assignment and team work

1. Learning methods

* Learning and self-learning (students read the materials and watch video tutorials)
* Students present assigned topics in class and do the discussion
* Students write reports about the assigned topics

1. V. Tasks of students

* Attendance: Students must attend at least 80% of the class period, ask for permission before being absence
* Prepare for the lesson: Students do homework and the assignment at home, prepare the presentation slides and questions to participate the discussions in class
* Attitude: Students actively participate in the discussion, ask questions and answer the questions

1. Evaluation and grade scale
2. Grade scale: 10
3. Evaluation plan and weight

|  |  |  |  |
| --- | --- | --- | --- |
| Course learning outcomes | **Attendance** | **Presentation** | **Final exam (60%)** |
| **(10%)** | **(30%)** |
| CLO1 |  | x | x |
| CLO2 | x | x | x |
| CLO3 |  | x | x |
| CLO4 | x | x |  |
| CLO5 |  | x | x |
| CLO6 | x | x |  |

**Table 2. Framework of evaluation criteria *(Rubric)***

1. Class attendance **(10 %)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Criteria | Percent (%) | ***Excellent*** | **Qualified** | **Not qualified** |
| 9-10 | *5-8* | *0-4* |
| Class attendance | 50 | Attend 100% of the lessons | Attend >70% of the lessons | Attend <70% of the lessons |
| Positive | 50 | Participating enthusiastically in class discussions, giving speeches and answering many questions | Do not ask/answer questions | Do not reply even when assigned |

1. Group exercise (essay report) **(30%)**

*During the learning process, there will be topics reported, each subject has about 5-8 students to perform. Students who report on the topic will receive a maximum of 3 points*

| Criteria | Percent (%) | |  | **Level** | | |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Excellent** | **Good** | **Below required level** | | **Does not accepted** |
| *3* | *2* | *1* | | *0* |
| Content | | 30 | Fully present the required content on the topic, with additional relevant content contributing to the expansion of knowledge | Full presentation of the required content on the topic | Insufficient presentation of the required content on the topic | Presenting irrelevant content or content that is too sketchy, does not provide the necessary information. | |
| Report form | | 20 | The presentation is clear, easy to understand, and creative. Get comments/questions of interest | The presentation is clear and easy to understand. | Presented in a reading form, not generating interest from the audience | The presentation is too sketchy, the audience cannot understand the content | |
| Answer the questions | | 30 | Questions are answered fully, clearly, and satisfactorily | Answer 70% of questions. | Answer 25-50% of questions. | Can't answer any questions | |
| Team work | | 20 | Show collaboration among team members clearly. There is division of answers and reports among members | There is cooperation among team members but it is not obvious | There is no combination of members, one or more members prepare and report | The report is incomplete and has incorrect content. | |

1. **Final exam (60 %)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Question format** | **Excellent** | **Qualified** | **Not qualified** |
| *8-10* | *5-7* | *< 4* |
| Essay questions | Answer/explain questions with superior knowledge and understanding; demonstrate the ability to synthesize, analyze and creatively apply | Answer/explain questions with general knowledge/less details; can show the limitation of combination, problem analysis; no/little creative expression | Failed to answer/explain the question; do not combine, analyze the problem; no creative expression |

1. Textbooks and references
   * *Lecture note:*

*Kiểm toán môi trường (Lưu hành nội bộ)*, 2022. Bùi Thị Cẩm Nhi. Trường Đại học Nông Lâm Tp.HCM.

* + *Textbook:*

1. Đặng Xuân Toàn, Trần Ứng Long. 1999. *Hướng dẫn Kiểm toán giảm thiểu chất thải.* UNDP & UNIDO.

2. *TCVN ISO 14001:2015: Hệ thống quản lý môi trường – Các yêu cầu và hướng dẫn sử dụng*.

3. Nguyễn Tuấn Trung, 2010. *Kiểm toán môi trường và những thách thức đặt ra đối với kiểm toán nhà nước Việt Nam*. Tạp chí Nghiên cứu Khoa học Kiểm toán, Vietnam.

4. Võ Đình Long, 2009. *Giáo trình Kiểm toán môi trường*. Nhà xuất bản Đại học Công Nghiệp Tp.HCM

**VIII. Detail content of module:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Week** | Content | LLOs | Teaching and learning activities | Evaluation activities | CLOs |
| 1 | **Chapter 1: Overview of Environmental Auditing**  **1**.1. Concept  1.2. Types of audit  1.3. The purpose and meaning of the audit  1.4. Advantages and disadvantages of audit work  1.5. International standards affecting ECO | Understand the concept of MT . audit  Types of audit  Purpose and meaning | Preach | Diligence  Final exam | CLO1, 6 |
| 2-3 | **Chapter 2: Auditing Principles & Process**  2.1. Rule  2.2. Auditing process   Audit planning   On-site audit   Evaluation and reporting | Understand the stages in the audit process | Preach  Discuss | Diligence  Final exam  excercise | CLO1,2,3,4,5,6 |
| 4 | **Chapter 3: Auditing of environmental management systems according to ISO 14000**  ISO 14001 . standard   ISO 14001 Formation Process   Basic terms and definitions   Model of environmental management system   Environmental management system requirements: steps to take   1. Scope   2. References   3. Terminology   4. Context of the Organization   5. The role of leadership   6. Planning   7. Support   8. Activity   9. Performance evaluation   10. Improvements | * Know about document development according to ISO 14000 * Know how to identify nonconformities/ abnomal | Preach  Discuss | Diligence  Final exam  excercise  Specialize report | CLO1,2,3,4,5,6 |
| 5 | Chapter 4: Waste reduction audit  4.1. Overview of the waste reduction audit  4.2. Content of waste reduction audit  • Description of production parts  • Collect data of each production department  • Identify sources of environmental pollution  • Gather input/ output data of production departments  • Prepare material balance and assess waste source  • Describe and evaluate existing waste reduction and treatment measures  • Develop a waste reduction plan  • Cost-benefit analysis for waste reduction and treatment   * Make a plan for the implementation of waste reduction and treatment measures | * Understand the definition of waste reduction audit * Understand the process of performing a waste reduction audit | Preach  Discuss | Diligence  Final exam  Thematic reports | CLO1,2,3,4,5,6 |
| 6 | Chapter 5: Specific requirements in the EIA  5.1. Environmental Impact Assessment  5.2. MSW and SMALL HW management  5.3. Medical waste management  5.4. Air conditioning  5.5 Water conservation | * Understand the specific requirements of each topic on EIA, solid waste, hazardous waste, ... | Preach  Discuss | Diligence  Final exam  Thematic reports | CLO1,2,3,4,5,6 |
| 7-10 | Report on group exercise results | Each group will present the results of the report on the assigned topic. | Group homework | Diligence  Exercise | CLO1,2,3,4,5,6 |

**IX.** Organizational form of teaching**:**

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| --- | --- | --- | --- | --- | --- | --- |
| Content | Course management (hours) | | | | | Course management (hours) |
| Theory | Excercise | Discussion | Practice | Self-learning |
| Chapter 1 | 3 | 0 | 0 |  | 6 |  |
| Chapter 2 | 6 | 1 | 2 |  | 12 |  |
| Chapter 3 | 3 | 1 | 1 |  | 6 |  |
| Chapter 4 | 3 | 1 | 1 |  | 6 |  |
| Chapter 5 | 3 |  |  |  |  |  |
| Group report | 0 | 3 | 3 |  | 15 |  |
| Sum | **18** | **6** | **6** |  |  | **30** |

**X.** The requirements of lecturer for the module

* Classroom, workshop: rooms full of light and ventilation
* Teaching facilities: classrooms have projectors, micro
* *HCMC, day…, month….., year 2018*

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| **Dean** | **Head of Dept** | **Lecturer** |
| *PGS. TS Lê Quốc Tuấn* | *PGS. TS Nguyễn Tri Quang Hưng* | *Bùi Thị Cẩm Nhi.* |