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| UNIVERSITY OF TECHNOLOGY AND EDUCATIONHCMCITY**FACULTY OF VEHICLE AND ENERGY ENGNEERING**  | **Program:** ThermalEngineering Technology**Level: Bachelor** |

**COURSE SYLLABUS**

1. **Course name:** Boiler Practice **Course code: BOIP322732**
2. **Credits:** 2 (0/2/4) (0 theory credits, 3 practice credit)
3. **Lecturers:**

1/ Main lecturer: Lai Hoai Nam

2/ Teaching Lecturers: Doan Minh Hung, Nguyen Le Hong Son

1. **Required course**

Required courses: Steam Boiler

Pre-courses: Fire theory,Thermodynamics

1. **Course Description**

The course shows knowledge about the principles and boiler structure, rules of operation and handling the boiler incident during the operation. learners are learned the process of maintenance, maintenance of boilers .

1. **Course Goals**

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| ***Goals*** |  ***Goal description****(The course aims to provide students with:)* | **Expected Learning Outcome of Program** |
| **G1** | Having knowledge and technical arguments | ELO 3 |
| **G2** | Developing knowledge and technical arguments, discovery knowledge, systems thinking, solve problems relaced in thermal technology engineering . | ELO 4, 6 |
| **G3** | Having the skills to work. | ELO 8,9 |
| **G4** | Establishing ideas, designing, conducting and operating thermal and cooling system suitable for social needs. | ELO 11,14 |

1. **Expected learning outcomes**

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| **Course objectives** | **Description***(After completing program, students are able)* | **ELOof Program** |
| **G1** | **G1.1** | Diagnostics, Maintenance, Maintenance and repair damaged oil fired boiler system | ELO 2,3 |
| **G2** | **G2.1** | Operate boiler system | ELO 4,6 |
| **G3** | **G3.1** | Teamwork skill | ELO 8,9 |
| **G4** | **G4.1** | Establishing ideas to applied boiler in social needs | ELO 11 |
| **G4.1** | Maintenance and repair damaged oil fired boiler system | ELO 14 |

1. **Texbooks**

**-** Texbooks:

Nguyen Van Tuyen- Boiler**.**

1. **Assessment:**

- Grading Scale: **10**

- Assesement plans:

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| **Assesement method** | **Content**  | **Week**  | **Assessment tool** | **ELO** | **Percent (%)** |
| **Operational skills and knowledge of the equipment on the boiler** |  | **50** |
| BT#1 | The principle of operation of the filter, softens the water, boiler feed water pump. | Week 1 | Knowledge | 2,3 | 10 |
| BT#2 | The principle of operation of the system and control of boiler feed water pump | Week2 | Knowledge | 2,3 | 10 |
| BT#3 | Operate boiler system | Week 3 | Practise | 3,4 | 30 |
| 10 |
| **Final term** |  |  | **50** |
|  | - The content covers all the important outcomes of the course. |  | Knowledge +Practise | 2,3,4 |  |

1. **Course content :**

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| **Week**  | **Content**  | **ELOs** |
|  | ***Chapter 1:Detailed structure and devices in boiler.******Chapter2: Operate boiler.*** |  |
| ***A/* Contentsandteaching methods in class***: (30)*+ Detailed structure and auxiliary devices in boiler + Structure of water treatment for boiler+ Structure of boiler+ Operate boiler process+ Practise boiler**Teaching methods**:* Presentation
* Dicussion

 + Team working | 3,4,6,11,14 |
| ***B/*Contents for seft-study at home**: *(60)*+ Read the document about the boiler +Redraw the details in the boiler + Calculate the actual performance of the boiler through the parameters collected and measured during furnace operation. | 4,6 |
|  | ***Chapter 3:*** Incident boiler, remedial measures and troubleshooting***Chapter4:*** *Maintenance measures and maintenance of the boiler.* |  |
| ***A/* Contentsandteaching methods in class***: (30)*+ Problems may be encountered during operate of the boiler.+ Remedies and troubleshooting.+ The maintenance measures, maintenance of the boiler.**Teaching methods**:* Presentation
* Dicussion

 + Team working | 3,4,11,14 |
| ***B/*Contents for seft-study at home**: *(60)**The self-study content:**+ Read the boiler.**Lists the necessary learning materials**+ Nguyen Van Tuyen - Boiler* | 3,4 |
|  | ***Bài 5: Automation of boiler controls. (0/30/60)*** |  |
| ***A/* Contentsandteaching methods in class***:(30)*+ Principle boiler automation.+ Details, structure and principles of operation of the boiler control equipment.+ Set the water level control circuit of the boiler.**Teaching methods**:* Presentation
* Dicussion

 + Team working | 2,3,4 ,11,14 |
| ***B/*Contents for seft-study at home**: *(60)**The self-study content:**+ Read the boiler.**+Design control circuit in boiler**Lists the necessary learning materials**+ Nguyen Van Tuyen - Boiler* | 2,3,4 |

1. **Classroom rules of conduct:**

Students must do problems, home works, and projects by themselves. Student will be received zero score if he (or she) violates study regulations or ethics.

1. **Approved date:**
2. **Approvers:**

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| **Dean** | **Head of department** | **Authors** |
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1. **Syllabus update:**

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| **Time #1: Upgraded issues:**  **date/month/year** | **<**updating authors>Head of Department |