

Ministry of Science Research and Technology



**DANESHPAJOOHAN PISHRO**  
Higher Education Institute

**2022**

## Master of Science in HSE Engineering



**DANESHPAJOOHAN PISHRO HIGHER EDUCATION INSTITUTE**

- **COURSE CHART**
- **SYLLABUS**

## HSE Engineering Courses

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
3036001	Comprehensive Safety Engineering	3	3	0	----	----
3036002	Professional Health Engineering	3	3	0	----	----
3036003	Advanced Environment Engineering	3	3	0	----	----
3036004	Advanced Engineering Statistics and Probabilities	3	3	0	----	----
3036005	Seminar	2	2	0	Passing at least 2 semesters	----
3036006	Thesis	6	0	6	Passing at least 3 semesters	----
<b>Total Credits</b>		<b>20</b>				

## Elective Courses

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
3036007	Econometrics	3	3	0	----	----
3036008	Principles of Waste Engineering and Management	3	3	0	----	----
3036009	Qualitative and Quantitative Risk Analysis	3	3	0	----	----
3036010	Risk-Based Urban Infrastructure Design	3	3	0	----	----
3036011	Industrial Crises Management	3	3	0	----	----
3036012	Environmental Crises Management	3	3	0	----	----
3036013	Accidents Analysis	3	3	0	----	----
3036014	Environment's Health Engineering	3	3	0	----	----
<b>Total Credits</b>			<b>24</b>	It is necessary for all students to pass 4 courses and 12 credits from the elective courses.		
<b>Total Credits (All Courses)</b>			<b>44</b>			

## Comprehensive Safety Engineering

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
3036001	Comprehensive Safety Engineering	3	3	0	-----	----

Main objectives of the course:

- Introducing students with the primary concepts of safety, protection principles
- Electrical and fire safety, building and mine safety, safety at wood workshops, safety in welding and cutting,
- Introducing students with safety principles regarding pressurized containers and tanks
- Elevator safety, industrial machinery and transportation equipment safety, safety at metalworking (machine tool), chemical safety, and personal protection safety

## Professional Health Engineering

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
3036002	Professional Health Engineering	3	3	0	-----	----

The main goal of this course is to introduce students who've come from unrelated fields and have not passed this course before, to the primary concepts, goals and domain of career and industrial health operation on an introductory basis.

## Advanced Environment Engineering

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
3036003	Advanced Environment Engineering	3	3	0	-----	----

The main goal of this course is to introduce students to the environment's existing challenges in today's world and the new perspectives in environment engineering.

## Advanced Engineering Statistics and Probabilities

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
3036004	Advanced Engineering Statistics and Probabilities	3	3	0	-----	----

Main objectives of the course:

- Introduction to probabilities primary concepts and patterns of probabilities for observation and analysis of accidents
- Introduction to statistical methods for estimating parameters, testing hypothesis, and observing the relation between variables

## Seminar

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
3036005	Seminar	2	2	0	Passing at least 2 semesters	----

## Thesis

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
3036006	Thesis	6	0	6	Passing at least 2 semesters	----

## HSE Economics

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
3036007	HSE Economics	3	3	0	-----	----

The goal of this course is to give students the ability to put the theoretical frame of economics and engineering economics principles into work and use them at HSE planning and policy setting.

## Principles of Waste Engineering and Management

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
3036008	Principles of Waste Engineering and Management	3	3	0	-----	-----

Main objectives of the course:

- Introducing students to the production, classification, combination resources
- Waste properties and disposal methods

## Qualitative and Quantitative Risk Analysis

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
3036009	Qualitative and Quantitative Risk Analysis	3	3	0	-----	---

## Risk-Based Urban Infrastructure Design

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
3036010	Risk-Based Urban Infrastructure Design	3	3	0	---	---

Main objectives of the course:

- Introduction to the life cycle-based design methods
- Paying attention to the long-term effects of urban infrastructure design
- Comprehensive urban management

## Industrial Disaster Management

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
3036011	Industrial Disaster Management	3	3	0	—	—

## Natural Disaster Management

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
3036012	Natural Disaster Management	3	3	0	—	—

Goal of the course:

- Introduction to the methods of identification and analysis of dangers caused by natural disasters such as, earthquake, flood, windstorm and etc... This course will also cover the ways to reduce the risks

## Accident Analysis

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
3036013	Accident Analysis	3	3	0	—	—

The goal of this course is to allow the students to use the experience, knowledge and achievements gained from an accident, in order to be ready for similar situations. By using accident analysis models, students will have the opportunity to gain the ability to analyze and manage work accidents in order to reduce the ruining effects.

## Environment's Health Engineering

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
3036014	Environment's Health Engineering	3	3	0	—	—

In this course students will be introduced to the methods of control engineering of environmental risk factors for the sake of the health of society. Students will also be introduced to the environment's health risk assessment and management.