Theoretical and practical course plan form - Ilam University of Medical Sciences

Introduction Course: Vibration in the Workplace Second Semester 2020-2021

School: Health

Department: Occupational Health Engineering

* Course Name and Number: Vibration in the Workplace - Course Code

* Day and time: Saturday, 8-10 o'clock

* Field and degree: Bachelor of Occupational Health Engineering and Occupational Safety

* Venue: School of Health class

* Number and type of unit (theoretical / practical): 0.75 theoretical unit - 0.25 practical unit

* Prerequisite courses: Special physics 2

* Office address: School of Health Email address: abbasi @ yahoo.com

* Course teacher name: Dr. Abbasi 1

* Phone and contact days: 08432223071, office hours

* General purpose of the lesson:

Familiarity of students with methods of vibration production in the workplace and gaining the ability to measure and evaluate vibration and familiarity with vibration control in the workplace.

* Specific or partial objectives of the lesson: The specific objective is better to be written behaviorally (the behavioral objective has the audience, behavioral verb, degree and criteria of the conditions).

At the end of this course the student is expected to be able to:

1- Explain the basics of vibration including: the importance of vibration, vibration wave, vibration equations (displacement, speed and acceleration) in the workplace

2- Express the degree of freedom and vibrational force.

3- Explain the types of periodic and non-periodic vibrations.

4- Recognize and describe free and forced vibration systems.

- Express the physical concepts of vibration (force, displacement, velocity, acceleration, equivalent acceleration, frequency, natural frequency, damping, critical damping, damping ratio).

6- Explain the decibel scale (types of vibration levels, level equivalent to vibration acceleration, peak factor).

7- Describe the vibrational model and biodynamic system of the human body.

8- Explain the types of vibrations transmitted to the human body (whole body, hands and arms) and the directions of vibration entering the body.

9- Express the health aspects of exposure to vibration and the factors affecting it.

10- Factors affecting the body's response to vibration, body comfort, skill loss, effect on efficiency and performance.

11- To know and describe the instruments of measuring vibration and human vibration.

12- Select and calibrate vibration measuring devices.

13- Know the standard methods of vibration measurement.

14- Know the permissible limits of exposure to vibration of the whole body, hands and arms.

15- Know the permissible limits for transport passengers.

16- Know the vibration measurement of the whole body, hands and arms.

17- Know the general principles of vibration control and types of insulators and their application.

18- Know the means of personal protection against vibration.

19. Know the ethical aspects of measuring and evaluating vibration.

* Student duties: (Student homework during the semester):

1- Attending training sessions and actively participating in class discussions is mandatory.

2- Observance of moral principles in the classroom is mandatory.

3- Presenting a conference or research related to the topics of the course

4- Performing practical measurement project and presenting project report

5. Participate in visits and submit visit reports in connection with the subject

* Main resources of the course Main resources (by observing the principles of source writing and giving an address for their preparation, including library, bookstore, Internet, ...)

1- Sound and Vibration Engineering, Dr. Golmohammadi

2- Human exposure to mechanical vibration, Dr. Ali Khavanin and Kikavous Azreh

3- Permitted occupational exposure limits (OEL) of the Ministry of Health

4- Neil.Manstield.Human Response to Vibration.

5 Andeson. JS .solving Problem in Vibration .Last editon.

6. ISO 2631- ISO5349.

. *teaching method:

1- Lecture using Power point

2- Description of contents and discussion

3- Discussing an issue in each session

4- Presenting a conference or research by students

* Educational aids used:

1. Using a computer and projector

2- Using magic and whiteboard

3. Use of vibration measuring devices all over the body, hands and arms

- Type of exams in terms of how to design a question - loading - time of exams and assignments should be mentioned

- Methods and time of assessment and evaluation of the student and the bar related to each value

Method	Score	Date	Time
Comparative assessment (at the end of the semester) will be done by holding a written exam. The questions will be descriptive, test and blank (for the theory unit)	70		
In order to formally evaluate (during the semester), midterm exams and class quizzes will be held (for the theory unit)	20		
Conference presentation, visit reports, measurements and evaluation project presentation (for practical unit)	10	During the semester	time of class
Total	100		

Lesson rules and expectations from students:

1. Active student presence in the class, conducting and presenting research

2. Participate in group discussions

3. Solve the presented problems

4. Perform measurement projects

5. Submit hits report

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Schedule for presenting the program of Human Factors Engineering 2, first semester 2019-2020

Session	Date	Time	Topic	Lecturer	Necessary preparation of students before starting
1		8-10	Vibration includes: importance of vibration, vibration wave Vibration equations (displacement, velocity and acceleration) in the workplace	Dr abbasi	
2		=	Degree of vibration freedom, vibration force and types of periodic and non-periodic vibrations		Student reading and preparation for answering questions
3		=	Free and induced vibration systems and the physical concepts of vibration		Student reading and preparation for answering questions
4		=	Decibel scale (types of vibration levels, level equivalent to vibration acceleration, peak factor) and vibration model and biodynamic system of human body		Student reading and preparation for answering questions
5		=	Types of vibration transmitted to the human body (whole body, hands and arms) and directions of vibration entering the body and		Student reading and preparation for answering questions
6		=	Health aspects of vibration exposure and the factors affecting it, factors affecting the body's response to vibration, body comfort, skill loss, effect on efficiency and performance		Student reading and preparation for answering questions
7		=	Vibration and human vibration measuring instruments, their selection and calibration		Student reading and preparation for answering questions
8		=	Permissible limits of exposure to vibration of the whole body and arms and hands, standard methods of measuring vibration		Student reading and preparation for answering questions

9		=	Permissible exposure to vibration of the whole body and arms and allowable exposure to transport passengers		Student reading and preparation for answering questions
10		=	Vibration measurement of the whole body and hands and arms and methods of vibration control and types of insulators and their application		Student reading and preparation for answering questions
11		=	Vibration protection devices and ethical frameworks for measuring and evaluating vibration		Student reading and preparation for answering questions
12		=	Debugging		Student reading and preparation for answering questions