

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

Introducing the course of heat and cold stresses in the workplace in the second semester 2020-2021

School: Health. Department: Occupational Health Engineering

\* Name and number of the course: Heat and cold stresses in the workplace - Lesson number 03

\* Course and degree: Continuing Bachelor of Occupational Health Engineering and Occupational Safety

\* Day and time: Tuesday: 8-12

\* Venue: School of Health

\* Name of the person in charge of the course (course instructor): Dr. Ali Mohammad Abbasi

\* Prerequisite courses: Special physics 2

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General Objective of the lesson: Familiarity with the effective factors in heat and cold stresses and evaluation of thermal stresses

• Behavioral goals (behavioral goals have an audience, behavioral verb, degree and criteria and conditions of performance)

1- Explain and define the effective factors in creating thermal stresses.

2- Explain the environmental parameters affecting thermal stresses.

3- Introduce the role of clothing in heat exchanges.

4. Explain the role of metabolism in heat exchange.

5. Explain the adaptation and its role in thermal stresses.

6- Explain the ways of heat exchange between man and the environment.

- Classify and define heat indicators.

8- Get acquainted with how to determine heat indices using nemogram.

9- Define and classify cold in the workplace.

10- Define the indicators of cold stress.

11- Get acquainted with how to determine cold indices using Nomogram.

12- Get acquainted with the indicators of comfort and thermal comfort in the workplace and how to measure them.

13- Get acquainted with the principles of controlling heat and cold stresses.

- Student assignments (student assignments during the semester). Conference presentation by students
- Main sources (observing the principles of source writing and giving an address for their preparation, including library, bookstore, internet, .....). Man and thermal stresses, Dr. Farideh Golbabaee, Manouchehr Omidvari - Workplace heat stresses, Dr. Rostam Golmohammadi
- Teaching methods and teaching aids used: PowerPoint, answering questions, expressing ideas about a problem.
- Methods and time of assessment and evaluation of the student and the burden related to each evaluation:

Method	Score	Date	Time
Provide laboratory activities and results	20	During the term	
midterm exam	15	Seventh session	8-12
End of semester exam	65	Announced by Education	Announced by Education

Curriculum presentation schedule. Workplace heat stresses. Second Semester 2020-2021

Session	Time	Topic	Lecturer	Necessary preparation of students before the start of the class
1	8-10 10-12	Definitions and concepts in thermal stresses and its classification, classification of effective factors in creating thermal stresses	Abbasi	Study the topics discussed before the class
2	8-10 10-12	Introduction of environmental parameters affecting thermal stresses (temperature, velocity of relative humidity, etc.)	Abbasi	Study the topics discussed before the class
3	8-10 10-12	Introducing the role of clothing in heat exchanges (methods for estimating the thermal resistance of clothing, clothing	Abbasi	Study the topics discussed before the class

		resistance to evaporation, the effect of air flow on clothing resistance)		
4	8-10 10-12	Metabolism and its role in thermal stresses (basal metabolism, basal metabolic rate measurement methods, activity and its role in thermal stresses)	Abbasi	Study the topics discussed before the class
5	8-10 10-12	Adaptation and its role in thermal stresses, ways of heat exchange between humans and the environment (displacement, conduction, evaporation, radiation)	Abbasi	Study the topics discussed before the class
6	8-10 10-12	Thermal indices: Definitions and concepts, analytical indices (heat stress index, required sweat content, hatching)	Abbasi	Study the topics discussed before the class
7	8-10 10-12	Experimental indicators (effective temperature index, corrected effective temperature, predicted four-hour sweat rate)	Abbasi	Study the topics discussed before the class
8	8-10 10-12	Introduction of Sun Wet Temperature Index (WBGT)	Abbasi	Study the topics discussed before the class
9	8-10 10-12	Introduction of Sun Wet Temperature Index (WBGT) in cold environments)	Abbasi	Study the topics discussed before the class
10	8-10 10-12	Cold stress index: general cooling, amount of sweat required and calculations, wind cooling index and its estimation	Abbasi	Study the topics discussed before the class
11	8-10 10-12	Defining and Calculating Recommended Exposure Duration, Topical Cooling: Physiological Criteria for Cold Exposure	Abbasi	Study the topics discussed before the class
12	8-10 10-12	Thermal comfort indices: Definitions and concepts of thermal comfort, thermal comfort indices, calculations and estimation of thermal comfort indices	Abbasi	Study the topics discussed before the class
13	8-10 10-12	Principles of controlling heat and cold stresses (managerial, executive, technical, clothing, etc.)	Abbasi	Study the topics discussed before the class
14	8-10 10-12	Solving the problems	Abbasi	Study the topics discussed before the class

Practical:

Familiarity with dry, wet temperature, dew point (thermometers), air pressure measurement method, air flow velocity (ordinary kate and silver plated thermometer), relative humidity (rotating hygrometer), radiant temperature (Sun ball thermometer) ) And familiarity with the heat stress microtherm (WBGT) device.