

## In the Name of Good

### Islamic Republic of Iran Ministry of Health and Medical Education Deputy of Education

## Ergonomics Doctor of Philosophy (PhD)

### Total Course Credits

- Core: 21
- Non-core (Elective): 6
- Dissertation: 20

### Program Description

Ergonomics is the scientific discipline concerned with understanding interactions among humans and other elements of a system, and the profession that applies theory, principles, data and methods to design in a way to optimize human well-being and overall system performance.

Many people suffer because their conditions at work and home are incompatible with their needs, abilities and limitations. This situation affects their safety and welfare, as well as, that of organizations and societies.

High technology can make our lives more efficient and exciting. However, fascination with technology and overly ambitious business expectations can cause us to overlook human factor risks. Neglecting these risks can have serious effects on manufacturers, suppliers and service enterprises.

Therefore, the graduate in ergonomics and human factors will be more important in postmodern era to help in propagating theoretical and practical aspects of the field, advancing the frontiers of knowledge by doing research as well as innovating and promoting health and wellbeing by designing products as well as workplaces ergonomically.

For the time being, the Islamic Republic of Iran is the pioneer for offering this course in the Middle East in terms of the educational excellence, and research products concerning ergonomics studies. In the next 10 years, the main mission of the course is to train committed, knowledgeable and competent individuals in this multidisciplinary field.

### Admission Requirements

- A master's degree (MSc) in one of the fields of Ergonomics, Occupational Health, HSE, Medical engineering, Industrial Design or Doctor of Medicine (MD), awarded by one the home or foreign universities approved by the Ministry of Health, Treatment and Medical Education
- Being eligible for entering the program according to the PhD educational rules and regulations.

\*N.B.: These general conditions do not necessarily exclude specific conditions of each institute or university.

### Expected Competencies at the End of the Program

## General Competencies\*

### Specific Competencies and Skills

At the end of the program learners will be competent in the following skills:

- Keeping the physical and psychological environment as well as the workplace healthy
- Using specialized equipment
- Working in professional environments
- Handling the bio-signal equipment and data processing
- Interpreting the test results

### Educational Strategies, Methods and Techniques\*

#### Student Assessment (Methods and Types)

- Formative (Quizzes and Midterm Exam)
- Summative (Final Exam)
- Methods of assessment: oral, written, OSLE, and Logbook

### Ethical Considerations\*

\*Note: The related document(s) can be found at <http://hcmeq.behdasht.gov.ir/>

## Tables of the Courses

**Table 1. Compensatory Courses**

Code of the Course	Title of the Course	Credits			Teaching Hours			Prerequisite or Concurrent Courses
		Theoretical	practical	Total	Theoretical	Practical	Total	
01	Medical Informatics Systems	0.5	0.5	1	9	17	26	-
02	Environmental Ergonomics	1	1	2	17	34	51	-
03	Cognitive Ergonomics	2	-	2	34	-	34	-
04	Work Psychology and Ergonomics	1	1	2	17	34	51	-
05	Human Anatomy and Physiology	2	1	3	34	34	68	-
06	Occupational biomechanics	1	1	2	17	34	51	-
07	Research Method and Advanced Statistical Analyses	2	1	3	34	34	68	-
08	Basic Biomechanics and its Application in Ergonomics	1	1	2	17	34	51	-
	<b>Total</b>	<b>10/5</b>	<b>6/5</b>	<b>17</b>	<b>179</b>	<b>221</b>	<b>400</b>	

These courses are basic for the PhD but have not been completed previously.

Students must pass at least 16 compensatory course credits (Table 1) as specified by the Department of education and approved by the Postgraduate Education Council.

\* Completing this course is obligatory for those who have not completed it before.



**Table 2. Core courses**

Code of the Course	Title of the Course	Credits			Teaching Hours			Prerequisite or Concurrent Courses
		Theoretical	practical	Total	Theoretical	Practical	Total	
09	Macro Ergonomics	1	1	2	17	34	51	04
10	Ergonomics in Design	1	1	2	17	34	51	-
11	Biomechanics	2	-	2	34	-	34	05
12	Experimental design	2	-	2	34	-	34	-
13	Anthropometry	1	1	2	17	34	51	05
14	Instrumental Methods in Ergonomics Assessment	1	1	2	17	34	51	05
15	Human Performance Assessment	1	1	2	17	34	51	04
16	Cognitive Engineering	1	1	2	17	34	51	04
17	Special Topics in Ergonomics	1	-	1	17	-	17	-
18	Seminar	2	-	2	34	-	34	-
19	Models and Methods of Job Stress Assessment	2	-	2	34	-	34	04
20	PhD Dissertation	-	20	20	-	-	-	-
	<b>Total</b>	<b>15</b>	<b>26</b>	<b>41</b>	<b>255</b>	<b>204</b>	<b>459</b>	

**Table 3. Non-Core Courses**

Code of the Course	Title of the Course	Credits			Teaching Hours			Prerequisite or Concurrent Courses
		Theoretical	practical	Total	Theoretical	Practical	Total	
21	Epidemiology of Musculoskeletal Diseases	2	-	2	34	-	34	-
22	Rehabilitation Engineering	2	-	2	34	-	34	-
23	Behavioral factors in Injury Prevention	2	-	2	34	-	34	-
24	Modeling and Simulation in Ergonomics	1	1	2	17	34	51	-
25	Human Error and Systems' Safety	1/5	0/5	2	26	17	43	-
26	Movement Control	2	-	2	34	-	34	-
27	Advanced Analysis of body postures and motions	2	-	2	34	-	34	-
	<b>Total</b>	<b>12/5</b>	<b>1/5</b>	<b>14</b>	<b>213</b>	<b>51</b>	<b>264</b>	<b>-</b>

\* Students have to pass 6 credits as specified by the corresponding department.



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