

دفتر توسعه آموزش (EDO)
طرح دوره (Course Plan)

نام دوره (درس) : ارگونومی در طراحی

نام گروه آموزشی: ارگونومی

نام مدرس/مدرسان: دکتر علیرضا ابوحسین

رشته/مقطع تحصیلی جمعیت هدف: ارگونومی / کارشناسی ارشد

نوع و تعداد واحد: تئوری 1 عملی 1 هر دو 2

نیمسال تحصیلی: دوم مکان اجرا: دانشکده بهداشت و ایمنی روز/ساعت کلاس:

هدف کلی دوره:

This course will provide a broad view of use of ergonomics in design to develop a user- friendly product or to prevent injury through design and evaluation of workplaces, including postures, manual tasks, and repetitive movements. In addition to reducing injuries, physical ergonomics also focuses on how to increase productivity and reduce quality issues and error.. Its main focus is to provide tools to the students to use ergonomics factors in design. As the design is main objective of this work, there is a larger weight is given to the project and related issues. The primary goal of this course is to help prepare students to become familiar with fundamental of ergonomics in Design. As an ergonomist what criteria they should consider when they start to design a product.

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اهداف اختصاصی دوره (رفتاری)¹

از فراگیر انتظار می رود در پایان دوره آموزشی بتواند:

Upon completion of this course,

Students should be able to competently understand what the ergonomic design is and what factors are important in design of devices that are ergonomics so they can be used in a manner that reduced biomechanical injury.

How and when they can use knowledge of human factors in design of devices and tools.

Students can distinguish between iterative and incremental design

The process of design and prototyping and percentile in human factors should be learned

Students should become familiar with one to two simulation tools in design

¹ منظور از اهداف رفتاری، بیان انتظارات اساتید برحسب رفتار قابل مشاهده و اندازه گیری می باشد و با افعال رفتاری همچون تحلیل کردن، پیش بینی کردن، توضیح دادن، مجزا کردن، تقسیم کردن، نوشتن، محاسبه کردن، کشیدن و ... بیان می شود.

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سرفصل های آموزشی دوره		
مدرس / مدرسین	عنوان یا موضوع	شماره جلسه
Dr. Abouhossein	Introduction to ergonomic design	1
Dr. Abouhossein	Design consideration for human factors: example, cushion design for wheel chair	2
Dr. Abouhossein	Preventive injury when designing on object	3
Dr. Abouhossein	Developing criteria for ergonomic design	4
Dr. Abouhossein	Mechanical elements in design, safety factor, Stress. Strain, shear & Poisson ratio review in design	5
Dr. Abouhossein	User Centered Design	6
Dr. Abouhossein	Problem solving in design	7
Dr. Abouhossein	Iterative vs incremental design	8
Dr. Abouhossein	Introduction to Solid Works	9
Dr. Abouhossein	Basic idea drawing a part	10
Dr. Abouhossein	Making a part ready for manufacturing	11
Dr. Abouhossein	Producing Drawings	12
Dr. Abouhossein	Assembly in SolidWorks	13
Dr. Abouhossein	New ideas in additive manufacturing	14
Dr. Abouhossein	Project presentation	15

شیوه (های) تدریس:

- Direct Methods using common tools such as PowerPoint, SnagIt, Camtasia and simulation tools
- Flipped classroom
- The idea is to move from instructor-centered to students-centered
- Students' ability to be functional, resilient and as a result to be a problem-solver is encouraged.

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وسایل کمک آموزشی:

- PowerPoint
- Video clips
- Ask students to have an active role in the class
- Use of applications software like SolidWorks and MSC.ADAMS in the course

شیوه (های) ارزشیابی های دوره:

- Students are given short term projects to become familiar with deadlines and problem-solving using basics ideas in occupational biomechanics
- Students should do at least two presentations during a term
- Exams are given to get inspired and be analytical and learn how to solve real-world problems
- Students encourage to write and summarize many manuscripts and learn about their ergonomics concepts
- Students will do static linked human modeling problem solving

منابع مورد استفاده (فارسی و انگلیسی):

– Several texts will be used in this course most are provide by the instructor.

Kodak's Ergonomic Design for People at Work, Second Edition
Human factors in engineering & design by Mark S. Sanders & Ernest J. McCormick
Human Dimensions & interior spaces by Julius Panero & Martin Zelnk
Instructor Notes in SolidWorks
Class notes & handouts given by the instructor