



UNIVERSITETI / UNIVERSITY  
"ISA BOLETINI"  
MITROVICË

Course Curriculum Model (Syllabus)		
Faculty:	FACULTY OF MECHANICAL AND COMPUTER ENGINEERING	
Department:	Mechanical Engineering	
Level:	Bachelor	
Code of the course:	113 ME	
Course:	ERGONOMICS AND INDUSTRIAL DESIGN	
Course Status:	Elective	Mandatory/ <b>Elective</b>
Semester:	(II)	Winter/ <b>Summer</b>
Number of hours per week:	1+1	
ECTS:	4	
Time / location:	Wednesday, 9 <sup>00</sup> -10 <sup>30</sup> , S205	
Year of studies:	2024/2025	
Lecturer:	Prof. Ass. Dr. Fatmir Azemi	
Assistant:		
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<b>C o u r s e d e s c r i p t i o n</b>	This course is designed to introduce students to the principles of ergonomics and industrial design. Students will learn about the interaction between humans and their environment, and how this interaction can be optimized to improve safety, efficiency, and comfort in industrial settings. The course will cover topics such as anthropometry, biomechanics, workplace design, and product design. Students will gain hands-on experience in the design process through a series of projects and case studies.	
<b>P u r p o s e</b>	The purpose of this course is to provide students with an understanding of the principles of ergonomics and industrial design, and how they can be applied in the development of products, systems, and work environments. Through this course, students will learn how to design products and systems that are user-friendly, efficient, and safe, while also taking into consideration the needs and limitations of users. Additionally, this course will cover the role of ergonomics and industrial design in improving productivity, quality, and sustainability in various industries.	

Learning outcomes	<p>Upon completion of the course, students should be able to:</p> <ul style="list-style-type: none"> <li>● Explain the importance of ergonomics and industrial design in creating safe, efficient, and comfortable work environments.</li> <li>● Identify and apply principles of anthropometry and biomechanics to design workspaces and products that are suited to human capabilities and limitations.</li> <li>● Analyze and evaluate the ergonomics of existing workspaces and products, and propose improvements.</li> <li>● Understand and apply design thinking and the design process to industrial design projects.</li> <li>● Use digital tools and software to create 2D and 3D designs for industrial products.</li> <li>● Work collaboratively in a team to design and present an industrial design project.</li> </ul>
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	Weeks	Lecture
Program	<i>First week:</i>	Introduction to Ergonomics and Industrial Design <ul style="list-style-type: none"> <li>● Course overview and syllabus review</li> <li>● Definition of ergonomics and industrial design</li> <li>● Historical perspective</li> </ul>
	<i>Second week:</i>	Anthropometry and Biomechanics <ul style="list-style-type: none"> <li>● Human body dimensions and proportions</li> <li>● Joint and muscle function</li> <li>● Applications of anthropometry and biomechanics in design</li> </ul>
	<i>Third week:</i>	Workplace Design <ul style="list-style-type: none"> <li>● Principles of workspace design</li> <li>● Designing for specific tasks and activities</li> <li>● Ergonomic assessment of workspaces</li> </ul>
	<i>Fourth week:</i>	Product Design <ul style="list-style-type: none"> <li>● Principles of product design</li> <li>● Designing for usability and accessibility</li> <li>● Ergonomic assessment of products</li> </ul>
	<i>Fifth week:</i>	Design Thinking and the Design Process <ul style="list-style-type: none"> <li>● Introduction to design thinking</li> <li>● Overview of the design process</li> <li>● Applying design thinking to industrial design</li> </ul>
	<i>Sixth week:</i>	Digital Design Tools <ul style="list-style-type: none"> <li>● Introduction to 2D and 3D design software</li> <li>● Designing products using digital tools</li> <li>● Creating technical drawings and models</li> </ul>
	<i>Seventh week:</i>	Case Studies in Industrial Design <ul style="list-style-type: none"> <li>● Examining successful industrial design products</li> <li>● Analyzing the design process of successful products</li> <li>● Lessons learned from successful products</li> </ul>
	<i>Eighth week:</i>	Project Proposal <ul style="list-style-type: none"> <li>● Students will develop a proposal for their industrial design project</li> <li>● Project scope and objectives</li> <li>● Preliminary research and ideation</li> </ul>

	<i>Ninth week:</i>	Industrial Design Project <ul style="list-style-type: none"> <li>Students will work in teams to develop an industrial design project</li> <li>Applying design thinking and the design process to the project</li> <li>Using digital tools to create designs and models</li> </ul>
	<i>Tenth week:</i>	Industrial Design Project <ul style="list-style-type: none"> <li>Students will work in teams to develop an industrial design project</li> <li>Applying design thinking and the design process to the project</li> <li>Using digital tools to create designs and models</li> </ul>
	<i>Eleventh week:</i>	Industrial Design Project <ul style="list-style-type: none"> <li>Students will work in teams to develop an industrial design project</li> <li>Applying design thinking and the design process to the project</li> <li>Using digital tools to create designs and models</li> </ul>
	<i>Twelfth week:</i>	Industrial Design Project <ul style="list-style-type: none"> <li>Students will work in teams to develop an industrial design project</li> <li>Applying design thinking and the design process to the project</li> <li>Using digital tools to create designs and models</li> </ul>
	<i>Thirteenth week:</i>	Industrial Design Project Presentations <ul style="list-style-type: none"> <li>Teams will present their industrial design projects</li> <li>Presentations will include design process, research, and final product designs</li> </ul>
	<i>Fourteenth week:</i>	Ergonomic Evaluation <ul style="list-style-type: none"> <li>Teams will evaluate the ergonomic aspects of their industrial design project</li> <li>Using ergonomic assessment tools to evaluate the design</li> </ul>
	Fifteenth week :	Course Review <ul style="list-style-type: none"> <li>Review of course topics and concepts</li> <li>Course evaluation and feedback</li> </ul>

Literature	
L i t e r a t u r e	<ol style="list-style-type: none"> <li>"Ergonomics in Design: Methods and Techniques" by Ton Peeters (2015)</li> <li>"Human Factors and Ergonomics in Practice: Improving System Performance and Human Well-Being in the Real World" edited by Steve W. J. Kozlowski (2016)</li> <li>"Designing for Human Reliability: Human Factors Engineering in the Oil, Gas, and Process Industries" by Ronald W. McLeod (2016)</li> <li>"The Handbook of Human-Machine Interaction: A Human-Centered Design Approach" edited by Guy Boy (2018)</li> <li>"Design for Cognitive Bias" by David Dylan Thomas (2018)</li> <li>"Designing for Inclusion: A Practical Guide to a Accessible, Observant, and Inclusive Design" by Regine Gilbert (2019)</li> <li>"Human Factors Engineering and Ergonomics: A Systems Approach" by Lesley Strawderman (2021)</li> </ol>

T e a c h i n g m e t h o d o l o g y	The teaching methodology for the Ergonomics and Industrial Design course may involve a combination of the following:			
	<ul style="list-style-type: none"> <li>• Lectures: The teacher will deliver lectures on various topics related to ergonomics and industrial design. The lectures will cover the theoretical concepts as well as practical applications.</li> <li>• Discussion: Students will be encouraged to participate in class discussions to clarify any doubts and to express their opinions on the topics discussed in class.</li> <li>• Case studies: Case studies will be used to demonstrate how ergonomics and industrial design principles can be applied in real-world scenarios.</li> <li>• Group projects: Students will be divided into groups to work on a project related to ergonomics and industrial design. The projects will require students to apply the concepts learned in class to solve a real-world problem.</li> <li>• Guest lectures: Experts from the industry will be invited to deliver guest lectures on specific topics related to ergonomics and industrial design.</li> <li>• Hands-on activities: Hands-on activities such as designing prototypes, conducting experiments, and testing products will be included to give students a practical understanding of the subject.</li> <li>• Online resources: Online resources such as videos, articles, and academic papers will be provided to supplement the classroom learning.</li> </ul>			
	Contribution to student workload (which should correspond to student learning outcomes - 1 ECTS credit = 25 hours)			
	Activity	Hours	Days/weeks	Total
	Lectures	1	15	15
	Exercise sessions (with TA)	1	15	15
	Practical work	3	3	9
	Office hours	1	14	14
	Fieldwork	1	2	2
	Midterms, seminars	2	2	4
	Homework	3	4	12
	Self-study	4	3	12
	Final exam preparation	3	3	9
	Time spent in exams	2	2	4
	Projects, presentations, etc.	2	2	4
<b>Total</b>				<b>100</b>

E v a l u a t i o n	<b>Assessment methodology:</b>	
	Assessments for such a course might include quizzes, assignments, exams, and projects. The project proposal and industrial design project components of the course are likely to be major assessments that allow students to apply the principles and tools they have learned in the course.	
	(according to the Statute and Regulation for studies of UMIB)	
	Tests / Colloquia (First Test) (Second test)	15% 15%
	Practical test during exercises (Essay)	
	Workshop seminar	
	Interpretation and presentation of artistic creativity and other works.	
	Assignments and courses during the semester	15%
	Professional practice.	

	Other, Continuity	
	Final exam	55%
	Total	: 100%
	Final grade	Points (%) Mark
		91 – 100 10
		81 - 90 9
		71 - 80 8
		61 - 70 7
		51 - 60 6
	<b>Criteria for regular attendance and rules of etiquette during the organization of the lesson are set.</b>	
A c a d e m i c p o l i c i e s	<b>Computer work:</b>	
	Graphic works, I have to draw and write with a computer. In the works it is obligatory to respect the criteria for both the visual and the content aspect of the required works.	
	<b>Ethics in teaching:</b>	
	Graphic works should be personal works of each student. There will be no tolerance for copying, "borrowing" from the Internet or any other material. The same or similar works will have negative evaluations in the final evaluation of the student.	
	<b>Time:</b>	
	In agreement with the students, the deadlines for submitting works will be determined. There will be no tolerance for delays in the submission of works. Failure to arrive at the time when the assignment is explained does not justify the student for not submitting the paper. The deadline will be given earlier. If you are going to travel abroad, then you need to submit the paperwork in advance. The student has the right to request a consultation with the professor whenever he / she deems it reasonable and necessary for the performance of his / her work.	
	<b>Rules of conduct and academic policies:</b>	
	<ul style="list-style-type: none"> <li>• active participation of students in lectures o participation in discussion, comments and free expression of opinion, opinion and academic position (with arguments)</li> <li>• Mandatory independent work and use of additional sources of information (various scientific websites, scientific journals, conference proceedings, etc.)</li> <li>• Respecting lecture schedules without compromising academic freedom (silent cell phones) of respecting the word, thoughts and ideas of colleagues,</li> <li>• It is not allowed to arrive late and leave without a valid reason from the lecture, test or exam o preparation and holding of relevant lectures, (obligation of the teacher).</li> <li>• if the student is absent more than four times without reason in lectures and exercises, does not receive the signature for attendance. o the student cannot take the exam without an official document,</li> <li>• if the student is dissatisfied with the grade obtained, has the right to complain in writing to the dean, within two working days after the announcement of the results, UMIB Statute o if the student does not follow the rules, in the exam uses tools that are not allowed, it is evaluated with a negative grade.</li> </ul>	

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Mitrovica; 29/03/2023

Prof. Ass. Dr. Fatmir Azemi