UNIVERSITETI I MITROVICËS
'ISA BOLETINI'

Course Curriculum Model (Syllabus)		
Faculty:	**FACULTY OF MECHANICAL AND COMPUTER ENGINEERING**	
Department:	**Computer Science and Engineering**	
Level:	Bachelor	
Code of the course:	113 CSE	
Course:	***Fundamental of mechatronics***	
Course Status:	-	Mandatory, **Elective**
Semester:	(II)	**Sumer/Sumer**
Number of hours per week:	2+2	
ECTS:	4	
Time / location:	Wensday, 9^{00}-10^{30}, S308	
Year of studies:	2021/2022	
Lecturer:	Dr. Fitim Zeqiri	
Assistant:	Dr. Fitim Zeqiri	
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Telefon:		

Content	Mechatronic systems engineers use precision mechanical, electrical, computer engineering, as well as math and physics, to design high performance and sophisticated products and equipments demanded by competitive marketplace. Modern products (such as automobiles, dishwashers, cameras, ATMs, medical equipment, space craft, communication satellites, etc.) and manufacturing equipments (such as 3D printers, CNC machines, industrial robotics and autonomous systems, etc.) contain numerous computers and mechatronics modules. Their creations require engineers to be able to combine mechanical, electric, electronic and software subsystems using advanced scientific and engineering knowledge. This course introduces to graduate students the basic mechatronics system components, and the design principles of using mechatronics to meet functionality requirements of products, processes and systems..
Purpose	The aim of this course is to help the student to attain the following industry identified competency through various teaching learning experiences: • Operate and manipulate mechatronics systems as per requirements

Accessibility	To enable the student to understand the modern mechatronics components; To present the underlying principles and alternatives for mechatronics systems design To provide the student with the opportunity for hands-on experience with the related components of the technology for diverse domains of application; To develop the student's ability to evaluate appropriate technology and create and devise realistic industrial systems.

	Weeks	**Lecture**
Program	***First week:***	Course introduction and mechatronics systems
	Second week:	Case study of a mechatronics system and introduction of micro-controllers
	***Third week*:**	Electrical components
	Fourth week:	Sensors and time controllers
	Fifth week:	Actuators and motor control
	***Sixth week*:**	Mechanical components & mechanisms
	Seventh week:	Modeling and control
	Eighth week:	Midterm Exam
	***Ninth week*:**	Introduction of a motion test bed and C++ programming
	***Tenth week*:**	Programmable motion control and algorithm development
	***Eleventh week*:**	Numerical control manufacturing (machining and accumulation)
	Twelfth week:	Digital fabrication
	***Thirteenth week*:**	3D printing systems
	Fourteenth week:	Robotics, scanning and user interaction systems and development project discussion
	Fifteenth week :	Application development project presentation and course evaluation

Literature
Literature
[1] David Alciatore: **Introduction to Mechatronics and Measurement Systems** 4th Edition. [2] Bolton, W. Mechatronics: **Electronic Control Systems in Mechanical and Electrical** [3] **Engineering**, Prentice Hall, 3rd Edition, 2004 ISBN: 0131216333. [4] **Applied Mechatronics**, A. Amaili and F. Mrad ISBN13: 978-0-19-530702-3. [5] **The Mechatronics Handbook**, Robert H. Bishop, ISBN 13 9780849392573. [6] **Mechatronics System Design**, Devdas Shetty, Richard Kolk , Hardcover, 2004. [7] **Mechatronics: Principles and Applications** by Godfrey Onwubolu. [8] De Silva, "**Mechatronics: A Foundation Course**", Taylor & Francis, 2013.

	Lectures, exercises, individual work, experimental work, seminar papers, colloquia, essays, field work, group work, etc. Completed according to the specifics of your subjects!

Contribution to student workload (which should correspond to student learning outcomes - 1 ECTS credit = 25 hours)

Activity	Hours	Days/weeks	Total
Lectures	2	15	30
Exercise sessions (with TA)	2	15	30
Practical work	-	-	-
Office hours	2	2	4
Fieldwork	-	-	-
Midterms, seminars	4	2	8
Homework	2	5	10
Self-study	2	4	8
Final exam preparation	-	-	-
Time spent in exams	2	2	4
Projects, presentations, etc.	3	2	6
Total			**100**

Evaluation

Teaching methodology: (according to the Statute and Regulation for studies of UMIB)		
Tests / Colloquia (First Test) (Second test)		10% 10% 10%
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	Pikët (%)	Nota
	91 – 100	10
	81 - 90	9
	71 - 80	8
	61 - 70	7
	51 - 60	6

Academic policies	**Criteria for regular attendance and rules of etiquette during the organization of the lesson are set.** **Computer work:** 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. **Ethics in teaching:** 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. **Time:** 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. **Rules of conduct and academic policies:** ● active participation of students in lectures o participation in discussion, comments and free expression of opinion, opinion and academic position (with arguments) ● Mandatory independent work and use of additional sources of information (various scientific websites, scientific journals, conference proceedings, etc.) ● Respecting lecture schedules without compromising academic freedom (silent cell phones) of respecting the word, thoughts and ideas of colleagues, ● 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). ● 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, 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.

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Mitrovicë; 8/01/2021 Dr. Fitim **ZEQIRI**