Меѓународен Универзитет Визион - International Vision University
Universiteti Ndërkombëtar Vizion - Uluslararası Vizyon Üniversitesi

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SYLLABUS

COURSE NAME	COURSE CODE	SEMESTER	COURSE LOAD	ECTS
EMBEDDED SYSTEMS SOFTWARE	**CEN-4003**	**7**	**180**	**6**

Prerequisite(s)	**None**

Course Language	Macedonian, Turkish, English
Course Type	Required
Course Level	First Cycle
Course Lecturer	
Course Assistants	
Classroom	
Extra-Curricular Office Hours and Location	

Course Objectives	To have information about where and how embedded systems are used and to design and develop applications in a special area. It is aimed to learn the hardware structures used in embedded systems and to develop software on a selected hardware. There is a design development target with a project to be made.
Course Learning Outcomes	Has in-depth knowledge of embedded systems, Knows what kind of hardware and software techniques are used in embedded systems, Knows one of the hardware definition languages well, Programs FPGA hardware as software, Develops an application project, Can follow the development of embedded systems technologies. Develops applications by learning embedded system software development tools.
Course Contents	Using an environment to develop, write, compile and debug programs for embedded systems. Detection and behavior of hardware features, embedded systems performance, consumption and cost. Fundamental software techniques for embedded applications. Application debugging techniques for embedded systems, Writing Programs that Perform Multiple Input/Output Operations, Software queues, periodic interrupts, and clock signals for buffered data streams. Writing monitoring programs. Use of data from sensors and control of actuators. A structured approach to writing complex embedded applications systems security.

WEEKLY SUBJECTS AND RELATED PREPARATION STUDIES

Week	Subjects	Related Preparation
1	Embedded systems software	Related Chapters of Course Sources
2	Environment for programming, compiling and debugging for embedded systems	Related Chapters of Course Sources
3	Hardware features, detection and behavior	Related Chapters of Course Sources
4	Embedded systems performance, consumption and cost.	Related Chapters of Course Sources
5	Fundamental software techniques for embedded applications	Related Chapters of Course Sources
6	Debugging techniques in embedded systems	Related Chapters of Course Sources
7	Midterm	Related Chapters of Course Sources
8	Programs Performing Multiple Input/Output Operations	Related Chapters of Course Sources
9	Software queues, periodic interrupts, and clock signals for buffered data streams	Related Chapters of Course Sources
10	monitoring programs	Related Chapters of Course Sources
11	Use of data from sensors and control of actuators.	Related Chapters of Course Sources
12	Structured approach to writing complex embedded applications State machines for systems	Related Chapters of Course Sources
13	Embedded systems - software security	Related Chapters of Course Sources
14	Real-time operating systems.	Related Chapters of Course Sources
15	Final Exam	Related Chapters of Course Sources

ECTS / WORKLOAD TABLE

Presentation / Seminar			
Hours for off-the-classroom study (Pre-study, practice)	14	3	42
Midterm Exam	1	12	12
Final examination	1	14	14
Total Work Load			
ECTS	**6**		

GENERAL PRINCIPLE RELATED WITH COURSE

Dear Students,
In order to be included in the lesson, learn the lesson fully and achieve the success you deserve, you must come to each lesson prepared by reading the sections related to the subjects to be covered from the basic and supplementary textbooks. We expect you to meticulously comply with the lesson hours, not to interrupt the lessons unless it is absolutely necessary, to participate actively in the lesson, to communicate fully with your teacher and classmates, and to be active by participating in the discussions in the class. Unethical behaviors that may occur both in classes and in exams will be acted upon within the framework of the relevant regulation. Attendance will be taken at the time your teacher requests, at the beginning, middle or end of each lesson. Students who attend all classes during the semester will be given a 15-point attendance grade in addition to the exam grade.

SOURCES

COMPULSORY LITERATURE		
No	**Name of the book**	**Author's Name, Publishing house, Publication Year**
1	Gömüllü sistemleri tasarımı	Piter Marvedel(2009), Ad verbum
2	Gömüllü sistemleri tasarımı	Deniz Taşkın (2012), Paptya Bilim
3	Embedded Systems an Integrated Approach	Lyla B. Das (2013), Pearson

ADDITIONAL LITERATURE		
No	**Name of the book**	**Author's Name, Publishing house, Publication Year**
1	Programming the Raspbbery Pi,Sec.Ed.	Simon Monk (2015),McGraw – Hill Education
2	RFID	Muhammed Önal (2015), Literatür – ders kitapları
3	Exploring rapsbbery Pi: İnterfacing to the realworld with embedded Linux	Derel Molloy(2016), Wiley

EVALUATION SYSTEM

Underlying the Assessment Studies	**NUMBER**	**PERCENTAGE OF GRADE**
Attendance/Participation	15	%10
Project / Event	1	%20
Mid-Term Exam	1	%35
Final Exam	1	%35
TOTAL	**17**	**%100**

ETHICAL CODE OF THE UNIVERSITY

In case students are cheating on exams or preparation the same, it is not making reference to the source to be used in studies, as for example in assignments, projects and presentation (plagiarism), in accordance with legislations by Ministry of Education and Science of the Republic of North Macedonia and İnternational Vision University, apply relevant disciplinary rules. İnternational Vision University students are expected never attempts in this kind of behavior.