Course Description

Course Title: Architectures and Embedded Systems GEVAU	Credit: 5 points

Type : lecture/seminar (practical): 2 hours lecture + 2 hours practice
Requirements (exam/practical mark/signature/report, essay): Exam/**report-eaasay**
Suggested semester: autumn /spring, 1-4/: The first semester
Prerequisite course(s): -
Course Objective: Introduction to embedded systems and architectures, get familiar with embedded system design and system on chip arhcitectures.
Mid-semester exam: Written and oral exams + homework during the semester to evaluate the student's understanding of the subject.
Assessment methods and criteria: The result of the written examination plus oral discussion. Written exam: 0-39%:1; 40-54%: 2; 55-69%: 3; 70-84%: 4; 85-100%: 5.
Course Description: . Introduction to Programmable SoCs; The ARM Cortex-M0 Processor Architecture part-1; The ARM Cortex-M0 Processor Architecture part-2; The AMBA3 AHB Lite Bus Architecture; Design and Implementation of an AHB SRAM Memory Controller; Design and Implementation of an AHB UART peripheral; Design and Implementation of an AHB timer, a GPIO peripheral; Design and Implementation of user peripheral; Program SoC using C; ARM CMSIS and Software Drivers; Application Programming Interface (API) and Final Application: Embedded system with Linux; Using Zed Board and Xilinx Vivado Software

Required readings: 3-5
1. The lecturer presentation notes, booklet, ppt slides, etc. 2. Crockett L. H., Elliot R. A., Enderwity M. A., Stewart R. W.: The Zynq Book, Embedded processing with ARM Cortex A9 on the Xilinx Zynq-7000 All Programmable SoC. Www.zynqbook.com

Recommended readings: 3-5
1. Labrossse J.J et all: *Embedded Software know it all*, Newnes, ISBN 978-07506-8582-5, 2008, pp.770. 2. Labrosse J.J: *MicroC/OS-II The real-time kernel*, CMP Books, ISBN 1-57820-103-9, 2002, pp. 606. 3. Sloss A. N., Symes D., Wright C.: ARM System Developer"s Guide Designing and Optimizing System Software, Morgan Kaufmann Publishers, ISBN 1-55860-874-5, 2004, pp. 689

Name and position of lecturer: Dr. Vásárhelyi József, associate professor, Ph.D. vajo@uni-miskolc.hu
Assistants of the lecturer if there is: -