List of required reading 2016

TTK4155 Industrial and embedded computer systems design

Book

- Catsoulis, J. 2003. Designing Embedded Hardware. 2nd edition. O'Reilly, ISBN: 0-596-00362-5.

Articles/Documents:
12 articles and other documents have been included in the course reading list, as specified in the table below. The documents may be downloaded from the It's Learning page of the course.

Lectures
The topics treated in the lectures points to particularly important parts of the course curriculum. Slides presented in the lectures can be found at the course's It's Learning page. Topics treated in the guest lecture (EFM32) should also be reviewed.

Term project assignment
The term project itself and material presented and handed out in connection with the laboratory lectures and exercises should be regarded as part of the curriculum. Details e.g. in datasheets of IC's and the like, are not required to be remembered.

Comments:
The book "Designing Embedded Hardware" serves as the main part of the course material and should be read as a whole (except ch.3 on Forth, and details regarding the specific processortypes PIC, 68HC11 and MAXQ). The book is quite easy and entertaining to read, but some important topics are omitted or somewhat superficially treated. In these cases supporting literature in terms of articles, specifications and application notes have been included in the course reading material, as specified in the table below. As a whole, this represents a relatively large amount of information, but all of it should not be regarded as equally important to remember (note the comments in the table).

#	Topic	Literature	Comments	It's Learning reference
1	Power supply	Linear and Switching Voltage Regulator Fundamentals (Linear regulators). Simpson, C., National Semiconductor.	Pages 1-10 of most importance (properties and characteristics of different topologies). The rest can be read as useful information.	Linear voltage regulators
2	Power supply	Linear and Switching Voltage Regulator Fundamentals (Switching regulators). Simpson, C., National Semiconductor.	Pages 30-39 of most importance. The rest can be read as useful information.	Switching voltage regulators
3	Industrial buses	VMEbus Basics.	Pages 1-2 most important. Overview of the rest (not details).	VMEbus basics
4	Industrial buses	PC/104 – The non-backplane alternative. Rick Lehrbaum, PC/104 Embedded Solutions.	Short article that should be read as a whole. Do some reflection with respect to document 3 and 4.	PC/104
5	Serial local buses	The I2C-Bus Specification, Version 2.1. Philips Semiconductors	Chapter 1,2,3 and 5 most relevant.	I2C Specification
6	Serial local buses	A layman's overview of 1-Wire technology and its use	Read the first two "chapters" (sections with bold header) and look at the examples.	1-wire bus
7	Serial communication	USB in a nutshell	A more thorough USB overview than the presented in the book. Focus on main features, not details.	USB
8	Network	CAN Specification, Version 2.0, Part B. Robert Bosch GmbH.	Most of it is relevant.	CAN Spec. 2.0B
9	Network	RS-422 and RS-485 Application Note. B&B Electronics	Chapter 1, 2 and 5. The rest should be regarded just as useful information.	RS-422/RS-485
10	Network	The Art and Science of RS-485. Perrin, B., Circuit Cellar, July 1999.	Overview article, should be read as a whole. Focus on main features, not details.	RS-485
11	Wireless communication	Getting started with Zigbee and IEEE 802.15.4	Overview article, should be read as a whole. Focus on main features, not details.	ZigBee primer
12	Analog-Digital interfaces	Understanding Data Converters. Texas Instruments Inc.	Derivations in chapter 4 and 5 can be omitted.	ADDA converters