Summary of the Module Coverage [LAB, AVR, ARM]

1. Overview of Microcontrollers
2. Microprocessors and SoC, RISC vs CISC, Harvard vs Von Neumann Architectures
3. Overview of Computer Architecture
4. Embedded Memories
5. Timers/Counters, Input Capture, Output Compare Modes
6. LED, Switches, ADC, DAC, LCD, RTC
7. UART, SPI, PWM, WDT, I2C, CAN
8. Bus Standards (USB, PCI)
9. Programming in Assembly and Embedded C
10. Overview of ARM Architecture and Organization
11. Introduction to Cortex-M Architecture
12. Programming Model and Instruction Set Architecture
13. Alignment and Endianness, Register access,
14. States and Privileges
15. Stack, System Control Block, Power Modes
16. Memory Model
17. NVIC, Exception Handling
18. Bit-Banding, Peripheral Programming
19. SVCall, SysTick, PendSv
20. MPU, DMA
21. Mixing Assembly and C programs
22. Introduction to CMSIS & CMSIS Components
23. Overview of Cortex A & R architectures
24. Introduction to Multi-Core Embedded Systems
25. Introduction to FPGA

Text Books

The Definitive Guide to ARM Cortex-M3 and Cortex-M4 Processors, Third Edition, Joseph Yiu