SUGGESTED VIDEOS LECTURES FOR STUDENTS TAKING FIRST COURSE ON MICROCONTROLLERS

(30 videos)

Prepared for Prof. Dr. Upama Kabir

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15 Dec 2021

http://web.eece.maine.edu/~zhu/book/

https://www.youtube.com/channel/UCY0sQ9hpSR6yZobt1qOv6DA/videos

Lecture 1: Why use Two's Complement

https://www.youtube.com/watch?v=NED9IIpteXA&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=2

Lecture 2: Carry flag for unsigned addition and subtraction

https://www.youtube.com/watch?v=MxGW2WurKuM&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=27

Lecture-3: Overflow in digital numbers

https://www.youtube.com/watch?v=BIn6iyYIGio&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=11

Lecture 4: Pointer

https://www.youtube.com/watch?v=zHHwbRdstoQ&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=4

Lecture 5: Memory Mapped I/O

https://www.youtube.com/watch?v=aT5XMOrid7Y&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=3

Lecture-6

https://www.youtube.com/watch?v=zHHwbRdstoQ&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=4

Lecture-7 GPIO input

https://www.youtube.com/watch?v=BNqL7t7a9W4&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=9

Lecture 8. LCD Driver

https://www.youtube.com/watch?v=3_sMAJQErw4&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=10

Lecture-10 Interrupts

https://www.youtube.com/watch?v=K0vmH2YGbOY&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=6

Lecture-11 External Interrupts

https://www.youtube.com/watch?v=uKwD3JuRWeA&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=7

Lecture 12: System Timer (SysTick)

https://www.youtube.com/watch?v=aLCUDv_fgoU&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=5

Lecture-13 : Timer PWM OUTPUT

https://www.youtube.com/watch?v=zkrVHIcLGww&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=8

Lecture-14: Timer Input Capture

https://www.youtube.com/watch?v=2FoZ7kHOdT0&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=14

Lecture 15: Booting Process

https://www.youtube.com/watch?v=3brOzLJmeek&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=33

Lecture 16. Volatile Variables

https://www.youtube.com/watch?v=45-2C3PUOxU&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=13

Lecture-16: Volatile variable

https://www.youtube.com/watch?v=45-2C3PUOxU&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=13

Lecture 17. Race Conditions

https://www.youtube.com/watch?v=JjnyYf4BIco&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=12

Lecture-18: ADC (Analog to Digital Converter)

https://www.youtube.com/watch?v=q-9CqPuNSOY&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=15

Lecture-19: Floating point

https://www.youtube.com/watch?v=S1XU4bmWwHI&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=25

Lecture 20. Fixed Point Numbers

https://www.youtube.com/watch?v=YXKDjVcCWyE&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=17

Lecture 21. Why learn assembly language

https://www.youtube.com/watch?v=yW3tbLMyG0U&t=71s

Lecture-22: Big Endian and Little Endian

https://www.youtube.com/watch?v=T1C9Kj_78ek&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=18

Lecture 23. Load and Store Instructions

https://www.youtube.com/watch?v=CtfV3HsHwk4&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=18

Lecture 24. Addressing mode: pre-index, post-index, and pre-index with update

https://www.youtube.com/watch?v=zgkxPdPkxa8&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=19

Lecture-24: Lecture 23. Load and Store Instructions

https://www.youtube.com/watch?v=zgkxPdPkxa8&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=19

Lecture 24. Addressing mode: pre-index, post-index, and pre-index with update

https://www.youtube.com/watch?v=zgkxPdPkxa8&t=132s

Lecture-25: Arithmetic and Logical Instructions

https://www.youtube.com/watch?v=H-vOP2yRUj4&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=35

Lecture-26: Updating condition flags

https://www.youtube.com/watch?v=SGJibM1D2_A&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=23

Lecture 27. Branch instructions

https://www.youtube.com/watch?v=_QKD7f1cmRI&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=20

Lecture 28. Conditional Execution

https://www.youtube.com/watch?v=9hlxG8L5-G4&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=28

Lecture-29: Calling a sub routine

https://www.youtube.com/watch?v=xt2Q9n1Udb4&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=16

Lecture-30: Passing arguments

https://www.youtube.com/watch?v=IYUfnHZ4URg&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=21

Lecture 31. Preserving registers in a Subroutine

https://www.youtube.com/watch?v=DGKjFKjxAYs&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=21

Lecture-32: Mixing C and Assembly

https://www.youtube.com/watch?v=7Xe9pCrzH98&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=20

DEVELOPMENT TOOLS TUTORIAL

Tutorial 1: Create a C project in MDK-Keil

https://www.youtube.com/watch?v=0t_Myn4UYUw&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=25

Tutorial 2: Debug a C program in MDK-Keil

https://www.youtube.com/watch?v=w4gPcYRk9o8&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=19

Tutorial 3: STM32L4 Clock Configuration

https://www.youtube.com/watch?v=o6ZWD0PAoJk&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=33

Tutorial 4: Printing messages via UART through ST-Link V2.1

https://www.youtube.com/watch?v=u9vUyRjtG3Y&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=36

Tutorial 5: Code download errors

https://www.youtube.com/watch?v=OiwwB0AvIBI&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=20

Tutorial 6: Logic analyzer in Keil

https://www.youtube.com/watch?v=KUZS8xWWI2Y&list=RDCMUCY0sQ9hpSR6yZobt1qOv6DA&index=33

STM32 Tutorials

https://www.youtube.com/watch?v=xvAxwZVzji4&list=PLRJhV4hUhIylzi68yc9Se2xyN8z9jkEzR&index=1

https://www.youtube.com/watch?v=QhRfxa7ldpA&list=PLRJhV4hUhIymHf1zBzJFDoopRrurtNjgC

https://www.youtube.com/playlist?list=PLRJhV4hUhIymdWRSwo3cZUlHetbmsSuzS