

Department of Electrical Engineering
University of Arkansas



ELEG3923 Microprocessor System Design

Preface

Dr. Jingxian Wu
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GENERAL INFORMATION

- **Instructor: Dr. Jingxian Wu**
 - Email: wuj@uark.edu
 - Phone: (479) 575-6584
 - Office Bell 3181
- **Office Hours**
 - Tu. Th. 11:00 AM – 12:00 PM,
 - By appointment
- **Lecture Schedule**
 - Bell 2291
 - Tu. Th. 9:30 AM – 10:50 PM
- **Lab Schedule**
 - Bell 3139
 - F. 12:30 – 3:00 PM
 - TA: Mr. Jaber Hasan (jhasan@uark.edu)

TEXTBOOK AND REFERENCES

- **Required Text Books**

- Muhammad Ali Mazidi and Janice Gillespie Mazidi, *The 8051 Microcontroller and Embedded Systems Using Assembly and C*, 2nd Ed., Prentice Hall, 2005. ISBN 0138610223

- **Required Software**

- Keil uVision3 trial version
- Available at: <https://www.keil.com/demo/eval/c51.htm>
- Please download the software and install it on your own computer

- **References (optional)**

- I.Scott MacKenzie and Raphael C.-W. Phan, *The 8051 Microcontroller*, 3rd Ed., Prentice Hall, 1999. ISBN 0137800088.

COURSE INFORMATION

- **Pre-requisite:**
 - Digital Design I
 - Programming I
- **This course involves heavy programming exercises**
 - Assembly language programming, C programming
 - Programming exercises will be assigned in both homework and labs
 - A large amount example programs will be given in class – **It's ESSENTIAL for you to repeat all the examples by yourself after class.**
 - **Practicing** is the only way to learn a new language!
- **Teaching format**
 - Slides, board, exercises
 - Demos
 - Labs (software, hardware)
 - Homework assignments (problems, software)

COURSE INFORMATION

- **Test format**

- True and false (25 points)
 - Basic concepts
 - 25 questions
- Short questions (40 points)
 - Basic concepts, analyze the operations of programs, structures of microprocessors
 - 6 – 10 questions
- Programming (35 points)
 - Write Assembly or C program to achieve certain functionalities
 - 3 – 5 questions
- Most of the questions will be from examples given in lecture and homework assignment with very small modifications.

LABS

- **Experiment platform**
 - MDE8051 trainer
 - Keil uVision 3 trial version
 - 4x4 matrix keypad
 - LCD display
 - LED
 - Temperature sensor, ADC, DAC
- **Some experiment topics**
 - Square Waveform Generator
 - LCD Message Board
 - Temperature Sensing
 - Traffic Light Controller
 - Robot Auto-navigation
 - Simple Calculator
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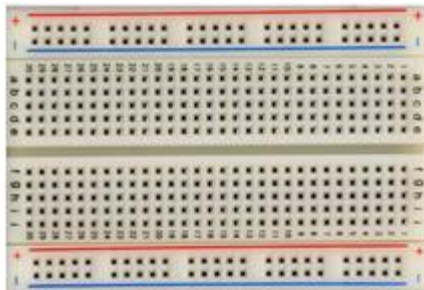
LABS

- **Lab Schedule**

- Starting from Week 2, we have labs every week (Friday 12:30 PM – 3:00 PM)
- Each experiment is designed for 2 lab sessions (5 hours)
- You are required to be present at all the lab sessions

- **Breadboard**

- It's **HIGHLY RECOMMENDED** that you buy your own breadboard
 - You will need the same hardware connections for 2 weeks
 - The hardware connection process is usually very time consuming.
 - With your own breadboard, you don't need to disassemble the circuit, and can reuse the hardware connection at session 2 of the experiment.



LABS

- **Lab Teams**

- 2 or 3 students work as one team
- Lab partners are randomly assigned, and you will have a new lab partner for each new experiment.
- I will announce the lab partner assignment at least 1 week before the experiment. The lab partner assignment will be posted on the course website.

- **Pre-lab**

- Before you come to the lab, you need to finish the Assembly code or C code for the experiment, and assemble/compile the program with Keil uVision to make sure there is no error.
- The TA will check your program at the beginning of the lab.
- Each student is required to finish the pre-lab independently.

GRADING POLICY

- **Grades Percentage**

- Assignments 20%
- Lab 20%
- Test 1 25%
- Test 2 25%
- Attendance 5%
- Participation 5%
- Come to class on time, ask/answer questions, attitude
- Each student has 1 free “personal day” – you can miss 1 class without losing attendance point

- **Grades**

- A: 90 ~ 100
- B: 80 ~ 89
- C: 70 ~ 79
- D: 60 ~ 69
- F: 0 ~ 59

GRADING POLICY

- **Due dates for homework and lab report will be strictly enforced. Late submission within one week after due will receive a 20% deduction; no credit if submitted one week past due.**
- **If for some legitimate reason (sickness, death in the family, etc.), you cannot take an exam on the scheduled day, you must notify the instructor prior to the exam.**

ONLINE RESOURCES

- **Course Home Page**

- <http://comp.uark.edu/~wuj/teaching/eleg3923>
- All the course related materials, such as slides, homework assignments, lab handouts, links, announcements, etc., will be posted on this website.
- Please check the webpage regularly (**at least once per week**) for update.

ADDITIONAL ISSUES

- **Academic Honesty**
 - Academic honesty is fundamental to the activities of an academic institution.
 - Any kind of activities related to academic dishonesty (copying homework, lab report, code, plagiarism, etc.) will be dealt with on a case-by-case basis and may be grounds for dismissal from the class.
 - If you are not sure about plagiarism, please contact the instructor.
- **Questions are welcome in my class**
 - You are very welcome to raise any question related to course materials.
 - Please feel free to stop me at any time if you have any question.
 - You can also ask me question via email or during office hours.
- **To respect your fellow students as well as the instructor, please turn off or silencing your cell phone.**
 - **No text messaging or web surfing!**
- **BE ON TIME!**
- **Have Fun!**