Laboratory Syllabus

Instructor / TAs

Dr. Hector Erives – Course Instructor
- Email: erives@ee.nmt.edu
- Office Hours: M-F 1000-1100

<u>Monday 1400-1700</u>   <u>Tuesday 1400-1700</u>
Chris Dang & Garret Newell – TAs   Jordan Keeley & Maya Robinson - TAs
Ryan Schwingle – Lead TA
- Email: rschwing@nmt.edu

Additional office hours are available upon request.

Topics / Learning Objectives

In this course, we will explore the functionality of the HC12 hardware family. Topics include assembly level programming, hardware and software interrupts, timer functions, I/O capture & compare, pulse width modulation, ADC, and basic control loops.

Grading

Pre-laboratory exercise:	30%
Laboratory exercise:	
Format:	20%
Introduction:	10%
Procedure:	30%
Conclusion:	10%
Total:	**100%**

Table 1: Grading Rubric

Late/Sick Policy

Uncoordinated absences will result in a zero for that lab grade. Email your lead TA with information about planned absences; if necessary, also contact the Dean of Students (Melissa Jaramillo-Fleming) for the appropriate paperwork.

Students are expected to attend lab at the scheduled time. Tardiness of more than 30 minutes will result in a grade penalty of 50% on your prelab.

Lab books are due 2 days after the student's assigned lab section, by 1700. Late lab books will be docked 10% per day.

Make-Up Policy

There will be one formal make-up week at the end of the semester, wherein students may submit a missed lab for full credit. Improving one's grade can be accomplished by writing and turning in a formal report in IEEE format for that lab within two weeks of said laboratory, for up to 90% credit.

Lab Book and Formal Report Expectations

Laboratory notebooks shall have an introduction detailing the learning objective of each lab and any background information necessary to understand the contents thereof. Following the introduction, the detailed procedure should be noted clearly, including all observations, data, and analysis. All figures should be labeled and referenced in the text. Finally, a conclusion shall be present to bring the lab full circle, summarizing the expectations and realizations of the lab in question. Even unsuccessful labs can receive a grade of 100% if and only if the notebook documents what failed, why, and how it could be improved.

Formal reports are to be written in IEEE format, must be at least 3 pages long, and will be due within 2 weeks of the lab if they are used as a grade-improvement tool. The final project will have a formal report (worth 2 lab grades), which will be due by 1700 on December 5, 2014. No work will be accepted after this deadline.

Safety

When working with live electronics, soldering irons, or other laboratory equipment, students are required to wear their safety goggles.

Counseling & Disability

Counseling services are available at Tech for students carrying 6 or more credit hours, free of charge. If you happen to have a disability, please visit the OCDS office in Fidel to ensure appropriate accommodations are made. For more information, visit the office, call 575-835-6619, or email counseling@admin.nmt.edu.

Academic Honesty and FERPA

Working with a partner in lab is allowed and in some cases encouraged. However, all lab notebooks and formal reports will be individual efforts. Plagiarism will not be tolerated. Review the NMT Academic Honesty Policy.

Grades are available upon request. Lab notebooks will be returned in person during normal class hours (generally on Monday), in compliance with FERPA as an additional layer of protection for all students.

Emergencies

In an emergency, call Campus Police at 575-835-5555 or dial 911 and specify your location.

Tentative Lab Schedule

Monday	Tuesday	Number	Title
01/26/15	01/27/15	L1	MC9S12 Assembler and Monitor
02/02/15	02/03/15	L2-1	Assembly Language Programming and Ports
02/09/15	02/10/15	L2-2	Assembly Language Programming and Ports
02/16/15	02/17/15	L2-3	Assembly Language Programming and Ports
02/23/15	02/24/15	L3-1	C Language Programming, Interrupts and Timer
03/02/15	03/03/15	L3-2	Timer Overflow and Real Time Interrupts
03/09/15	03/10/15	L3-3	Timer Input Capture and Output Compare
03/23/15	03/24/15	L4-1	Pulse Width Modulation
03/30/15	03/31/15	L4-2	Analog to Digital Converter
04/06/15	04/07/15	L4-3	IIC Bus and DS1307 Real Time Clock
04/13/15	04/14/15	L5-1	Final Project: Motor Speed Controller
04/20/15	04/21/15	L5-2	Final Project: Motor Speed Controller
04/27/15			MAKEUP WEEK