<table>
<thead>
<tr>
<th>Week</th>
<th>Subject</th>
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</table>
| 1    | Introduction to Microcomputing  
- Number Systems: Binary, Octal, Hexadecimal, Conversions,  
- Arithmetic  
- Boolean algebra, Combinational logic  
- Memory and memory organization:  
- Physical Types, ROM, RAM, Dynamic, Static  
**laboratory #0 - mechanics of embedded computing** | Skim  
myRIO User Guide and Specification  
Notes |
| 2    | Interpretation: Numbers, Codes, Instructions  
- NI myRIO-1900 Survey  
- Xilinx Zyntq-7010 & ARM Cortex-A9 Architecture  
**laboratory #1 - C language & machine language** | Skim Chapter A2 of  
Arm Architecture  
Reference Manual |
| 3    | Review of C Language Programming  
- Variables, expressions, control,  
- Use of CDT; debugging.  
**laboratory #2 - keypad & LCD primitive functions** | Use any C language text as a reference. |
| 4    | - The LCD and keypad hardware.  
- Data Input/Output: Programmed I/O, Interrupts  
- Serial & Parallel interfaces: Low-level drivers  
**laboratory #3 - keypad & LCD low-lever interface** | myRIO Shipping Personality  
Reference: DIO, and  
myRIO User Guide: UART |
| 5    | - Instruction Timing  
- Parallel I/O  
- Pulse Modulation Techniques  
**laboratory #4 - parallel input/output and control** | Cortex-A9  
Appendix B |
| 6    | - Interrupt Driven I/O  
. Sources: Internal and External  
. POSIX threads  
**laboratory #5 - external interrupts** | myRIO Shipping Personality  
Reference: IRQ Digital Input interrupt |
| 7    | - Programmable Clocks and Timing  
- D/A & A/D Conversion  
- Digital Signal Theory  
**laboratory #6 - D/A conversion and clock interrupts** | myRIO Shipping Personality  
Reference: Timer interrupt  
Notes |
| 8    | - Serial I/O  
. Synchronous & Asynchronous  
**laboratory #7 - dc-motor velocity control** | Notes |
| 9    | - Interface Devices  
. TTL Circuits, high-power switches, stepping Motors  
**laboratory #8 - dc-motor position control** | Notes |
| 10   | - Other Processors  
- Bus Structures | |