DAY 1:

* Who are we a RISE? (5 mins)
* Course overview (5 mins)

1. Objective
2. Content
3. Projects

* First session break down
* What is an embedded systems? (5min)
* Arduino (20 mins)

1. What is Arduino?
2. Why to learn it?
3. Interesting projects made with Arduino.
4. Arduino types and choosing UNO
5. Downloading and Installing Arduino IDE
6. Try blinking example and changing delay value with built in LED 13.

* IDE layout (20 mins)

1. Compiling
2. Flashing
3. Choosing board and port
4. Output
5. C++
6. Void loop
7. Void setup

* Arduino digital pins (20 mins)

1. 0 or 5v.
2. INPUT, OUTPUT.
3. digitalWrite(pin, state). HIGH/LOW or 1/0.
4. pinMode(pin, mode).
5. Delay() in milliseconds.
6. Comments.
7. Semicolons.

* App1 (20 mins)

1. Toggle a LED each 5 seconds.
2. Importance to declare delay int variable.

* Electronics (20 mins)

1. Resistor.
2. LED.
3. Breadboard.
4. Show caps and Transistors.
5. Jumper wires.

* App2 (20 mins)

1. Repeat APP 1 with external LED
2. Create a traffic light.

* Software PWM (20 mins)

1. What is signal modulation.
2. Used for communication or voltage averaging.
3. Implementation.
4. Disadvantages.

* analogWrite (pin, 0->255)

1. Value 0->255
2. RGB LED
3. Buzzer tone

* Modes to power Arduino (10 mins)

1. Three modes. (USB, Vin pin, jack port).
2. Power with Jackport.
3. Power with Vin.

APPENDIX

* What happens when we compile and flash?
* General Micro-controller layout.