

Electronic circuits design classes:

(good idea is when the subject can be considered as an introduction to the master thesis).

Main essence is to combine analog circuit and μ P system

1. **Any topic suggested by student – must include analog circuit - interface between analog environment and μ C system**
2. ***AC motor driver (idea of lab stand)***
3. ***Bio-signals acquisition with ADS1299 (can be extended as master thesis; evaluation board available)***
4. **High/medium power DC motor controller with torque control**
5. **High/medium power DC motor controller with encoder**
6. **speed and torque regulator of universal motor**
7. **speed and torque regulator of PMDC motor**
8. **EMG sensor (analog interface, μ P system)**
9. **Voice recording and playback system with STM32 (not ISD1820)**
10. hand prosthesis, flexion angle sensor,
11. hand prosthesis, touch sensor (pressure force)
12. hand prosthesis, haptic actuators
13. illumination meter
14. multichannel AD converter with I2C interface
15. Dust monitor (PM2.5 - GP2Y1010AU0F vs PMS1003, μ P system)
16. Air flow regulator (differential pressure sensor + fan control circuit)
17. Flex and force sensors (resistance/voltage converter, μ P system)
18. USB-RS232 interface with galvanic optical isolation,
19. Strain gauge (analog interface, μ P system)
20. Oxygen saturation sensor (analog interface, μ P system)
21. ECG sensor (analog interface, μ P system)
22. Hazardous gases sensor TGS6810 (analog interface, μ P system)
23. Gas sensor TGS8100 (analog interface, μ P system)
24. Gas sensor TGS3870 (analog interface, μ P system)
25. Gas sensor TGS2600 (analog interface, μ P system)
26. Gas sensor TGS813 (analog interface, μ P system)
27. VOC (volatile organic compound) sensor SGP30
28. VOC (volatile organic compound) sensor SBME689