

E18 Field Introduction

Computer Engineering and Hardware

If you have any questions,

Nuwan Jaliyagoda

<https://nuwanjaliyagoda.com/contact>

+94778891312 (WA)

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Basic fields in hardware

Fabricating
hardware
(robots,
machines)

Printed circuit
board design

Programming
microcontrollers

All fields in hardware

**Computer
Department**

Fabricating
hardware
(robots,
machines)

Printed circuit
board design

Programming
microcontrollers

**Custom
processor
design (FPGA)**

**Firmware
programming**

All fields in hardware

**Computer
department**

Fabricating
hardware
(robots,
machines)

Printed circuit
board design

Programming
microcontrollers

**Custom
processor
design (FPGA)**

**Firmware
programming**

Mechanical
or Electrical

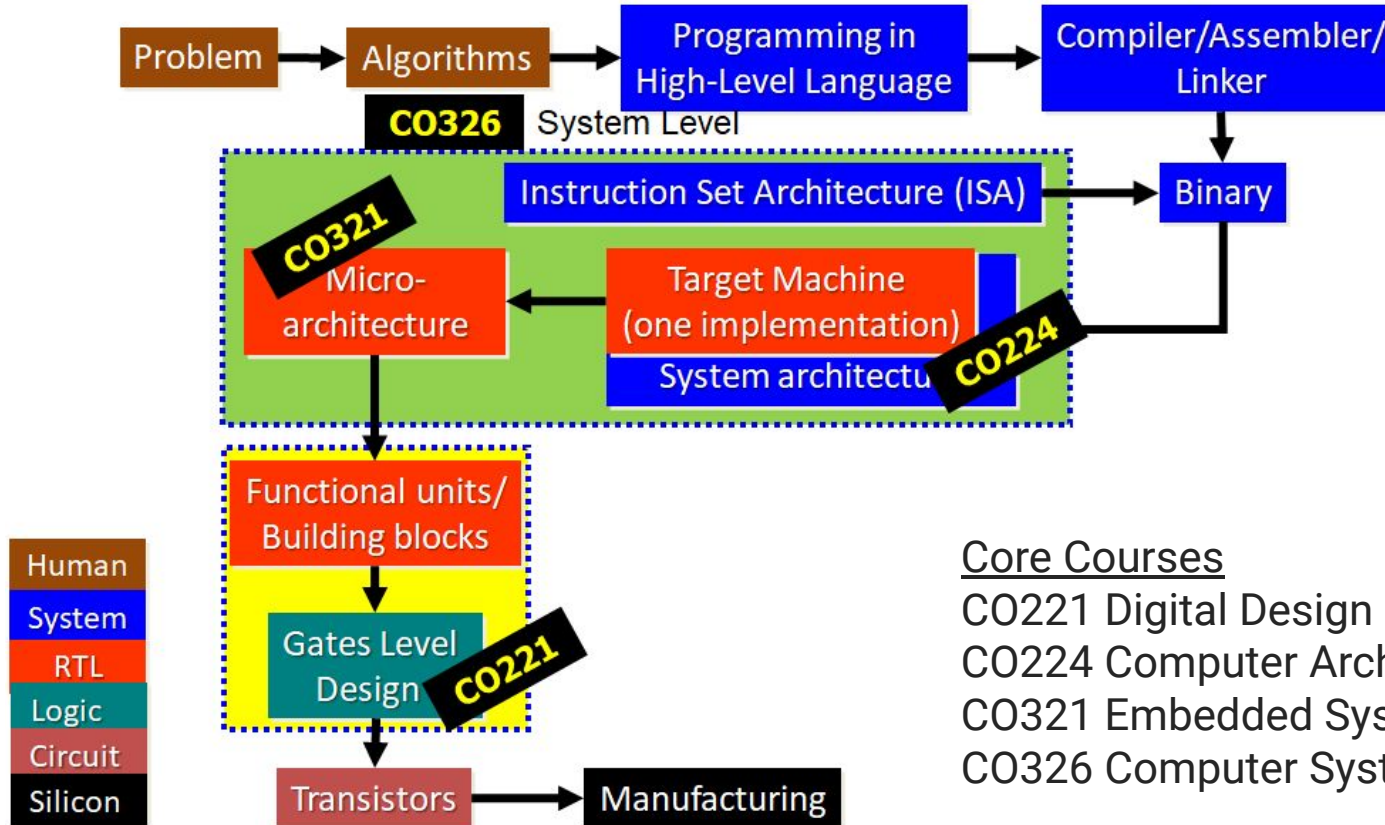
Control theory

**Combustion
engines**

Mechanical

Academic

The BIG Picture



Core Courses

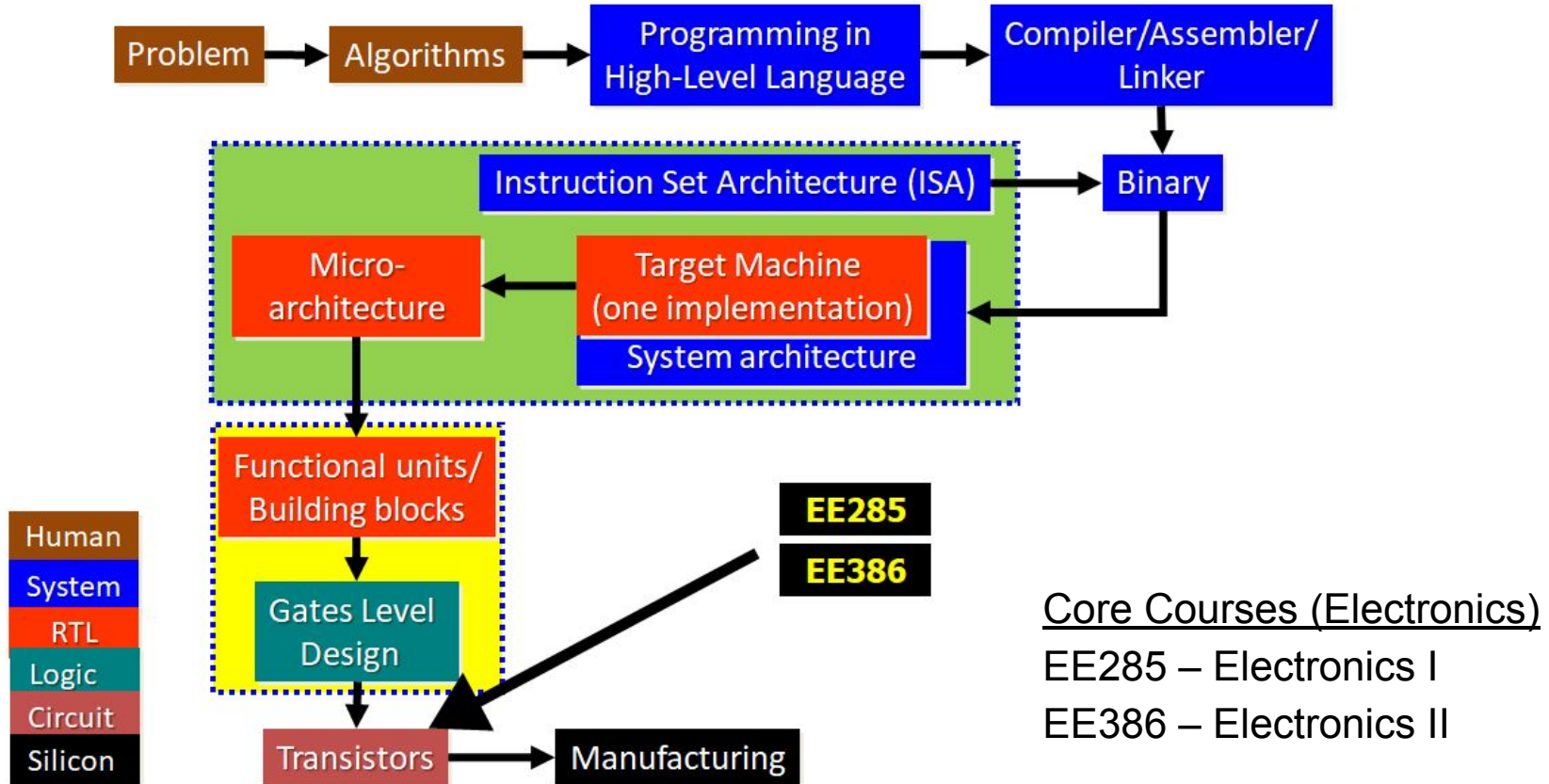
C0221 Digital Design

C0224 Computer Architecture

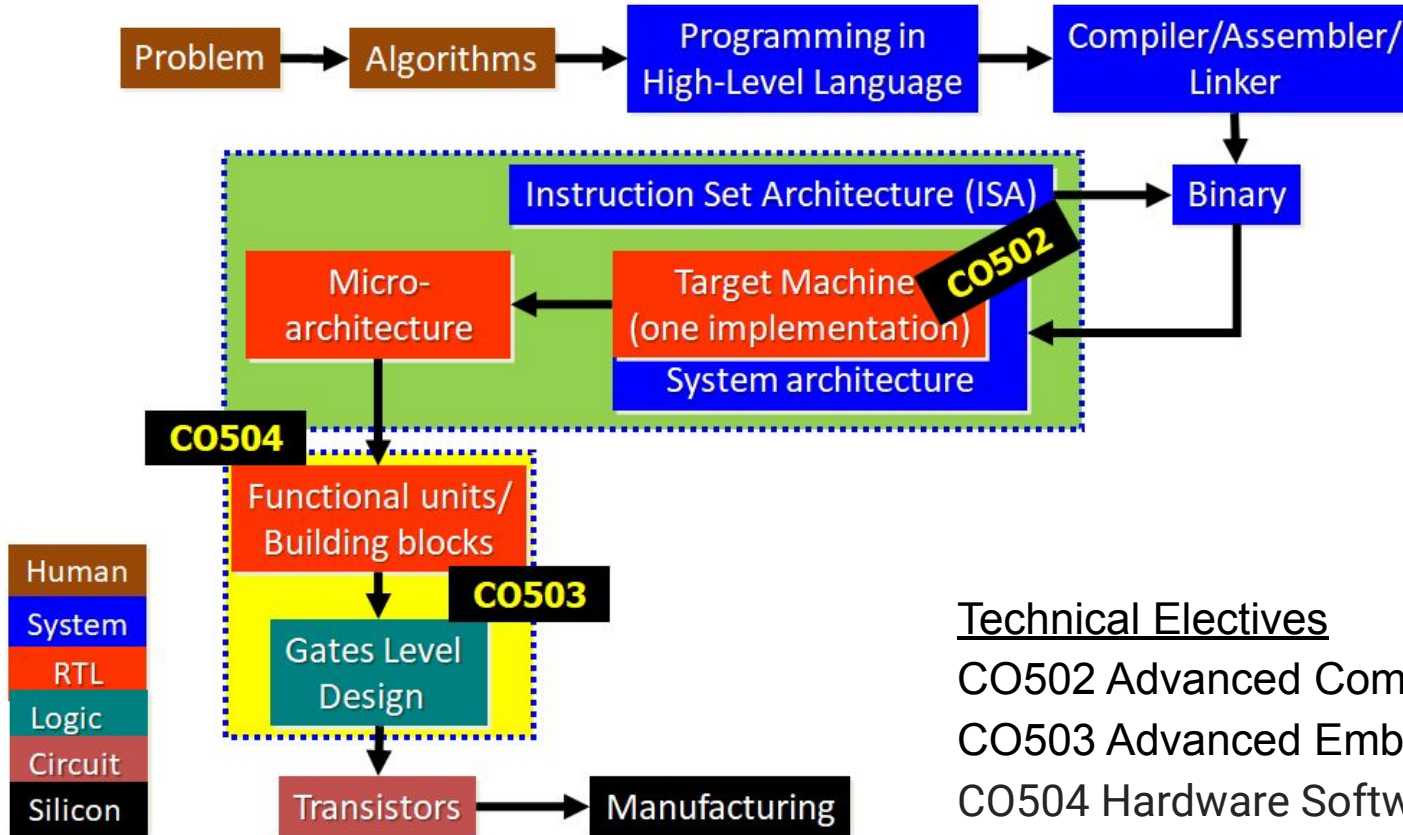
C0321 Embedded Systems

C0326 Computer Systems Engineering

The BIG Picture



The BIG Picture



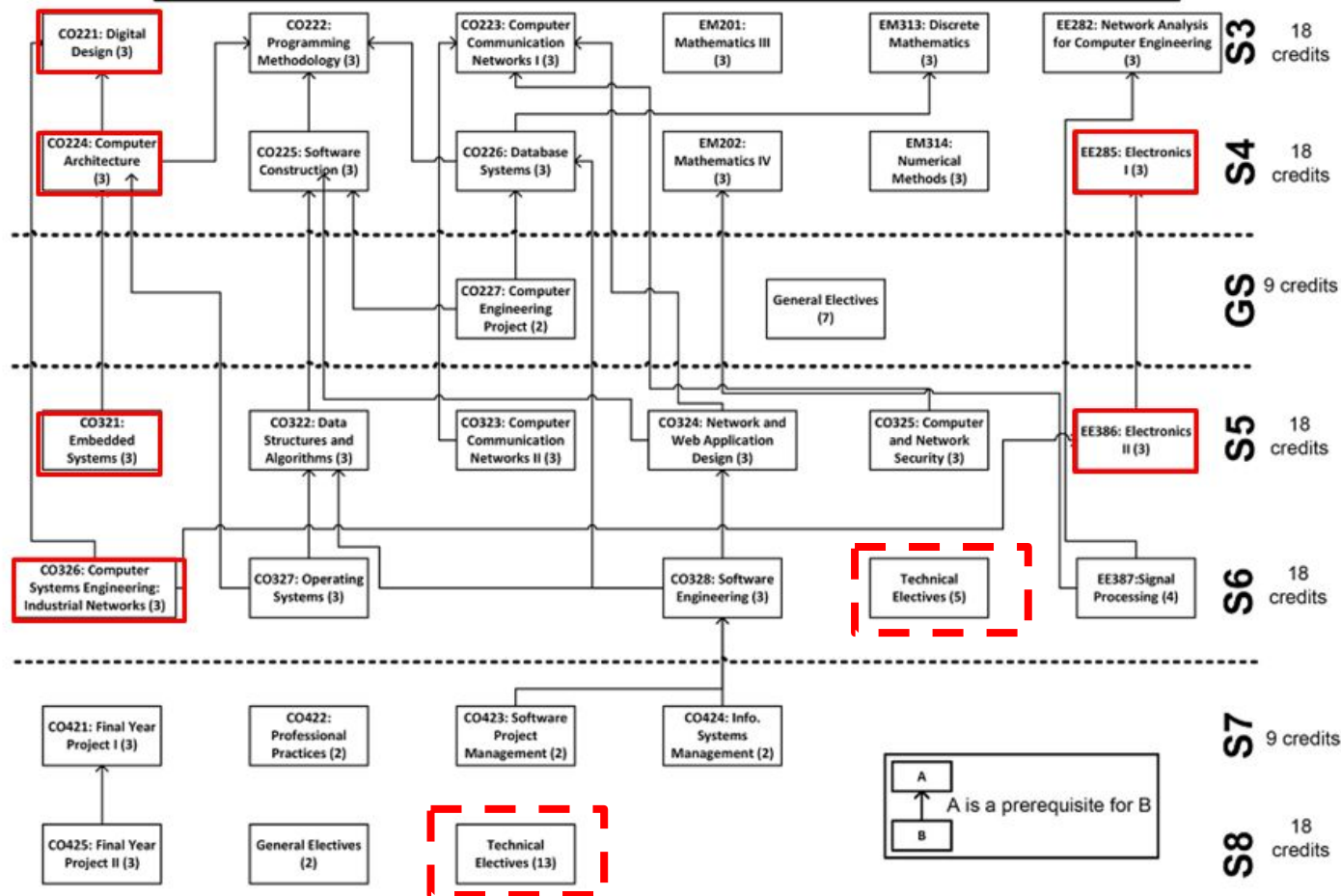
Technical Electives

CO502 Advanced Computer Architecture

CO503 Advanced Embedded Systems

CO504 Hardware Software Co-design

Computer Engineering Specialization Programme – Course Dependency Graph



Experience

- Design: Learn in the **classes**
- Testing: Learn in the **labs**
- Fabrication: Learn in the **project(s)**
(include design and testing too)

- Design Tools: Proteus simulation
- Testing Tools: Logic probe, Oscilloscope, Signal Generator, etc...
- Fabricating Tools: Proteus PCB design, PCB Milling, PCB Etching, Soldering

Projects

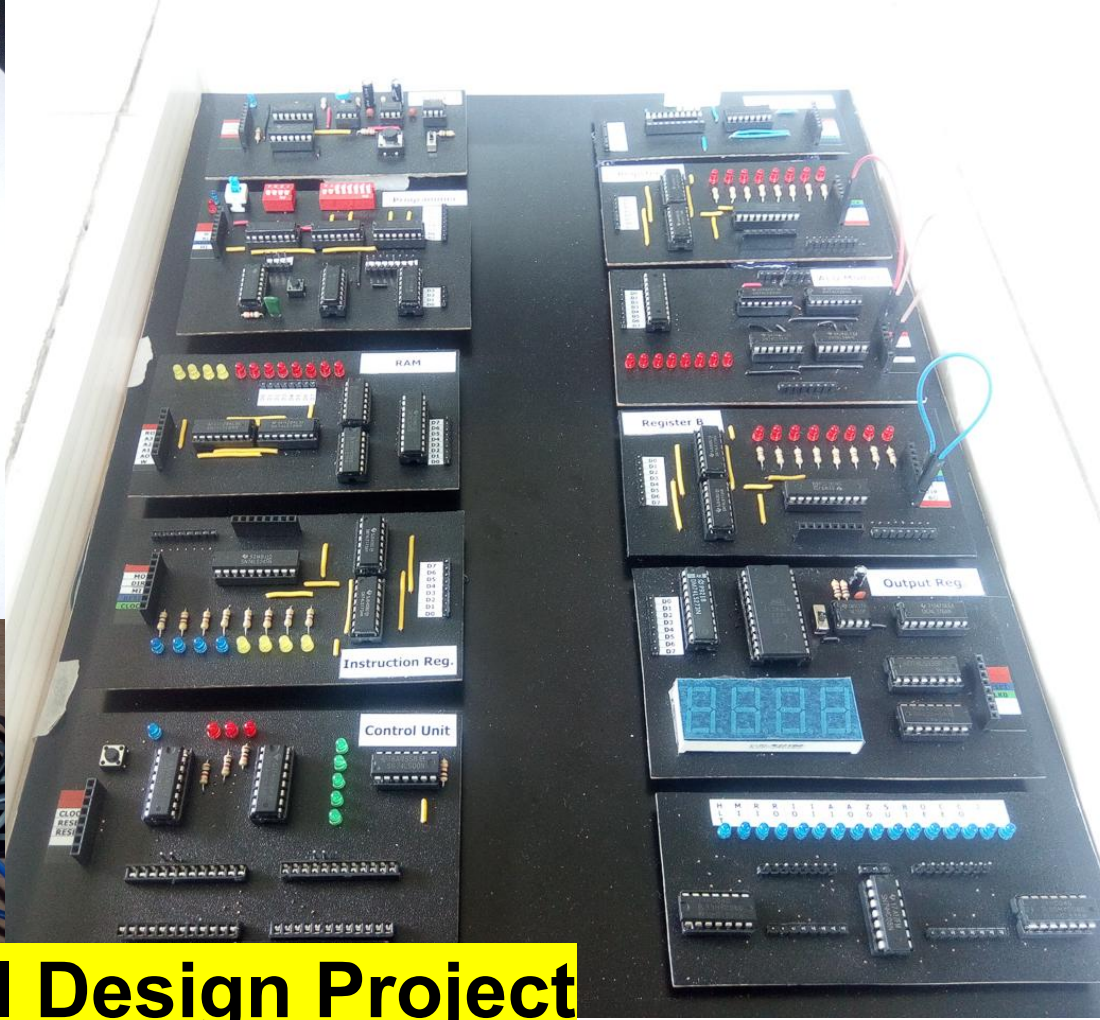
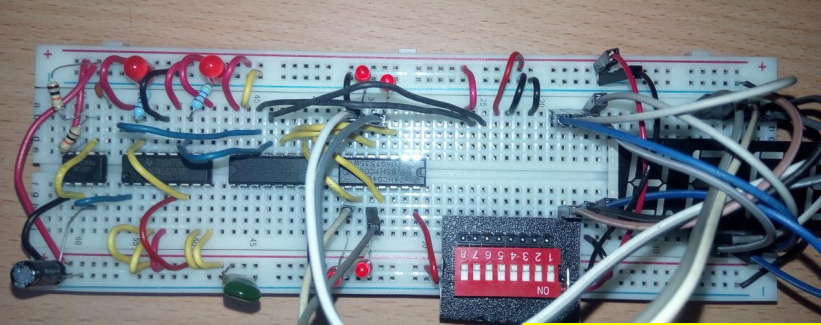
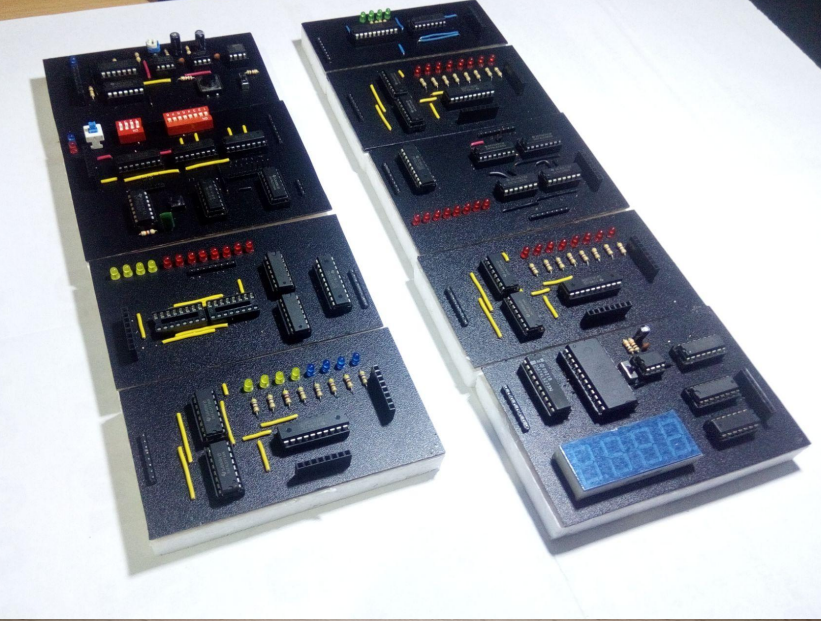
- ✓ C0221 Digital Design
- ✓ C0224 Computer Architecture
- ✓ C0321 Embedded Systems
- ✓ C0326 Computer Systems Engineering

EE285 – Electronics I

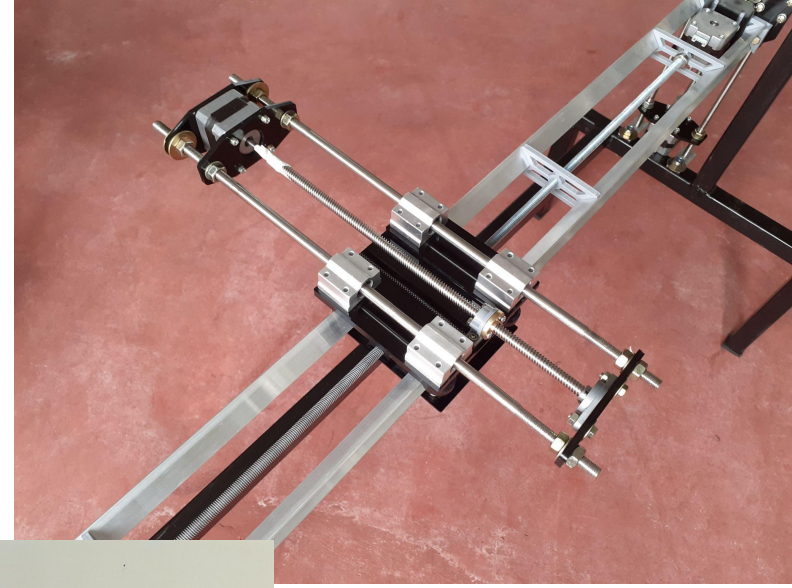
EE386 – Electronics II

- ✓ CO502 Advanced Computer Architecture*
- CO503 Advanced Embedded Systems
- CO504 Hardware Software Co-design*

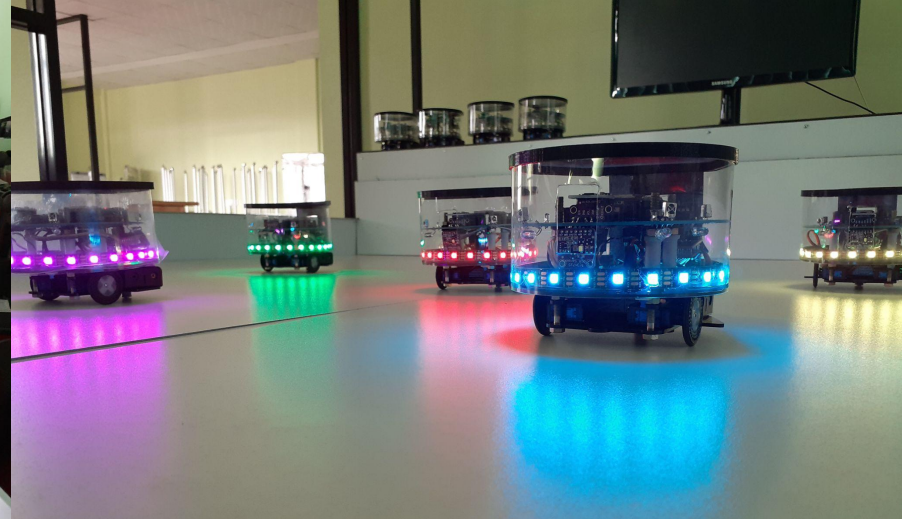
* Not offered recently



**A Digital Design Project
(CO221)**



A Computer Systems Engineering Project (CO326)



A Final Year Project
(60481 - 60485)

Embedded Systems Projects Expo 2016

projects.ce.pdn.ac.lk

See

Embedded Systems Projects | Final Year Projects

to get an idea about the scopes of hardware projects done
by previous batches.

ACES Hackathon

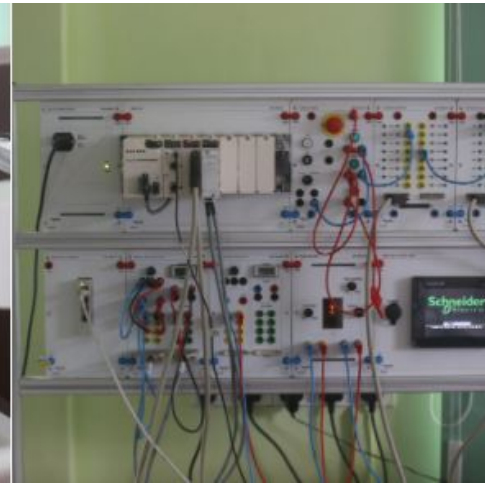
A good place to learn about product development
in practice

<https://www.facebook.com/aces.hackathon>

Resources

Hardware and Computer Interfacing Lab

<http://www.ce.pdn.ac.lk/facilities/hardware-and-interfacing-lab/>



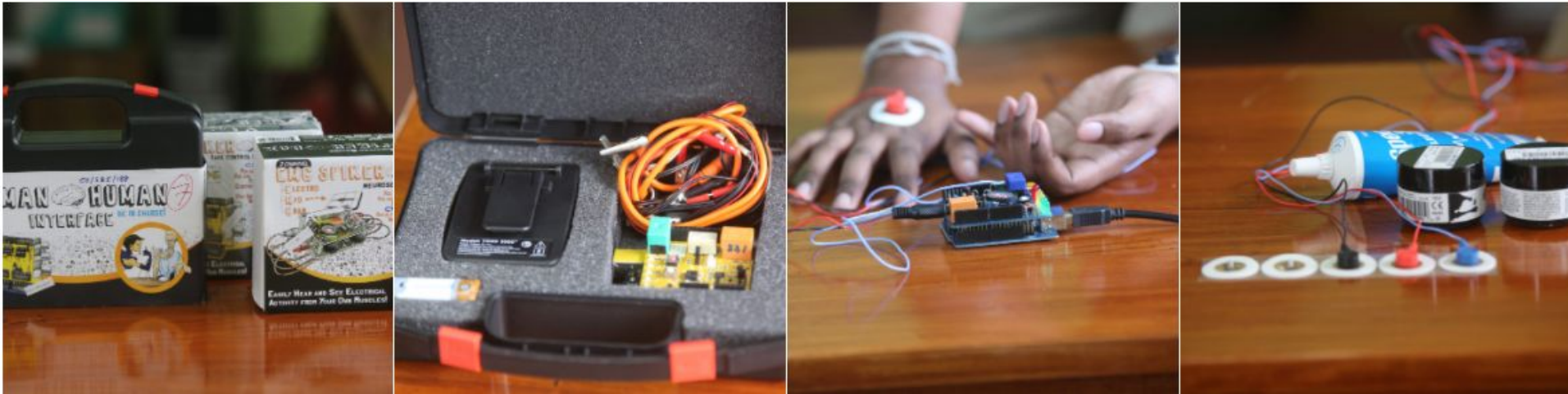
Computer Networking Lab

<http://www.ce.pdn.ac.lk/facilities/networking-lab/>



Cambio Wearable Computing Lab

<http://www.ce.pdn.ac.lk/facilities/cambio-wearable-computing-lab/>



ACES Project Fund

You can lend the resources in the department or make purchases through ACES project fund for your hardware projects

Robotics

~~Myth: Robotics is all about soldering circuits.~~
Reality: Next slide

