PARTNERS ACADEMIC SUMMER SCHOOL 2025
Syllabus for Electrical & Electronic Engineering

Subject Area

This syllabus is for PARTNERS applicants seeking to progress to the degrees of:

- H605 MEng Hons Electrical & Electronic Engineering with Industrial Project
- H607 BEng Hons Electrical & Electronic Engineering
- H652 BEng Hons Electronics and Computer Engineering
- H654 BEng Hons Electronics and Computer Engineering with Industrial Project

Aims

To allow students to demonstrate their potential to succeed in specified degree programmes by showing a grasp of entry-level subject-specific knowledge, understanding, cognitive and subject-specific skills.

Learning Outcomes

A good knowledge and understanding of …

- Microcontroller programming - specifically the Arduino
- Displaying text on a display
- Sensing a digital input
- Sensing an analogue input
- Controlling a PWM output
- Using a serial communications port
- Basic programming techniques such as "IF" statements and loops

The ability to apply this knowledge and critical understanding to…

- The Partners experience will give an understanding of some of the challenges that engineers overcome to make the modern world work.
- The basics of control systems found throughout our modern world. From automobiles, domestic appliances, biomedical devices, Industrial Processes and lots more rely on automated systems to detect a physical input and react in a certain way.
- An example may be a temperature sensor on a motor to warn of overheating

Competence in…

- Programming skills in "C"
- Component recognition
- Basic construction skills
- Report writing

Summer School Syllabus

The partners experience will give an understanding of some of the challenges that engineers overcome to make the modern world work using a real-world scenario as a challenge for the students to solve.

Students will cover the basic programming techniques of an Arduino interfacing with various sensors using an education product known as the Grove Beginner Kit.

The teaching will take place over Thursday and Friday based within an electronics teaching lab with a mix of guided teaching and independent learning supported by the lead academic and other support (such as demonstrators).

Thursday morning will focus on teaching students on the basics of Arduino programming with a mix of guided study and independent learning supported through resources provided on the day. The afternoon will focus on looking at the assessment scenario and programming a solution for this problem, this will be independent learning with support from demonstrators.

Friday will continue on the assessment scenario. An explanation on writing the report will be given in a short form lecture style. The rest of the morning and afternoon will conclude the week through time to write the report. Students will be allowed to finish the report at home.

Activities for Personal Study
Arduino familiarisation exercises such as online resources.

On-Campus Teaching:
Wednesday 2nd July (PM only), Tuesday 3rd July,& Friday 4th July

Online Teaching:
Monday 30th June & Tuesday 1st July

Formative Assessment Details

A short form report
More details will be given during the event by your Academic Strand Lead.

Hand-in Method

Digital

Assessment deadline

Friday 11th July