

Rapid Prototyping and Embedded Systems Design

with the NXP mbed Development System

The NXP mbed prototyping system is a flexible and advanced development kit which empowers engineers with the ability to prototype embedded analysis, control and display systems rapidly. The mbed system is based on the LPC1768 microprocessor which allows 100MHz operation, with 512KB FLASH, 64KB RAM and a number of interfaces including Ethernet, USB Device, CAN, SPI, I2C and other general purpose analogue and digital I/O. Additionally the mbed system allows engineers direct access to all IO pins and a direct route to mass manufacture.

These short courses will cover the basics of embedded systems and embedded C/C++ coding and quickly move through a steep learning curve to allow engineers to engage with complex designs and solutions. Software engineering skills in C/C++ are covered implicitly in the course delivery allowing engineers with limited design experience to gain embedded system design skills flexibly and rapidly.



Courses are taught with a high weighting to practical skills in embedded systems design. Participants will be taught the underlying theory but will focus primarily on building systems hands-on and developing systems of their own. The course tutor is Dr Rob Toulson who has a number of year's experience as a research and design engineer in rapid prototyping and the development of embedded systems and as a provider of HE education.

All course fees include for each participant:

- NXP development system
- Breadboard and peripheral devices
- Course notes and datasheets
- Lunch and refreshments each day

Course ES01 – 4 days - £1200

Rapid Prototyping of Embedded Systems

Topics covered:

- Introduction to embedded systems and embedded programming in C/C++
- Using general purpose analogue and digital IO
- Analogue control with digital pulse width modulation
- Interfacing alphanumeric and mobile phone LCD displays
- Working with SPI and I²C sensors including accelerometers and ultrasonic range finders
- Scheduled programming with timers
- Hardware interrupts
- Data logging and storing and retrieving data

Course ES02 – 3 days - £900

Advanced Embedded Systems

Topics covered:

- Overview of programming methods for embedded system design
- Using external flash memory for accessing large data files
- Working with audio data files
- An introduction to digital signal processing
- Using the CAN bus protocol
- Closed loop control systems
- Low level coding

For more info or to see upcoming course dates please visit www.rt60.co.uk or email info@rt60.co.uk

