B31DD Embedded Systems

**COURSE DETAILS**

**Course Code:** B31DD  
**Full Course Title:** Embedded Systems  
**SCQF Level:** 11  
**SCAF Credits:** 15  
**Available as Elective:** No

**DELIVERY LEVEL**

Undergraduate: Yes  
Postgraduate Taught: Yes  
Postgraduate Research: No

**COURSE AIMS**

- Develop the skills to allow a student to understand the design issues associated with embedded systems and critically analyse their impact.  
- Cover some of the advanced technologies that are relevant to embedded systems  
- Give experience of using a real commercial microcontroller with its software tool set  
- Show some real examples of embedded systems

**LEARNING OUTCOMES – SUBJECT MASTERY**

- Understand the structure of embedded systems and critically analyse such systems  
- Understand the use of advanced microcontroller technology as part of an embedded system  
- Understand the concepts and problems of connecting a microcontroller to the external world  
- Consolidate this advanced knowledge by building an embedded system and critically analysing its performance

**LEARNING OUTCOMES – PERSONAL ABILITIES**

- Ability to work with commercial datasheets for complex electronic devices  
- Ability to make advanced design choices using specifications given, datasheets and advanced knowledge of the subject area.  
- Develop team working skills for practical module project

**SYLLABUS**

- Overview of the embedded systems subject area  
- Analyse in depth one particular microcontroller to highlight the facilities and software of a real commercial device  
- Review the practical aspects of system actuators and sensors and how they can be used in an embedded system  
- Describe the most common networks that are being used to connect multiple sensors and actuators into complex embedded systems.
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- Discuss the hardware/software design trade-offs that affect the design decisions for embedded systems
- Review a set of real life embedded system applications
- Build and demonstrate a working embedded system - 2 students per group

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