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

Additional Information:

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.
B31DD Embedded Systems

- 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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