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

**COURSE RELATIONSHIPS**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Level</th>
<th>Title</th>
<th>School</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>B39VS</td>
<td>9</td>
<td>System Project</td>
<td>School of Eng &amp; Physical Sci</td>
<td>Pre-Requisite</td>
</tr>
</tbody>
</table>

**LOCATION AND ASSESSMENT METHODS**

<table>
<thead>
<tr>
<th>Edi</th>
<th>SBC</th>
<th>Ork</th>
<th>Dub</th>
<th>Malay</th>
<th>IDL</th>
<th>COLL</th>
<th>ALP</th>
<th>OTH</th>
<th>Method</th>
<th>Weight</th>
<th>Exam Mins</th>
<th>Type</th>
<th>Diet</th>
<th>Synoptic Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Coursework</td>
<td>20</td>
<td></td>
<td>Assessment</td>
<td>Semester 1</td>
<td></td>
</tr>
<tr>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Examination</td>
<td>80</td>
<td></td>
<td>Assessment</td>
<td>Semester 1</td>
<td></td>
</tr>
</tbody>
</table>