F28HS Hardware-Software Interface

**COURSE DETAILS**
- Course Code: F28HS
- Full Course Title: Hardware-Software Interface
- SCQF Level: 8
- SCAF Credits: 15
- Available as Elective: No

**DELIVERY LEVEL**
- Undergraduate: Yes
- Postgraduate Taught: No
- Postgraduate Research: No

**COURSE AIMS**
- To gain an understanding of low-level, hardware-oriented and systems programming.
- To develop skills in resource-conscious programming.
- To develop programming skills in such languages.

**LEARNING OUTCOMES – SUBJECT MASTERY**
- Critical understanding of computer architecture concepts and their performance implication for low-level software.
- Detailed theoretical and practical understanding of hardware and operating system concepts, interfacing to low-level software.
- Ability to develop efficient, resource-conscious code, interfacing to hardware components.
- Practical skills in low-level, systems programming, with effective resource management.

**LEARNING OUTCOMES – PERSONAL ABILITIES**
- Ability to articulate system-level operations and to identify performance implications of given systems

**SYLLABUS**
- Low-level, assembler programming
- Low-level, C programming
- Advanced computer architecture issues impacting software performance (caches, multi-cores, etc)
- Operating system interfaces for low-level software
- Operating system concepts such as device handling, interrupts, BIOS etc
Embedded systems programming

Resource-conscious programming techniques (memory, performance; programming techniques, tools, monitoring)

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