## 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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