F20SC Industrial Programming

**COURSE DETAILS**

Course Code: F20SC  
Full Course Title: Industrial Programming  
SCQF Level: 10  
SCAF Credits: 15  
Available as Elective: No

**DELIVERY LEVEL**

Undergraduate: Yes  
Postgraduate Taught: No  
Postgraduate Research: No

**Additional Information:**

**COURSE AIMS**

- To develop proficiency in contemporary industrial programming languages and platforms
- To enable the elaboration and combination of system components in different languages
- To enable an agile and flexible response to changes in industrial practices
- To enable participation by industrial practitioners to provide context and applicability

**LEARNING OUTCOMES – SUBJECT MASTERY**

- Basic appreciation of role of different programming paradigms in programming/managing systems
- Understanding of core characteristics of contemporary operating systems
- Knowledge of key abstractions across programming languages
- Technical proficiency in advanced language techniques in different programming paradigms

**LEARNING OUTCOMES – PERSONAL ABILITIES**

- Ability to choose/deploy/combine appropriate languages, architectures and tools
- Ability to employ an agile approach to software development

**SYLLABUS**

- Programming in a modern general purpose language e.g. C#, C++11
- Programming for concurrency using state-of-the-art libraries and language extensions
- Rapid prototyping in a major scripting language with associated libraries and frameworks e.g. Python, PHP, Ruby, Lua
- Coverage of advanced language features where languages have been met in earlier courses
- Foresight of emerging programming language technologies
- Practical experience with standard environments (Unix, Windows), virtual machines (.NET) and tools (e.g. compilers, debuggers, libraries, shell)

Prerequisites: Programming skills in a language such as C or Java.

**COURSE RELATIONSHIPS**
Part of the coursework-based assessment of the course are 2 class-tests (on C# and Python), each contributing 15% to the overall mark.