F21SC Industrial Programming

**COURSE DETAILS**

**Course Code:** F21SC  
**Full Course Title:** Industrial Programming  
**SCQF Level:** 11  
**SCAF Credits:** 15  
**Available as Elective:** No

**DELIVERY LEVEL**

<table>
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<th>Undergraduate:</th>
<th>No</th>
<th>Postgraduate Taught:</th>
<th>Yes</th>
<th>Postgraduate Research:</th>
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**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**

- Critical appreciation of role of different programming paradigms in programming/managing systems
- Autonomous problem analysis/solution
- Critical understanding of core characteristics of contemporary operating systems and virtual machines
- Detailed 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)

**Pre-requisites:** Programming skills in an object-oriented language such as Java or C++
### F21SC Industrial Programming

#### COURSE RELATIONSHIPS

N/A

#### LOCATION AND ASSESSMENT METHODS

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<thead>
<tr>
<th>Edi</th>
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<td>Coursework</td>
<td>100</td>
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<td>Assessment</td>
<td>Semester 1</td>
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Part of the coursework-based assessment of the course are 2 class-tests (on C# and Python), each contributing 15% to the overall mark.

| Y   |     |     |     |       |     |      |     |     | Coursework | 100    |           | Reassessment | Semester 3 |                   |