F20SC Industrial Programming

**COURSE DETAILS**

<table>
<thead>
<tr>
<th>Course Code:</th>
<th>F20SC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Course Title:</td>
<td>Industrial Programming</td>
</tr>
<tr>
<td>SCQF Level:</td>
<td>10</td>
</tr>
<tr>
<td>SCAF Credits:</td>
<td>15</td>
</tr>
<tr>
<td>Available as Elective:</td>
<td>No</td>
</tr>
</tbody>
</table>

**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.

<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>Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Coursework</td>
<td>100</td>
<td>Assessment</td>
<td>Assessment</td>
<td>Semester 1</td>
<td></td>
</tr>
</tbody>
</table>