

Course descriptor F21SC

Course code	F21SC
Course title	Industrial Programming
Credits	15
School	Mathematical and Computer Sciences
SCQF Level	11
Semester	1
Aims	<ul style="list-style-type: none"> • 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.
Syllabus	<ul style="list-style-type: none"> • 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) <p>Pre-requisites: Programming skills in an object-oriented language such as Java or C++</p>

Learning Outcomes	
Subject Mastery	<ul style="list-style-type: none"> • 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.
Personal Abilities	<ul style="list-style-type: none"> • Ability to choose/deploy/combine appropriate languages, architectures and tools

	<ul style="list-style-type: none">• Ability to employ an agile approach to software development
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Assessment method	100% course work
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