COURSE DETAILS

Course Code: F28JP
Full Course Title: Industrial Project: Structured Prog
SCQF Level: 8
SCAF Credits: 15
Available as Elective: No

DELIVERY LEVEL

<table>
<thead>
<tr>
<th>Undergraduate:</th>
<th>Yes</th>
<th>Postgraduate Taught:</th>
<th>No</th>
<th>Postgraduate Research:</th>
<th>No</th>
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Additional Information:

COURSE AIMS

This *Industrial Project* course will require the students to implement a medium-sized industrial project, contextualised for the work performed in the host company, focusing on the practical techniques of using a modern general-purpose programming language, such as C++, C# or Java.

The students will be using a version control system to store and manage their partial software product; they will use different system configurations to create different (stage-release) software products; and, where appropriate, they will use virtualisation technologies during software development and deployment.

LEARNING OUTCOMES – SUBJECT MASTERY

- In-depth understanding of the structured programming approach
- In-depth understanding of technologies and tools of software release management and version control
- In-depth understanding of a software version control tool to management software release, e.g. Git
- In-depth understanding of virtualisation technologies for software development, deployment, and scalability, e.g. Docker
- Understand software testing principles and can practice them independently in an industrial context
- To understand the time and effort involved in implementing an industrially-based project

LEARNING OUTCOMES – PERSONAL ABILITIES

- To be able to relate and/or apply learned knowledge to work place computing projects, when appropriate
- To be able to work with others in a medium-sized software project
- To be able to identify, define, and analyse alternative project scenarios
- Take significant responsibility for their work and for a range of resources

- To be able to communicate effectively with colleagues at work place and extract and organise requirements effectively

SYLLABUS

- Structured Programming Concepts
• System configuration and Release Management: System configuration process; Version control (e.g. Git); Software release management methods (e.g. itSMF, ITIL); Software release management tools (e.g. Puppet, Plutora); Virtual Machine (e.g. Docker, VirtualBox) usage for development, deployment, and scalability on distributed and Cloud systems
• Software testing: Systematic testing; Test-driven design
• Industrial project development (incl. project scope and design, planning, requirements engineering, system implementation, software testing and evaluation, and critical assessment)