

## 1. Project Title

A Mock-up Software Process Laboratory [AMSPL]

## 2. Proposer & Funding sought

**Proposer:** Dr. W.G. Tuohey, School of Computing, Dublin City University.

**Funding:** Funding not immediately available. One funding possibility is for prospective postgraduate researchers to apply to the “Embark Initiative Postgraduate Research Scholarship Scheme” administered by IRCSET (Irish Research Council for Science, Engineering & Technology - [http://www.ircset.ie/grant\\_schemes/postgrad.html](http://www.ircset.ie/grant_schemes/postgrad.html)).

*Note: This project is seen as more likely to be suitable for Masters rather than Doctoral research, although this would depend the exact focus. There is certainly work for more than one person.*

## 3. Project Description

### 3.1 Some Guiding Principles & Considerations

Need for a professional approach by (Irish) SW developers, e.g.

-- awareness of responsibilities (e.g. legal ones)

-- use of effective processes

-- duty of proper care & attention to all work done.Improve means of inter-agent communication

-- engineer to engineer, developer to user, supplier to client ...Software within a system - not always possible to isolate SW aspectsSpecific - Upscale methods for “critical” to general SW systems

-- One element is to make the experience & knowledge embedded in SW

Engineering standards for particular industries more widely appreciated and used.

### 3.2 SW ENGINEERING PROCESS “LABORATORY”

-- Big enough to support a number of model projects & products (new, with COTS, building on existing components, etc). Preferably, involve some some real projects.

-- Include supporting processes (CM, PRACAS, Release)

-- Specifically include the QA supporting process by including an illustrative (web-interfaced) Quality Management System (QMS)

- Verification process with emphasis on “Non-Test verifications” (reviews, inspections, etc) - e.g. how best to conduct reviews & follow them up & with what technology (*quite a big project in itself*).
- Model aspects of project management (esp. underlying activities - reporting, actions, ...)
- Simulate impact of introducing change of tools or processes
- etc

Note on equipment: Intention to have some dedicated equipment but also to link in with general school system

**3.3 SW ENGINEERING STANDARDS**-- Monitor developments/Contribute to working groups. etc

- Assess practicalities of implementing the standards effectively & devise corresponding strategies
- Compare & Abstract
- Focus particularly on how to adapt standards developed for so-called “critical” systems for more general software-based systems

### **3.4 Specific research topics**

- Evaluation of particular processes (e.g. Perform statistical studies, with surveys, to assess benefits to students of code reviews)
- Requirement specification, modeling & verification