Sharable Infrastructure, Tools and Resources for Teaching Core Software Engineering Skills

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Introduction

The Institute of Coding (IoC) is a consortium of universities and employers, with a mission to develop the next generation of digital talent at degree level and above, promoting higher-level digital skills capabilities among those already in work as well as improving graduate employability.

At the University of Manchester, we are working to package our expertise in teaching modern software engineering skills (such as automated testing, collaborative coding workflows, code review and continuous integration) to create infrastructure, tools and learning resources that can be reused and reconfigured by IoC partner organisations in their own courses. We aim to deliver 4 separate packages, described below, that work together in a virtuous cycle that maximises the learning value obtained from the teaching resources put in. All packages are configurable to work with different courses, different employer requirements and different coding standards, and are potentially applicable to courses beyond software engineering. We are also exploring their application in workplace training and CPD courses.

RoboTA Careers

Employers can use RoboTA to create "competence profiles": descriptions of best practice/skills they look for in their graduate employees. Students then receive reports on how their coursework matches up to the profiles of employers they are interested in working for.

Micro Learning Units (μLUs)

Compact and informative resources (web or mobile) that teach core Software Engineering concepts in an engaging way, and that can be combined into comprehensive tutorials.

Learning Analytics

Our unique learner analytics pipeline is allowing us to understand how students learn these core skills, providing an evidence base for the learning resources we share with the IoC.

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