

How Do Your Software Engineers Measure Up?

Why is assessing software competency important?

Every year \$billions of programmable processors are used in electrical equipment and devices.

As the devices get smarter, so too must the embedded software design and development that powers them.

Poor quality software can lead to bugs, product failures and product recalls – all of which can be time consuming to correct and damaging to the brand.

Greater competency in software development leads to better quality code and typically reduces product development times and costs for debugging.

To ensure quality, many industries also require the embedded software and systems in their products meet certain quality guidelines or regulations such as DO-178C, ISO 26262, IEC 62304 and EN 50128.

How do we assess someone's competence?

The majority of assessment models use a very simplistic model that employs simple, single-answer, multiple-choice type questions. They also don't necessarily take into account a person's current and expected competence levels.

Feabhas is different. We have developed a three-step model for assessment, which gives an accurate picture as possible of the students' knowledge – before and after training.

The assessment is completed online at a time of the delegate's choosing and can only be taken once before and after the course. Delegates are encouraged to not look up the answer beforehand, but this cannot be guaranteed. Time taken to complete the assessment is also shown. A long time to complete the assessment may indicate time taken to research an answer, but not necessarily so.

Our assessment process

1. We use a range of question types.

Simplistic multi-choice lends itself to "guessing", giving a 20-25% base level without requirement for any domain knowledge. Our 50 question online assessments minimise this by using different question types:

- Multi-response
- Numeric
- Fill-in-the-blank (pattern matching)
- Hotspots (the user clicks on the correct area within the image)
- Drag and drop questions (users drag and drop items in one column to match items in another / or arrange them in sequence)

2. We weight the responses.

Each answer is weighted based on three different types of question: core, intermediate and advanced.

As the emphasis of the training is to ensure students develop core, foundation knowledge, core answers gain the most marks, then intermediate, with finally advanced answers getting the lowest score.

The weighting of the questions is based around our perception of industry norms. This perception has been developed based on Feabhas' extensive experience of training thousands of engineers over the last decade.

"Many people find that after attending one of our courses, both their competency and their confidence in software development has increased by much more than they had expected."

3. We benchmark the results.

To help determine an individual's level of knowledge, we score each student against a set of benchmarks. For UML for example:

- Foundation - required basic level of knowledge required to apply UML. Ideally a graduate would have this level of knowledge
- Industrial - the required level of UML knowledge to work as a professional engineer
- Advanced - knowledge of UML is at advanced level, a senior engineer

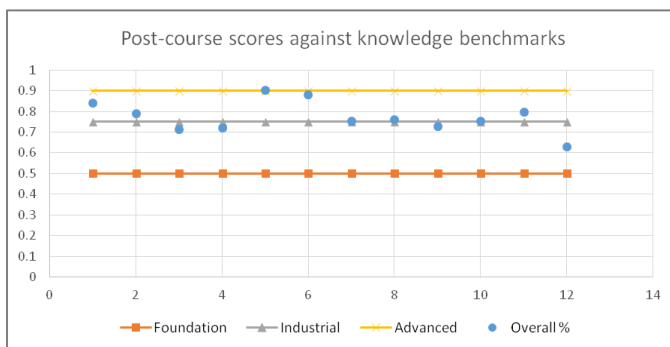
We do expect to see a pattern across the assessment in the types of questions the engineer can answer.

For example, a graduate should be able to get the majority of core questions correct and some intermediate questions; but it would not be reasonable to expect them to be able to answer advanced questions correctly.

Conversely, a senior software engineer should be reasonably expected to answer almost all the core questions correctly, the majority of the intermediate questions and a high proportion of the advanced questions.

The results are plotted on graphs to show knowledge levels before and after the training against these benchmarks

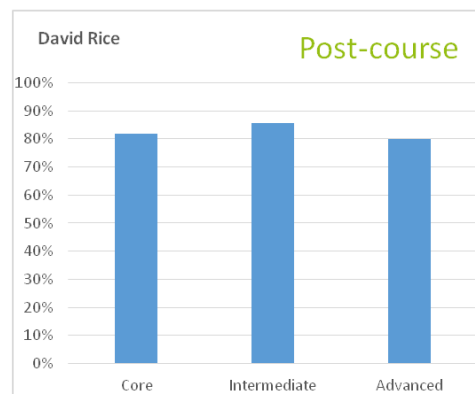
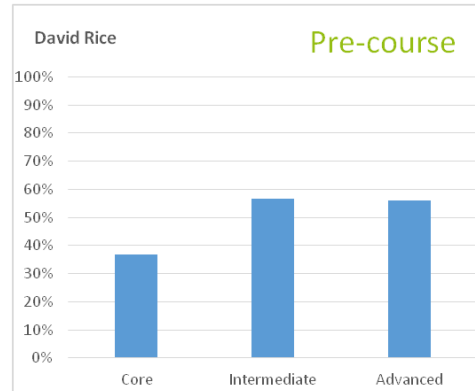
Sample post-course assessment scores



Individual assessments

We also assess each engineer their overall score and their performance in core, intermediate and advanced questions, both pre and post course.

Sample individual pre- and post-course assessment scores



ROI measurements

You can use the scores from the reports to highlight any development areas or further training requirements.

To find out more about our assessments or to take a trial test, please contact us today.

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