Coursework commentaries 2015–16

CO3353 Software engineering project management

Coursework assignments 1 and 2

General remarks

Two assignments were set to allow you to focus on ways in which quality is managed in software engineering teams. The basic concepts were introduced in Chapter 3 and Chapter 8 of the CO3353 subject guide but links to additional reading were provided. You were also expected to undertake more detailed reading on specific aspects of quality management, which the coursework was designed to highlight.

Coursework assignment 1 asked you to demonstrate an understanding of the way in which estimates are refined through the use of 'quality gates' (QGs). The subject guide introduces QGs as a mechanism for controlling the accuracy of projected cost (Figure 3.6: Controlling estimation error, p.42) during the early stages of a project. Assignment 1 required you to produce a professional-looking short report based on an outline specification of a new platform for a commercial online gaming community.

Coursework assignment 2 required you to bring together knowledge of quality management techniques to produce a draft quality management plan (QMP). Quality planning is about defining quality expectations and ways of monitoring compliance with those expectations. This is distinct from quality assurance and quality control: the way in which the plan is executed. Assignment 2 required you to produce a professional-looking draft QMP using the same outline specification as in assignment 1.

The purpose of the coursework assignments was to ensure that you could differentiate between the three aspects of quality management.

The overall presentation, structure, coherence and clarity were assessed for both assignments, and constituted 10 per cent of the total mark. Marks were awarded for demonstrating a good understanding of the given problem, for providing an appropriate, workable and effective solution and for producing well-presented, professional-looking work. The remaining 90 per cent of marks in assignment 1 were given for coverage on the appropriateness, feasibility and understanding of the six gate mechanisms. The remaining marks in assignment 2 were given for the draft QMP and understanding of quality issues that were likely to arise.

In terms of overall performance, the average marks for both assignments were good, with quite a high overall pass rate; the overall pass rate for assignment 2 was higher than for assignment 1. Similarly, the average score for assignment 1 was lower than for assignment 2. Some submissions were very poor and received low marks, while some were extremely good and received full credit for the work involved. Some incidences of plagiarism were noted. Work that was incomplete or insufficient was also marked down.

A great majority of work was well-presented, which was credited, whereas poorly presented work was marked down. For the most part, the submissions consisted of good, well-written material which looked

professional and contained appropriate detail. The graphics and diagrams, when provided, were well done and positively impacted the readability and presentation quality, but few students actually did this.

Some general poor work characteristics are given below.

- Not answering the question set in the coursework.
- Poor standard of written language, making it hard to follow arguments and rationale.
- Too short, lacking an introduction or overview.
- Incomplete work, lacking detail, with inadequate citation, no references or references in incorrect format.
- Poor structure and repetitive text or confused approach with poor organisation.
- Missing sections and irrelevant detail.

Some general good work characteristics are given below.

- Useful and considered initial overview.
- Well-written and coherent.
- Good overall structure and explanations given.
- Correct descriptions and suitable explanations given.
- Interesting approach taken.
- Coherent work, well-argued and presented.
- Evidence of research carried out and incorporated well.
- Correct citation, references and excellent presentation.

Comments on specific questions

Coursework assignment 1

The specification given to students was to assume the role of a project manager for a supplier of a new platform for a commercial online gaming community. An initial budget for the project has been agreed subject to acceptance of a software requirements document and a detailed project plan. These were to be the primary outputs corresponding to completion of the first two unified process (UP) phases, that is, inception and elaboration. The task was to define three QGs appropriate for each phase (six in total), and to explain how they would help to assess the accuracy of the overall performance budget estimates at that point.

It was expected that answers would provide a good definition of QG, derived from the references given, and placed correctly within the rational unified process (RUP) scheme. A QG is essentially a stop/go decision as to whether a project has reached completion of some activity within an RUP phase. Asking for three QGs means that a phase can only be controlled if all three gates are passed. In addition, the rationale for using gates such as project management tools, especially for budgetary control aspects, should have been identified.

The question set in the coursework was essentially this: how can a QG help control budget escalation? No one right answer exists but the responses (for each QG) were assessed according to three main criteria.

1. Understanding what a QG is for, and how it is applied.
    a. Explaining the evidence used to assess the status of the gate.
    b. How will the gate be measured.
    c. What constitutes success in passing the gate.
2. Appropriateness of the QG identified.
    a. Does the gate measure some aspect of a software requirements document (as in the inception phase), or the project plan (as in the elaboration phase)?
3. Feasibility of assessment of the QG.
    a. Are the criteria realistic and relevant?
    b. Do the criteria establish whether the activity is complete or do they just measure the progress of a set of tasks?
    c. Does the QG have a specific outcome?

Specific inaccuracies and errors of technical details:

- confusion over RUP phases themselves
- focusing on processes and tasks instead of quality gates and metrics which resulted in off-topic work submitted
- no detail on QG or metrics and little understanding of topic shown
- choices of QGs requiring better justification
- metrics requiring more detailed explanation, definition and evidence
- lacking in evidence criteria detail and explanation.

Coursework assignment 2

The same specification as above was also used in assessing coursework assignment 2. Table 8.1 in the subject guide (p.83) identifies the best practice software development workflows and artefacts for which quality considerations need to be taken into account at different times in a project. The task comprised producing an outline QMP and, for each of the ten elements of the project listed below under three categories, to explain how the project quality plan would define the expectations of the various stakeholders, together with the procedures that could be recommended to monitor compliance with those expectations.

The categories given were as follows:

1. Requirements:
    a. business model
    b. functional requirements
    c. non-functional constraints and trade-offs.
2. System design:
    a. static structure of system
    b. dynamic behaviour of system
    c. physical organisation of components
    d. component and sub-system construction.
3. Detailed design and implementation:
    a. component testing
    b. system testing
    c. acceptance testing and rollout.

Again, no one right answer exists and the work was assessed according to the criteria below.

- Identification of appropriate stakeholders for each artefact.
- Discussion of what the expectation of each stakeholder is, for each artefact, in measurable/monitorable ways.
- Definition of ways of monitoring compliance, which should also include procedures for rectifying noncompliance.

Specific inaccuracies and errors in technical details for coursework assignment 2 were as follows.

- No discussion of stakeholders or of a quality plan.
- Brief mentions only of quality procedures, lacking a focus on quality.
- Describing how to produce the artefacts rather than how to ensure the quality of those artefacts, in terms of the expectations of the various stakeholders.
- Lack of explanation of the procedures to monitor compliance with those expectations.