



## **SCHOOL OF DESIGN, ENGINEERING & COMPUTING**

### **ASSIGNMENT – 2008/09**

<b>Course:</b>	<b>Masters Framework</b>
<b>Year:</b>	<b>1</b>
<b>Unit:</b>	<b>Process Oriented Requirements Engineering</b>
<b>Assignment Number:</b>	<b>1</b>
<b>Unit Leaders:</b>	<b>Dr Keith Phalp / Dr Cornelius Ncube</b>
<b>Issue Date:</b>	<b>15/12/2008</b>
<b>Due Date:</b>	<b>26/01/2009</b>

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### **Assignment Brief**

This is an individual assignment, and counts for 100% of the summative assessment for this unit. On average a typical Masters student is expected to take approximately 40 hours to complete this assignment, including research, modelling, specification and discussion.

The assignment covers all of the learning outcomes for this unit. These are:

1. Appraise critically approaches to the principal requirements engineering tasks; elicitation, analysis, specification and validation.
2. Demonstrate a comprehensive understanding of relationships among client business processes, requirements and software systems.
3. Evaluate, select, and produce appropriate models of business process scenarios or problem domains, and matching requirements and specifications.
4. Evaluate critically requirements methods and research.
5. Understand the impact of professionalism upon the requirements phase.

## Assignment Content

The assignment consists of the following components. These relate to various stages in process oriented requirements phase. Related learning outcomes are given for each part.

## Deliverables and Assessment Criteria / Marking Scheme

### Part One: Analysis (Outcomes 3 & 5)

- Produce process models for the given scenario. Marks will be awarded for:
  - Appropriate (and accurate) use of notation.
  - Appropriate separation of problem into constituent parts.
  - Sensible choices for logic of process & appropriate level of abstraction. (30 marks)
- Describe any process issues or ambiguities that you have discovered from your analysis and say how, as a professional, you would expect to resolve such issues. (10 marks)

### Part Two: Specification (Outcomes 2 and 3)

- Produce a use case diagram for each given scenario. (10 marks)
- Produce matching descriptions, using appropriate use case writing guidelines. (20 marks)
- Discuss the issues, and solutions, that you encountered in moving from analysis (the process models) to specification (use case descriptions). (10 marks)

### Part Three: Reflection upon the Method and Process (Outcomes 1, 2 and 4)

The method you have used is one which aims to aid the likelihood of meeting business needs, by attempting to align them with the software specification.

Describe reasons for the adoption of such a method, in particular, explaining advantages and disadvantages of this approach over standard development methods. In addition, suggest other ways in which researchers have suggested that alignment of business needs and IT can be improved. Finally suggest any changes that you would make to the method adopted, giving reasons for your suggestions. (20 marks)

**Signature of Unit Leader** .....

**Signature of QA** .....

## **The Construction Company**

A medium sized construction company (of a few hundred workers) has decided that they wish to install computer systems in order to help streamline their business process. However, they are keen that these systems should support what they do, and that the potential contractor really understands their business. Hence, they wish to be involved in validating the domain models produced.

Two aspects of their process are to be examined first. These are the tendering process, and the activities surrounding the discovery of a non-conformance or defect.

### **Tendering**

The following describes some of the activities involved in tendering for business within the construction company.

A request from a customer can reach the organisation via two routes, directly to an estimator, or via post to the front desk.

If the front desk receive the request for tender, then they register the request and send it to the marketing manager. The marketing manager describes the marketing view and sends this (along with the request) to the chief estimator. The chief estimator allocates a tender number, and an estimator, and sends the tender to a co-ordinator.

The co-ordinator is responsible for preparing for the estimator. The co-ordinator has three main roles.

- They must do some preparatory work on the tender itself, producing a prepared tender.
- They must also produce lists of materials and sub-contracts that would be required in the tender. They must then use these lists to obtain estimates (from suppliers) for materials and sub-contracts.
- They must separate out those sections of the tender, which will need augmentation by the estimator.

The co-ordinator will send estimates and the prepared tender to the estimator. The estimator produces a plan-based estimate and a 'bill-of quantities' based estimate. These views of the tender are produced separately, giving two different documented perspectives (with a cost based on the plan and a cost based on the quantities). The estimator then uses these to produce a final (combined) estimate.

Alternatively, the estimator receives the request directly. In this situation, they are allowed to allocate the work (usually to themselves) and pass the numbered tender to the co-ordinator, or refer the work to the chief estimator.

### **Discovery of a non-conformance**

The following describes some of the activities of a Site Manager at a construction site. Of particular importance is the action that must be taken when a defect (or non-conformance) is identified.

The Site Manager assigns work packages to Supervisors. Supervisors will inform the Site Manager of progress on these work packages at regular intervals. Supervisors assign the work to Workers. A Supervisor may check the progress of the Worker at any time, in order to assess their distribution of the workload.

If anybody at the site detects a defect (or non-conformance), the Site Manager is informed straight away. The Site Manager must decide whether urgent action is required. If urgent action is required then the Site Manager carries out the action immediately.

For any defect or non-conformance, the Site Manager must inform a number of other parties (depending on the implications or possible consequences of the defect).

- If there are insurance consequences then the Contract Manager and Commercial Manager must be informed.
- If there are litigation consequences then the Contract Manager and Company Secretary must be informed.
- If there are implications for both then all of these must be informed.
- If there are no implications for litigation or insurance then the Site Manager logs the defect personally