

CASE STUDY FOR UQC143H3 - VHDL for RTS

Attached is an initial Specification and Requirements Document for a mining robot. This document forms the case study for Section One (1) of your exam. In preparation for this you should study the document and, in particular, consider the following issues.

- 1) Approaches to state machine design, especially with regard to VHDL and with regard to the case study.
- 2) Considerations of hardware requirements with respect to a state-machine and with respect to the limitations of the specification document. You should document any assumptions that you make.
- 3) Testing strategies for simulation purposes. If possible your testing strategies should take into consideration the constraints expressed in the document regarding robot losses. You will not be expected to do a mathematical analysis of the probability of loss.

It is assumed that VHDL designs, testing strategies and simulation will be based on the use of the Alliance toolkits and simulator (asimut). You will be expected to make appropriate use of both behavioural and structural VHDL models as necessary.

You will be permitted to take up to 6 single-sided, or 3 double-sided, pages of A4 notes relating to this case study into the exam with you. These notes may be handwritten or computer generated. You will be allowed to consult these note during the exam. These notes must be handed in with your exam scripts.

***** Ensure that your student number is written on each sheet of notes *****

A fragment of a typical maze is presented below.



