**ENG 514 Design of Safety Critical Systems – Jan 2014 Course Assignment**

**Task 1**

Using the design of a pram emergency brake from one of the course workshop output presentations posted on Moodle, produce a design report covering:

Customer Requirements

Engineering Requirements

* Include functional safety requirements

Functional Decomposition

* Note any new requirements arising from the decomposition

Design Brainstorm output to include an example(s) of a rejected idea that includes reasons.

Outline Design as black box modules with a brief description. eg brake (calliper assy)

HAZOP for the selected system

Qualitative risk assessment (High/Med/Low consequence/probability) for the top 2 hazards.

FMEA for one module (assume only correct/incorrect output states)

FTA for the system (assume only correct/incorrect output states)

Safety Case for the system. Use as evidence what an organisation would be expected to do. Provide an example for each key context eg. Environment, Design Process, Quality

System operates satisfactorily in a temperature range -5oC to +30oC. Environmental tests conducted.

The report should be a minimum of 5 pages of text (not including diagrams or FTA)

**Task 2**

Using the design of a pram emergency brake from a second course workshop output presentation posted on Moodle, produce a safety assessment report covering:

Note: you may use more than one example to illustrate good and bad practice

Requirements quality use one or two examples to illustrate good and bad practice

Functional Decomposition – comment on the depth of break down and suggest any better approach

Comment on the chosen technologies – appropriate, risk, cost

Comment on the adequacy of the safety attributes of the final design

Comment on HAZOP completeness ie any hazard missed

Is the Risk Assessment realistic?

Comment on the Safety Case for the system - Adequacy of the claims, Quality of the arguments and evidence. Include the argument and evidence you would think adequate.

The report should be a minimum of 2 pages of text (not including diagrams and cut and paste of the sections of the ppt presentations)

Task 1: 60 marks ( 5 marks for each of the 10 points plus 10 for overall standard)

Task 2: 40 marks (5 marks for each of the 7 points plus 5 for overall standard)