EEE101 C Programming and Software Engineering 1 – ASSESSMENT 1

Assessment Number	1
Contribution to Overall Marks	15%
Issue Date	Monday, 25th September 2017 (Week 4)
Submission Deadline	Monday, 9th October 2017, 09:00 (Week 5)

Assessment Overview

This assessment aims at testing some basic concepts of C programming and initiates the routine of code development using the software development process (**SDP**) presented in Lecture 1, focusing on the following five steps of the software development process:

1. Problem statement: formulate the problem.
2. Analysis: determine the inputs, outputs, variables, etc
3. Design: define the list of steps (the algorithm) needed to solve the problem.
4. Implementation: the C code has to be submitted as a separate file.

   Just indicate here the name of the file.
5. Testing: explain how you have tested and verified your C program.

You will need to apply this methodology to each one of the following simple exercises.

Things to note:

1. Include clear comments in your code to make it easy to understand.
2. Explain your testing procedure and what you have observed during the testing.
3. How you solved any problems.

Exercise

Write a C program that can perform the following operations:

- Read a full name from the keyboard and store it in an appropriate variable (e.g. John Smith)
- Read a student ID number from the keyboard and store it in an appropriate variable (e.g. 12345678), assume all ID's have 8 digits.
- Read a height in meters from the keyboard and store it in an appropriate variable (e.g. 1.8 m).
- Use a loop to print the name on the screen in reverse (e.g. htimS nhoJ)
- Use **one** loop to add together the first 4 digits and the last four digits of the ID number. Then print on the screen the division of these two numbers (e.g. (1+2+3+4) / (5+6+7+8)).
- Convert the height from meters to feet and inches. Store the values of feet and inches in appropriate variables rounded to the closest whole number and print the conversion on the screen (e.g. 1.8 m is 5 feet 11 inches).

What should be submitted?

You should submit the followings:

1) A short report (up to a few pages of text plus C source codes) detailing for each question:
   a) **SDP** steps 1 to 3 in the report (Report + Specification + Analysis + Algorithm Design) (40%)
   b) **SDP** step 4 (Implementation + Robustness): your C source code including the comments. (40%)
   c) **SDP** step 5 (testing): you will explain how you have tested the correctness of your C program and will include some sample runs of your C Programs. (20%)

Please refer to the file "EEE101 Marking Guidelines for Assignment 1" on ICE for a detailed marking scheme.

2) The report in Microsoft Word or pdf format and C source code of your implementation zipped into a single file, i.e. the zip file will contain 2 files. (It is good practice to include comments in your code see the example provided.)

The naming of Report (.doc, .docx or .pdf only), Source Code (.c) and Compressed file (.zip, or .rar only)

StudentID_LastName_FirstName_AssignmentNumber.doc

StudentID_ AssignmentNumber.c

StudentID_LastName_FirstName_AssignmentNumber.zip

For example

Report and c source file named:

1234567_Albert_Einstein_1.doc

1234567_1.c

Contained within the zip file:

1234567_Albert_Einstein_1.zip

How the work should be submitted?

Should be submitted electronically through ICE so that the marker can run your programs during marking. Feedback and your grade will also be given through ICE.