

Comments on the draft MSc thesis:

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(Detailed comments can be founded in the PDF file).

Title: the current thesis title is not very accurate to reflect your main research work, you may need to think to the title amended.

I will send you a general format of declarations used by some PhD students at Swansea for your reference.

The comments on using “**you**” and “**I**” in your thesis can be founded in the PDF file.

Table of contents: All the text should have the same type of font.

No need for numbering for these points (1-6)

some chapter or section titles are not very clear (see the comments in the PDF file)

in section 8, 9, and 10, research work in different area were reviewed, however some conclusions and comments provided without any reference or evidence to support the points claimed.

The definition in 4 is not necessary. Please rethink if you need to include these definitions that come from Internet in your thesis.

Any recommendations (such as in 5) are usually put in the last chapter such as "future research work"

Chapter 1 in general should start from introduction.

Some statement from other articles were cut and copied as Figure. This should not be a figure. Such as the text image in page 12 and 13. This should be summarized / explained in your own words in main thesis and make a reference.

Please note that Figures should be labelled individually. Many occasions several Figures were labelled together such as the Figures in page 13.

Many captions for Figure are not very clear or not suitable such as the title for Figure 9 “NASA repeat the experiment 3 times for continuity of data results” it does not say the Figure 9 is. Please make sure the Figure caption and Figure description are separated. Figure description should be in main thesis.

Some images such as in page 17 are not necessary. However, if put there, they have to be labelled and explained.

Some equation such as the equation (3) in page 20 and (5) in page 22 should be typed using equations function in MS word. All variables in equations should have units specified in their descriptions.

Some information such as the data information shown in page 20, should be a table rather than copying the image.

Quality of some pictures are not very good such as Figure 11, resolution is too low. Perhaps you need to draw your own diagram.

Some sub-headers were not Numbered such as that in page 19.

Some graphs should be your own diagram such as the graphs in page 21.

Some section title such as “**8.2 Parameter Based**”, it is not clear what it means.

Some statement such as “**The photoelectric effect which is an electromagnetic force** or electromagnetic wave” in page.

Townsend Collision Theory: How does this theory relate to your research? are you going to use this theory to explain your results? you may need to think if you need to include this in your thesis. **I am not** sure the about purpose.

EXPERIMENT circuit: A detailed description of the circuit operating principle need to be presented in the main text. It would be clearer if a picture of actual experiment setup is presented. Brief descriptions of main components and control method used in the system would be useful for understanding. for example, what is the dc power supply? Main parameters, what is the relay and why do you need a relay? Main parameters, what is the micro-controller, what are the function or role for the Arduino microprocessor? what type of temperature sensor you are using? accurate enough? and main parameters of the sensor.

Experiment setup picture: the components in the picture should be labelled

TEST: For each test should have a brief description about the test conditions and how the test was performed. what output are you expect? and reasons why the test was performed.

Test result graph: All the figures has to be re-designed. Please, look how figures have to look like in IEEE Transactions [<https://ieeexplore.ieee.org/>].

The errors: y-axis caption, units missing, figure legend missing, figure caption not self-contained, too small fonts. (for example, the errors in Figure 35 and 36).

In many cases, there are no result description. The results have to be described, no just listed! (for example, the results in page 54 were listed only)

Regarding experiment measurement and result presentation:

For time-based measurements, data should be shown for pre-test conditions to demonstrate stability prior to the start of the experiment. Data collected immediately prior to triggering the experiment should be displayed to show the condition of the measured parameters before the test started. Pre-test data should demonstrate that measured parameters are stable and only start to change once the experiment is underway.

Some of the experimental graphs presented do not show pre-test data (e.g. Figures 27, 47) which makes determining the precise test start point difficult. Where pre-test data is included, it frequently shows that measured parameters are not stable when the test is initiated (e.g.

Figures 44-46, 48-52). This makes it impossible to differentiate the effect of the applied test conditions from the prevailing 'ambient' conditions.

Multiple tests: **Experiments should be repeated several times.** Each experimental set-up and test condition should be repeated at least 3 times, more if the results do not match closely. This is done firstly to verify repeatability of the experiment and, secondly, to determine the 'variability' in the experimental test results. This second point is important because excessive variation in data may mean that the experimental setup needs to be refined.

There is no evidence in the report that experiments have been repeated, nor that experimental variation has been established. Please if possible, carry out multiple measurements to make sure the correctness of results. If you did, please explain show this evidence in the report.

When multiple sensors are employed, they should be correlated against each other and any offsets between sensors compensated for. This applies to A/D channels as well as sensors. It is quite common for sensors & A/D converters to have minor differences in output and still be within the specification limits. These differences become more critical when the experimental measurement variation is in the same range as the offsets, making comparison between sensor measurements invalid. Calibration and compensation of sensors is usually performed prior to experimentation. **Please make sure all the temperature sensors have the same output under the same temperature and illustrate this in your thesis.**

The experimental conditions and purpose of performing any experiment should be clearly stated. Relevant test conditions for each experimental setup should be presented alongside the experimental output data and data sets should be clearly labelled. The reasons for running an experiment and, ideally, expected outcomes should be identified and made clear. Variations in similar experiments should have the purpose of the variation stated.

In the report, experimental data is frequently presented without any explanation of its relevance or identification of the test condition. The significance of the experimental output data is often not stated. Identification of data sets is often not given on individual graphs, instead relying on identifications stated on previous graphs.

Contents need to remove:

Please note: Joseph Westley Newman, whose work has been universally rejected by all credible scientific examiners, including the American National Bureau of Standards after they thoroughly examined his apparatus. we would, therefore, be extremely wary of endorsing any published work which referred to Newman's 'Energy Machine'. The supervision team does not support to include the work of Joseph Westley Newman in your thesis. **Therefore, supervision team suggest removing the text in page 11, 12, 13 and 14.**

we suggest removing content regarding Photoelectric Effect (8.1.1.1) in **page 18 and 19** as this part as there is no relationship between your experiment and the photoelectric effect.

we suggest removing the content in page 21 and page 22

we suggest removing the content regarding Formula System Function of Graphene Battery [1] in page 101

we suggest removing the content regarding Explanation of Raman Shift Data in page 102

we suggest removing the content regarding Graphene wet with Cu_2^+ solution in page 103

Also suggest removing the datasheet in page 106.

BELOW IS A LINK OF THESIS GUIDE FOR YOUR REFERENCE:

**GUIDE TO SUBMISSION AND PRESENTATION OF THE THESIS
DRAFTING, SUBMITTING AND EXAMINING A THESIS**

<https://myuni.swansea.ac.uk/academic-life/academic-regulations/research-guidance/guide-to-submission-and-presentation-of-the-thesis/>