

**DRAFT! DO NOT SUBMIT!**

## Concept Generation Template

Firstname13 Lastname<email11>

Firstname2 Lastname,firstname<email12>

T-411-MECH Mechatronics 1  
RU Science and Engineering

November 15, 2024

## List of Corrections

### Instructions for Concept Generation

This proposal is a team assignment. Your job is to write up three ideas for a final project. Each idea should contain a quick description, sketch or picture, and a link to a related article or product. This document is provided as a template — you will need to change it and comment out sections that are irrelevant. The pictures provided here are just to demonstrate how graphics are included. Your description should say what the item is, how it would be used, and what parts you think you might need.

For your own sanity while debugging, using SVN, and using a Grammarly grammar check, make sure you put only one sentence per line. This means pressing “enter” on your keyboard every time you end a sentence. SVN checks for conflicts and differences on a line-by-line basis.  $\LaTeX$  shows error on a line-by-line basis. If you make an entire paragraph be on a single line, you will have trouble finding any error on that line.

### Using References/Citations

List your references (journal articles, textbook pages, etc.). A citation is probably not a good one if you can't at least get a title, year, and an author. Publisher and date is important, but for online resources, this can be hard to find. If you are using the standard template, this information should go into a `references.bib` file. If you want to use a different file, you should change the

```
\bibliography{references}
```

Wikipedia and google are great resources for finding useful citations and pictures. They are not good things to cite directly: anyone can edit any entry with a minimal level of checking. Wikipedia is best used to find related articles that are the ones that you should be putting in your document.

We will use the IEEE citation style, referring to each reference with a consecutive number in the body of the text and listing the references in the same numerical order in the References section. Here is a link to a website describing the IEEE citation style (from the University of Canterbury):

```
http://library.canterbury.ac.nz/services/ref/ieee.shtml
```

You can change the BibTeX style to IEEE by setting the bibliography style to IEEEtran:

```
\bibliographystyle{IEEEtran}
```

As an example of a citation in text, Carryer et al. [1] is the textbook for the class. This is another citation [2]. Dustcloud citation [3] Sverrir says Thanks!!

## 1 Killer Robot

The killer robot is designed to enslave humanity. A prototype can be seen in Figure 1. Warbrick et al. [5] contains LaTeX code for making such a system possible. We would need 2 particle projection cannons, a nuclear reactor, and a pineal gland in order to make it work.

## 2 Sharks with Lasers

As mentioned in the movie “Austin Powers” we need some sharks with lasers! These sharks would find our targets and eliminate them. An Arduino based control and guidance system completed system is shown in Figure 2. The wiring instructions are inspired by [1]. We will need a swimming pool, two sharks, two arduinos, and two turbolasers to make this possible.



Figure 1: Concept art for Killer Robot prototype[4]



Figure 2: Example of a finished Shark Laser[6]

### 3 Fake Moon landing

As everyone knows, the Moon landing in the 1960's was faked. [7] Here's how it was done. A prototype green-screen was used with custom props and rigging to emulate the lunar environment. You can see the original implementation in Figure 3. This design could be used to fake other events, such as the war in Iraq. We would need a video frame grabber and an Arduino to build this project.

### References

- [1] J. E. Carryer, R. M. Ohline, and T. W. Kenny, *Introduction to Mechatronic Design*. Pearson Education, 2011.



Figure 3: Design of a Moon Landing Hoax set[7]

- [2] D. Kreher and D. Stinson, "Pseudocode: A LaTeX style file for displaying algorithms," 2005. [Online]. Available: <http://mirror.hmc.edu/ctan/macros/latex/contrib/pseudocode/pseudocode.pdf>
- [3] K. Weber, J. Eliasson, A. Vogel, C. Fischer, T. Pohl, G. van Haren, M. Meier, B. Grobéty, and D. Dahmann, "Airborne in-situ investigations of the eyjafjallajökull volcanic ash plume on iceland and over north-western germany with light aircrafts and optical particle counters," *Atmospheric Environment*, vol. 48, pp. 9–21, 2012. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S1352231011010892>
- [4] J. S. Hall. The age of virtuous machines. [Online]. Available: <http://lifeboat.com/ex/the.age.of.virtuous.machines>
- [5] J. Warbrick, "Essential latex ++," 1994.
- [6] R. Ramirez. (2010) Shark week. [Online]. Available: <http://atomicgator.wordpress.com/2010/08/01/shark-week/>
- [7] L. Krystek. (2003) The great moon landing hoax. [Online]. Available: <http://www.unmuseum.org/moonhoax.htm>