ENGR101/2017

Assignment 1 – Technical Report

Engineering Process for Aircraft Overweight Issues

**Marks:** 10% of the final course grade  
**Due Date:** Monday 20th of March, 3pm

# This assignment is intended to:

* Show that you understand the format of a technical report
* Give you practice at writing
* Develop skills in obtaining useful information from library and on-line resources
* Ensure that you know how to produce meaningful graphs in Excel and then to paste those into a report
* Ensure that you can produce clear tables in a report
* Enable you to learn more about the “engineering process”

# Task

You are to write a technical style engineering report. The aim of the report is to summarise some aspects of the engineering process that lead to a solution to help prevent safety issues of aircraft due to overweight. Below is the problem statement:

*Studies show that the average weight of air passengers increased from 72 kg (female) and 84 kg (male) to 75 kg and 89 kg, respectively, since 1990s. There are potential safety issues due to the weight of total passengers exceeds the manufacturer’s ultimate floor loading (kg/m2) for the existing old aircrafts when they are fully booked. While the airlines must comply with the safety standards, the basic passenger needs are not to be overlooked. The airlines are required to come up with a solution to address this issue.*

The whole Engineering Process (as covered in class) would be applied to this project. However, for this report, you should only focus on steps 2, 3 AND 4. In “Define Success” (step 2), discuss about possible performance criteria and constraints. In “Find solutions” (step 3), you only need to present ***one solution*** briefly so that it can be discussed in the next step. In “Test” (step 4), you will need to describe feasible testing method(s) to ensure the solution meets the selected performance criteria and constraints (e.g. if one of the constraints is that the existing aircrafts are to be used, how would you test your new solution to make sure it meets this requirement). You will not get extra marks for writing about more than these three steps from the Engineering Process.

# Report Guidelines

The report should be written for a technical person who does not know much about the subject. You should concentrate on technical matters and avoid generalisations. You must put some data into a useful form to suit the aim of the report. This report must contain at least one graph (which you have produced using a spreadsheet) and one table. Neither can be cut and pasted from any other source, but you may use data from a referenced source.

**The report should include:**

* The ENGR101 cover sheet for assignment 1 (for administration)
* A title page
* Summary
* Introduction
* Technical Information
* Define Success
* Selected Solution
* Test
* Conclusions
* References
* Appendices (if required, but these will not be marked)
* Word count

The title page should be a single page. After the Summary, the subsequent sections do not need to start on a new page. References should follow the APA standard (see ENGR101 Web Resources on the ENGR101 Learn pages). All sources of your information must be cited in your text and a full list of references must be included. A guide to referencing is linked from the ENGR101 Learn resource “ENGR101 Web Resources”. Direct quotes are discouraged but they are sometimes appropriate. Referencing of on-line encyclopaedias, such as Wikipedia, is discouraged; you should use the original source of the information if possible. It is likely that you will find data on the web that is not supported by scientific analysis. Be sure not to place too much reliance on unsupported data.

Your report must be word-processed, using 11-point Arial font or 12-point Times New Roman font (or similar), with 1.5 line spacing on A4 sheets of paper, with 2.5 cm margins all around. You may print double-sided. You have an upper word limit for the report of 1000 words. If this word limit is exceeded there will be penalty marks. (Please do not request a higher word limit.) The title page, references, and appendices are not included in the word limit. (A word limit, rather than a page limit, has been given so that you are free to format your report for ease of reading.) The word count of your report must be stated at the end of the report (In MS Word, Word Count on the Review ribbon. If you highlight the sections that contribute to the 1000 word count limit, “Word Count” won’t include the non-highlighted sections e.g. Title, references, etc.).

You will be awarded marks not only for the information you present, but also for the standard of your writing and the demonstrated use of a range of information sources.

**Marking schedule:**

**Content** (Appropriate content in the correct part of the report) /10

**Grammar** (Clear paragraphs and sentences, correct grammar, easy to read) /3

**Format** (Consistent typographical standard, spacing, headings) /3

**Graph(s)** (Clear, axes labelled, units shown, appropriate caption underneath) /2

**Table(s)** (Clear, uncluttered, units shown, appropriate caption above) /2

**References** (Cited in the text correctly, reference list complete, good range of sources) /2

**Total**  **/22**

# Hand-In Instructions

Download the Assignment 1 Word template from Learn. Use this template to write the report.

**Hand in a hard copy of your assignment** to the slot corresponding to your Workshop in the Assignment Boxes located on Level 1 of the “Core Engineering” building, in the corridor to the lecture theatres E8 and E9, see Figure 1. **There is no stapler at the submission site, so staple your report before arriving!**



Figure 1: Submission location for ENGR101 assignments.

Also, **submit an electronic version of your report on the Learn website via the heading “Assignment 1 Submission”**. All submissions will be checked for plagiarism using Turnitin (Turn It In) software. After submitting, click on the button “Save Changes”. You may use any software for spreadsheeting and word processing, but you must save the report as .doc, .docx, or .pdf filetype before electronic submission to Learn as that is a Turnitin limitation.

Submissions will not be marked unless they have the correct cover sheet and all details completed, including your Workshop group code.

Your Workshop group number is shown in your timetable after “Wor”, see Figure 2.



Figure 2: Identify ENGR101 Workshop group number.