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|  | **Logo  Description automatically generated**  **SCHOOL OF**  **ENGINEERING** | | | **STUDENT NAME:** | | | | |  | | | | | | | |  |
| **STUDENT ID. NO.** | | | | |  | | | | | | | |
| **COURSE NAME:** | | | | | EA314AAE Aerospace Technology II | | | | | | | |
| **ISSUE DATE:** | | | | | 16-Nov-23, Thursday | | | | | | | |
| **SUBMISSION DATE:** | | | | | 28-Dec-23, Thursday | | | | | | | |
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| ASSIGNMENT COVER SHEET | | | | | | | | | | | | | | | |
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| OUTCOMES (Please tick the relevant outcomes) | | | | | | | | | | | | | | | |
|  | LO1 | Explain the concept of whole aircraft lift/drag and analyze their impact on the aerodynamic performance of the aircraft. | | | | | | | | | | | | | |
|  | LO2 | Critically review the aircraft related operational factors affecting its performance. | | | | | | | | | | | | | |
|  | LO3 | Analyse the stability of an aircraft’s airframe and contrast quantifiable factors affecting the control of the aircraft. | | | | | | | | | | | | | |
| **✓** | LO4 | Evaluate and compare the operation and purpose of different types of wind-tunnels. | | | | | | | | | | | | | |
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| RESULT | | | | | | | | | | | | | | | |
| Submission requirement: | | | | | | | | | | | | | **OVERALL** | | |
| 1. Signed cover sheet | | | | | | | | | | | | |  | | |
| 2. Assignment report | | | | | | | | | | | | |
| 3. Soft / Hard copy of Turnitin report | | | | | | | | | | | | |
| **Student Signature:** | | |  | | | | | | | **Submitted on:** | | | | | |
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| **Assessor’s Feedback:** | | | | |  | | | | |  | | | | | |
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| I certify that the work contained within this assignment is all my own work and referenced where required. | | | | | | | | |  | Feedback Received: | | | |  | |
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| Student Signature: | | | |  | |
| Student Signature: | |  | | Date: | | |  | |  | Date: | | | |  | |
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| **Assessor’s Name: Mr. Mohammed Khateeb** | | | | | | **Signature:** | | | | |  |  | **Date:** | |  |
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| **Due Date** | | | |
| Your submissions should be no later than 28 December 2023 | | | |
| **Submission Format** | | | |
| 1. Use fonts (only one type) that are easy to read and do not complicate the text 2. Line spacing should be 1.5 times 3. The assignment should always have the cover page which is given by the instructor 4. All details regarding name and signature must be filled in 5. Assignments should be done on A4 size paper 6. Every page should have a footer which details the assignment name, your name and the page number 7. The first page should be the index or contents page with the page numbers 8. The next page should have the introduction which is what the assignment is about and what you are planning to write. This can be brief 9. Next comes the body of the assignment. Clear drawings should be included in the body 10. References may be used from text books and the internet or other sources. However, references have to be made for the information used. This may be done by annotating each copied paragraph / picture and listing them on the last page under the title reference. 11. A conclusion should be presented at the end followed by the reference page if used. 12. An oral will be conducted at a suitable date to ensure that you have understood what you have presented. 13. ASSIGNMENTS ARE VERY IMPORTANT IN YOUR FINAL GRADING SO DO ENSURE THE DEADLINES SET ON THE COVERSHEET OR BY YOUR INSTRUCTOR ARE MET. | | | |
| **Plagiarism** | | | |
| Plagiarism is defined as the presentation of another person’s work as your own. It is a particular form of cheating. Plagiarism must be avoided at all costs and students who break the rules, however innocently, may be penalised. It is your responsibility to ensure that you understand correct referencing practices. As a university level student, you are expected to use appropriate references throughout and keep carefully detailed notes of all your sources of materials for material you have used in your work, including any material downloaded from the Internet.  In this be the case, Emirates Aviation University considers plagiarism as theft and any student found to have plagiarised would be awarded an automatic fail for the piece of work submitted and may be excluded from further study at the University. | | | |
| **Late Assignments** | | | |
| If your assignments are not submitted on time and you have not received an extension, you will normally be penalized 10% to 20% of the total mark for the assignments. (Please check the student’s handbook) | | | |
| **Grading as Follows** | | | |
|  | Index | 5% |  |
| Introduction | 10% |  |
| Theory | 10% |  |
| Reference | 10% |  |
| Layout | 5% |  |
| Conclusion | 10% |  |
| Task | 50% |  |
| Total | | 100% |  |

TASK

|  |  |
| --- | --- |
| * Unit Code/Level | 314AAE |
| * Learning Outcome 4 | **Wind Tunnel** |

You are a chief engineer at an engineering design company and for an upcoming research and development project your manager asked you to conduct a study listing the types of wind tunnels (List a minimum of three types i.e. subsonic, transonic, etc.), in which cases each is used and the possible advantages and disadvantages that each type has.

* Please present your research results in a short report and utilize illustration to aid in the understanding of the reader.

***After the research you conducted, the company decided to purchase a low speed open circuit wind tunnel as it was the best type that fits the research requirements.***

You were required by your manager to conduct two experiments that will present an idea of how wind tunnels operate and what sort of results it can generate.

* Experiment 1: Wind tunnel calibration
* Experiment 2: NACA 2412 Airfoil with variable flap

Report Layout

Upon the completion of the experiments you are required to write a detailed report that contains the following elements:

1. Introduction ……………………………………………………………………………………………………………………………………………………... 10%

2. Objectives

3. Theory …………………………………………………………………………………………………………………………………………………….………... 10%

3.1. Experiment 1 ex. Pitot tube, boundary layer, etc.

3.2. Experiment 2 ex. Airfoils, high lift devices, etc.

4. Instrumentation …………………………………………………………………………………………………………………………………………………. 5%

5. Precautions & Procedure ……………………………………………………………………………………………………………………..…………… 10%

5.1. Precautions

5.2. Experimental Procedure

5.2.1. Experiment 1

5.2.2. Experiment 2

6. Results and Discussion ………………………………………………………………………..……………………………………………………………. 30%

6.1. Experiment 1

6.2. Experiment 2

7. Sources of Error ………………………………………………………………………………….……………………………………………………………… 5%

8. Conclusion……………………………………………………………………………………….……………………………………………………………….. 10%

9. References …………………………………………………………………………………………………………………………………………………… 10%

**Note:**

* Please insure to use the following guidelines in your report writing:

|  |  |
| --- | --- |
| Font type | Arial |
| Font size | 12 |
| Line spacing | 1.5 lines |
| Alignment | Justify |

* Please use different types of lines and points in your plots as follows:

