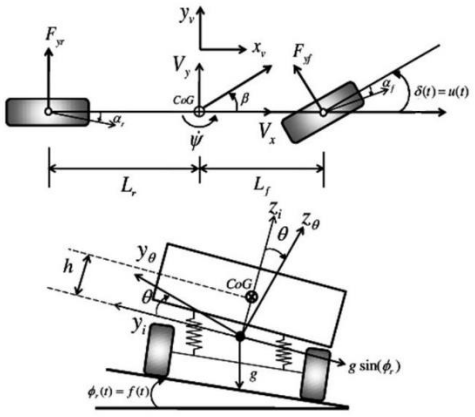
Multidisciplinary Engineering Technology

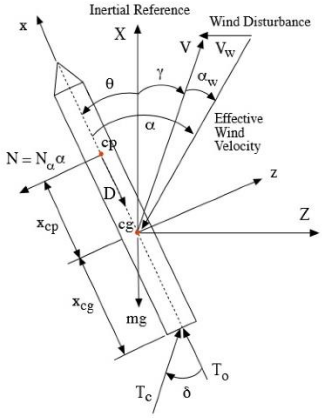
COLLEGE OF ENGINEERING

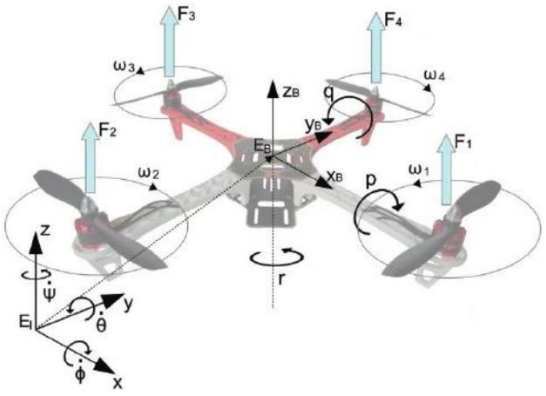
MXET 375

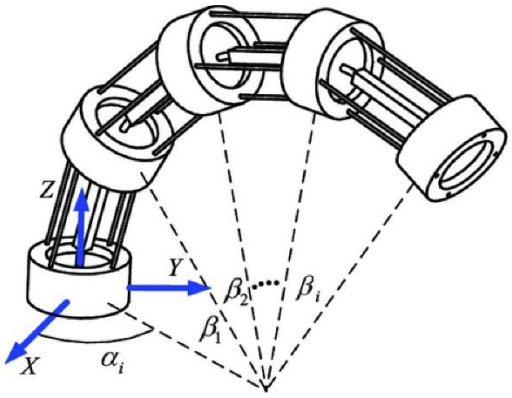
Applied Dynamic Systems

Laboratory Manual









Lab Introduction

Laboratory Requirements

Please remember that all laboratory work must be completed to meet the minimum requirements for a passing grade in the course. You should not miss any labs and you must have all the lab reports completed.

In case of illness or an emergency and you cannot attend the lab or submit the lab report, please follow the attendance policy described in the syllabus. Inform the TA of any inability to attend the lab within a timely manner before the start of the lab. This also applies to the on-time submission of lab reports.

Lab Overview

This lab is geared toward learning how to model and simulate various dynamic systems utilizing Simulink within MATLAB. We will be using Simulink along with MathWorks add-on toolboxes to model and simulate the systems. You will all work in teams of two within your section to complete the labs.

However, everyone will need to have MATLAB installed on your individual laptops along with the add-on toolboxes.

Lab Reports Format

Lab reports will be done individually and will be due via electronic submission at **11:59 p.m.** a day before the next lab.

Here are some guidelines for your lab report:

1) **Introduction** – Please write a brief introduction of the objective for the lab; an overview of the main tasks. What is the lab about and what are the key concepts that you learned in this lab?

2) **Procedures & Lab Results** – Please provide a summary of the procedures you performed throughout the lab. Include the results from the lab tasks (e.g., any screenshots and graphs to show your work) with a good cohesive explanation of entire procedure and your results along with reference to screenshots and graphs within the body of your report.

3) Post-Lab Questions – Provide detailed answers to the post lab questions**.** Responses to questions can and should be provided within the body of your narration for your procedures and lab results.

*** For convenience in grading and quick reference, please **provide a separate section** of just the questions and answers. This is a copy of the same format within the lab manual along with your short answer below each question.

4) Conclusion – Provide a brief conclusion on the lab results and reflect on the lessons learned. Please also explain any issues you had during the lab.

The formatting and presentation of the lab report is very important. Make sure to include:

- Cover page with course and lab titles, team number, team members, and date
- Page Numbers
- Section titles
- Captions in all figures, and explain the figures in the text
- Use English language and grammar appropriate to a technical report
- General professional look and feel to your visual format
- MATLAB block diagrams have block names for each block
- MATLAB plots have white background, axes labels with appropriate units, legend, and title

Lab Reports General Rubric

The following table is the general rubric for the lab reports.

Criteria	Ratings				Pts
Section 1 - Introduction Please write a brief introduction of the objective for the lab; an overview of the main tasks. What is the lab about and what are the key concepts that you learned in this lab?	15 pts Excellent	10.5 pts Good Overview	4.5 pts Needs Improvement	0 pts Missing Work	15 pts
Section 2 - Procedures and Lab Results Please provide a summary of the procedures you performed throughout the lab. Include the results from the lab tasks (e.g., any screenshots and graphs to show your work) with a good cohesive explanation of your results along with reference to screenshots and graphs within the body of your report.	35 pts Excellent	24.5 pts Good Overview	10.5 pts Needs Improvement	0 pts Missing Work	35 pts
Section 3 - Lab Question 1 Please provide a response to Lab Question 1	2.5 pts Excellent	1.75 pts Good Overview	0.75 pts Needs Improvement	0 pts Missing Work	2.5 pts
Section 3 - Lab Question 2 Please provide a response to Lab Question 2	2.5 pts Excellent	1.75 pts Good Overview	0.75 pts Needs Improvement	0 pts Missing Work	2.5 pts
Section 3 - Lab Question 3 Please provide a response to Lab Question 3	2.5 pts Excellent	1.75 pts Good Overview	0.75 pts Needs Improvement	0 pts Missing Work	2.5 pts
Section 4 - Conclusion Provide a brief conclusion on the lab results and reflect on the lessons learned. Please also explain any issues you had during the lab.	15 pts Excellent	10.5 pts Good Overview	4.5 pts Needs Improvement	0 pts Missing Work	15 pts
Lab Format and presentation Should include formatting as described in Lab Reports Format: Cover Page Page Numbers Section Titles Figures have captions and are explained in the text MATLAB block diagrams have block names for each block MATLAB plots have a white background, axis labels with appropriate units, legend, and title	10 pts Excellent	7 pts Good Overview	3 pts Needs Improvement	0 pts Missing Work	10 pts
Lab is well written Report is written in a professional, technical way.	10 pts Excellent	7 pts Good Overview	3 pts Needs Improvement	0 pts Missing Work	10 pts

Lab Policies

Attendance Policy

- All students are required to attend each lab on time and stay for the entire lab or until dismissed.
- Attendance will be taken at the beginning and end of each lab session; late attendance will not be tolerated.
- Students leaving before permission to leave has been granted by the instructor will receive a zero for that lab.
- Lab switching is not allowed; attend the lab that you are registered.
- Absence from the lab without a university excuse will result in a zero.
- Late attendance is not acceptable, and it will be treated as an unexcused absence; you will not be allowed to make up quizzes (if any).
- University excused absences have 2 weeks to make up the lab.
- Late lab reports will not be accepted and will be considered a zero.

General Conduct

- Wear safety glasses when instructed. Students not wearing or do not have one will be asked to leave, getting a zero.
- Wear only closed-toed shoes (boots preferable)
- No recording or photo taking of any kind, except with instructor permission.
- Know the location of the first aid kits.
- No food, drinks, or tobacco in the labs.
- Always ask the instructor to help if you are unsure of how to operate the equipment.
- All students are required to thoroughly clean up their work area and lab at the end of each session.

Grading Policy

- There is a zero-tolerance policy on plagiarism or copying another student's work. Offenders will receive a "F" in the course and will be turned in to the program coordinator for further academic repercussions.
- Lab Assignments must be turned in on time and in the proper format (as explained in the manual) and must include the name, section, and UIN. Failure will result in a zero.
- All reports must be typed and should not contain handwritten or torn pages from the lab manual. Noncompliance results in a zero.
- All pictures, images, JPEGs, GIFs, quotes and information contained in your report must be properly referenced.
- All the lab assignments are due at the beginning of the next lab. Late assignments will result in a zero for that lab.
- Labs reports will be graded on neatness and grammar in addition to the accuracy and presentation of your results.
- Being a team effort, the reports require coordination between the members; the responsibility for the final report is shared between all members.

Please go through the above-mentioned safety policies, attendance, and grading policies thoroughly, sign the lab safety contract and the acceptance form, and return them to the instructor.

ENGINEERING TECHNOLOGY LABORATORY

SAFETY POLICY AND GRADING CONTRACT

(Instructor Copy)

Scholastic Dishonesty: I will enforce the Aggie Code of Honor, Aggies Don't Lie, Cheat or Steal, nor tolerate those who do. There is a zero-tolerance policy for academic dishonesty. Violations will result in an "F" for the course. Additional repercussions will be determined by the program coordinator in compliance with Texas A&M regulations. http://www.tamu.edu/aggiehonor

I fully understand the Laboratory policies of the Engineering Technology and Industrial Distribution Department at Texas A&M University. I also understand that failure to abide by these rules stated in these policies can result in permanent dismissal from the Engineering Technology Laboratories and could face further repercussions as deemed necessary by the administration.

Signature of Student_____ Date _____

Print Full Name: _____

Student UIN#: _____

Section #: _____

Please read and fully understand the safety policies before signing this sheet. Sign and return this sheet to your lab instructor.

ENGINEERING TECHNOLOGY LABORATORY

SAFETY POLICY AND GRADING CONTRACT

(Student Copy)

Scholastic Dishonesty: I will enforce the Aggie Code of Honor, Aggies Don't Lie, Cheat or Steal, nor tolerate those who do. There is a zero-tolerance policy for academic dishonesty. Violations will result in an "F" for the course. Additional repercussions will be determined by the program coordinator in compliance with Texas A&M regulations. http://www.tamu.edu/aggiehonor

I fully understand the Laboratory policies of the Engineering Technology and Industrial Distribution Department at Texas A&M University. I also understand that failure to abide by these rules stated in these policies can result in permanent dismissal from the Engineering Technology Laboratories and could face further repercussions as deemed necessary by the administration.

Signature of Student_____ Date _____

Print Full Name: _____

Student UIN#: _____

Section #: _____

Please read and fully understand the safety policies before signing this sheet. Sign and keep this sheet with you for future reference.