

PR08-A – PROJECT PLAN [Lastname]

The goal of this assignment is confirm a communication plan with your project partner and make a preliminary outline as to how you will approach completing the project assignments together

(10 Points) TEAM NAME: Discus a Name for Your Team and Put it Here

(10 points) Member 1 Interview [lastname of Member 2]

Interview your teammate, discuss the following questions, and document answers here.

1. What is your name?
2. What as your first car? What color was it?
3. What I the primary way I can contact you for project items?
4. What is a preferred way to get in touch for urgent project matters?
5. Do you prefer to work ahead or wait until the last minute?
6. How would you like to see this project go?
7. Are there any schedule conflicts/factors that you foresee that we will need to consider?

(10 points) Member 2 Interview [lastname of Member 1]

1. What is your name?
2. What as your first car? What color was it?
3. What I the primary way I can Contact you for project items?
4. What is a preferred way to get in touch for urgent project matters?
5. Do you prefer to work ahead or wait until the last minute?
6. How would you like to see this project go?
8. Are there any schedule conflicts/factors that you foresee that we will need to consider?

Only turn in one assignment sheet for your two person team (same grade for all team members).

(20 Points) Review the Schedule Below [lastname]

Review the revised course schedule below with your project partner. Then give your current answers to the questions that follow.

New Dates	Assignment	Scope						
3/30	PR - A	Project Plan, Nomenclature Table, , Two Papers , [10 point Bonus CF Plot with CEQUEL]						
4/6	PR - B	Mission B - Ramjet Thrust Stand Predictions, Symbolic Equations, Five Papers Total						
4/13	PR - C	Mission B1 - Baeline Flight, Alternative Propellant Thermochemistry, 8 papers Total						
4/20	PR - D	Missions C's - Alternative Propellant Comparisons, Draft Final Report, 10 Papers Total						

- What is our team's preferred way of working together in real time (Zoom, phone, in-person)
- What is your preferred days/times to interact on
 - PR08 A – List Date(s) and Proposed Times and Methods
 - PR08 B – List Date(s) and Proposed Times and Methods
 - PR08 C – List Date(s) and Proposed Times and Methods
 - PR08 D – List Date(s) and Proposed Times and Methods
 - Preparation of Final Exam– List Date(s) and Proposed Times and Methods. How do you plan to integrate the work of two people into one word document?
- Would you both like to develop the program and to check each other's work?

(10 Points) Briefly describe any other there planning items or agreements that you have made that are not already on at this time (put at least three) [lastname]

- 1.
- 2.
- 3.
- 4.

Partner 1 Signature _____

Partner 2 Signature _____

Both team members must sign the document electronically to verify they are in agreement with the plan

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(20 Points) Make a complete Nomenclature List Based on the Guidelines and Assumptions Document and Equations Presented in Class. All Symbols should be in Italics

List of Symbols (should be around 60 – 70 symbols)

Symbol	Description, Units
A	burn rate constant
$a_{x,b}$	acceleration of vehicle at burnout, ft/s^2
$a_{x,I}$	vehicle acceleration, ft/s^2
$a_{a,I}$	sound speed of air, ft/s
A_1	inlet area, in^2
$A_{5,i}$	nozzle throat area, in^2
A_6	nozzle exit area, in^2
$A_{b,I}$	propellant burn area, in^2
A_{missile}	cross-sectional area of the missile, ft^2
$A_{p,I}$	propellant bore port area (πR_1^2), in^2
$A_{t,I}$	nozzle throat area, in^2
$A_{t,0}$	initial nozzle throat area, in^2
$A_{t,b}$	final nozzle throat area, in^2
c^*	characteristic exhaust velocity, ft/s
c_{act}^*	actual characteristic exhaust velocity, ft/s

Add here

Greek Letters

α	pressure coefficient in burning rate, (-)
β	temperature coefficient in burning rate, (-)
ε_i	nozzle expansion area ratio A_e/A_b , (-)

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γ_a	<i>specific heat ratio of air, (-)</i>
γ_p	<i>specific heat ratio of propellant, (-)</i>
	<i>characteristic exhaust velocity efficiency, (-)</i>
ρ	<i>density, lb_m/ft³</i>
ρ_b	<i>propellant density, lb_m/ft³</i>

Subscripts

i	<i>a counter that goes with time</i>
o	<i>initial conditions</i>
0	<i>stagnation flow conditions</i>
a	<i>ambient</i>
1	<i>diffuser inlet</i>
2	<i>diffuser outlet</i>
3	<i>air injector inlet</i>
4	<i>combustor outlet</i>
5	<i>combustor throat</i>
6	<i>nozzle exit</i>

[10 Points] Annotated Bibliography #01 [Lastname]

Two-Page Annotated Bibliography (#01)

A. Summarize

Reference Document Examined:	List the complete citation of the reference here. Use the AIAA Journal reference format .
Reviewer:	Your Name
Source of Document:	List the source of the document (online, company, particular library, particular website, and any copyright information).
Date of Review:	Put in the date of your review
Electronic File Name:	Put in the name of the electronic file

Summary of Paper:

Type in summary, single space, here. This paragraph or set of paragraphs should at least complete the first page. You may include one figure (not to exceed ½ page) in the summary.

B. Assess:

Important Facts from Document:

1. List five important facts you learned from the reference document you examined. Put them in the form of complete sentences.
- 2.

Key Figure from Document:



Put in one key figure from the paper.

Important Relationships among Parameters Described in the Paper:

Only turn in one assignment sheet for your two person team (same grade for all team members).

1. List 2 important relationships among parameters that are described in the paper
2. For example, when the pressure in the chamber goes up, the specific impulse increases;
3. When a supplier goes out of business, the rocket community must turn to commercial industries that have a larger market to sustain the products.

C. Reflect

“Once you've summarized and assessed a source, you need to ask how it fits into your research. Was this source helpful to you? How can you use this source in a research project? Has it changed how you think about your topic?” Write this in your own words.

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[10 Points] Annotated Bibliography #02 [Lastname]

Two-Page Annotated Bibliography (#02)

B. Summarize

Reference Document Examined:	List the complete citation of the reference here. Use the AIAA Journal reference format .
Reviewer:	Your Name
Source of Document:	List the source of the document (online, company, particular library, particular website, and any copyright information).
Date of Review:	Put in the date of your review
Electronic File Name:	Put in the name of the electronic file

Summary of Paper:

Type in summary, single space, here. This paragraph or set of paragraphs should at least complete the first page. You may include one figure (not to exceed ½ page) in the summary.

B. Assess:

Important Facts from Document:

3. List five important facts you learned from the reference document you examined. Put them in the form of complete sentences.
- 4.

Key Figure from Document:



Put in one key figure from the paper.

Important Relationships among Parameters Described in the Paper:

4. List 2 important relationships among parameters that are described in the paper
5. For example, when the pressure in the chamber goes up, the specific impulse increases;

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6. When a supplier goes out of business, the rocket community must turn to commercial industries that have a larger market to sustain the products.

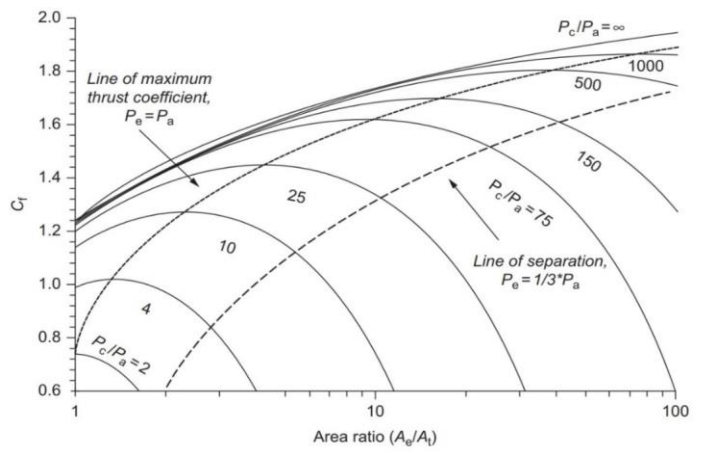
C. Reflect

“Once you've summarized and assessed a source, you need to ask how it fits into your research. Was this source helpful to you? How can you use this source in a research project?”

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BONUS A (20 points) [Lastname]

- Use your thrust coefficient computer program to reproduce the following graph but use a gamma of 1.29, and for the P_c/P_a values shown. The x-axis should be a log scale. The y-axis should have the same range



- Run CEQUEL for all the curves and add to the same plot for comparison. Use the same pressure ratios and Propellant B burning with 500K air at an OF ratio of 10.0. Assume P_a is 3.8 psi.

Put a screenshot of your Thrust Coefficient graph here

It should have the simple $\gamma = 1.29$ calculations in blue, and the CCEQUEL Calculations in red lines

What are your calculated C_F , $\varepsilon = 3.0$, and $P_c/P_a = 3$ $C_F = \underline{\hspace{2cm}}$, $C_{F,CEQUEL} = \underline{\hspace{2cm}}$