**Title Page (Name and Title)**

# Table of Contents (Microsoft Word will do this for you if you use Heading Styles correctly)

Number each page in the report. Include every element of the report below here (starting with List of Figures) in the Table of Contents. You may include each section of each chapter in the Table of Contents if you like, but at least include each chapter.

# List of Figures (MS Word might do this, but you’ll probably need to do it manually)

This list begins on a new page and should be formatted as follows:

**Figure No. Caption Page #**

Figure 1 Cylindrical Model 2

Figure 2 Isometric View of Satellite 4

Figure 3 Cost Budget 10

Etc…

Each figure in the report should have a figure number and a caption (*below* the figure, numbered 1 through *N* in order of appearance in the report). The caption should have a short part and possibly a longer description. The short part is what appears in the List of Figures. For example:

Figure 1. Cylindrical Model. This cylinder represents an oblate axisymmetric rigid body, such as might be used to model a spin-stabilized satellite.

For this example, the List of Figures would use “Cylindrical Model” as the Caption.

Be sure to introduce each of your figures in the text of your report, i.e. make mention of each figure *before* it appears: “Figure 1 shows…”

For each figure you took from another source (i.e. did not generate on your own), be sure to cite the reference from which you took the figure at the end of the caption using brackets: “Figure 3. Model 21-75B ADCS Package Developed by CubeSpace [5].”

# List of Tables (MS Word might do this, but you’ll probably need to do it manually)

This list begins on a new page and should be formatted the same as the List of Figures. Each table in the report should have a table number and a caption (*above* the table, numbered 1 through *N* in order of appearance in the report). For each table, you may choose the simple style shown below or place horizontal and vertical borders between every “cell” of the table. The caption should have a short part and possibly a longer description. The short part is what appears in the List of Tables. For example:

Table 1. Typical Temperature Ranges for Selected Spacecraft

Components. Adapted from Table 11-40 of [7].

|  |  |
| --- | --- |
| **Components** | **Typical Temperature Range, °C** |
| Electronics | 0 to 40 |
| Batteries | 5 to 20 |

For this example, the List of Tables would use “Typical Temperature Ranges for Selected Spacecraft Components” for the caption.

Be sure to introduce each of your tables in the text of your report, i.e. make mention of each table *before* it appears: “Table 1 shows…”

For each table you took from another source or loosely based on another source, be sure to cite the reference from which you took (or based) the table at the end of the caption using brackets, as is done above.

# List of Acronyms/Abbreviations (make this as you go, then alphabetize)

This list begins on a new page. Define each acronym or abbreviation used in the text of your report. For example:

ADCS Attitude Determination and Control System

IGRF International Geomagnetic Reference Field

NiCad Nickel-Cadmium batteries

Only list acronyms and abbreviations that you actually use in your report.

# List of Symbols (make this as you go, then alphabetize)

This list begins on a new page. Define each symbol used in the text of your report. Alphabetize as follows: *a-z*, A-Z, lowercase Greek, uppercase Greek. For example:

*a* semi-major axis

*e* eccentricity

*A* cross-sectional area

*I*sp specific impulse

*f* angle between sun vector and normal to spacecraft face

*w* orbital frequency

*W* right ascension of ascending node

Only list symbols that you actually use in your report.

# Chapter 1: Introduction

You may divide various chapters into Sections (1.1, 1.2, *etc.*)and Subsections (1.1.1, 1.1.2, *etc.*) if and where you feel necessary.

Chapter 1 documents the problem. This chapter should provide a description of the problem and the relevant issues. Typically include some references to what others have done in this area (using past tense), and conclude the chapter with an overview of the report.

# Chapters 2, 3, 4, 5, 6 … (as appropriate)

Introductory paragraph, Sections and Subsections, Summary (and transition to next chapter)

# Chapter 7 (or whatever number is reached at this point): Summary, Conclusions, and Recommendations

Okay, you did all this work. What did you learn? What do you want readers to take away? What should be done next?

This chapter should ***summarize*** the report: decide what the major important points are and summarize those points.

This chapter should draw ***conclusions***: what can you conclude about what’s important in the work described in this report?

This chapter should make ***recommendations***: where do you think you need to do more research, where do you think you might run into difficulties, what steps can you take to ensure success?

In all of these elements of the final chapter, if you have more than one or two major points to make, put them in a bullet or numbered list rather than running them together in a long paragraph. (This recommendation applies throughout any technical writing.)

# References (MS Word might do this, but you’ll probably need to do it manually)

Cite each reference in the text of your report using brackets (example: “Data on the reaction wheels chosen for this spacecraft can be found in [5].”) List each reference below in the order they appear in the report. Here are examples of book, website, conference paper, journal article references. Note that *italics* are used to identify book and journal titles, and quotes are used to identify paper or article titles. For internet articles, vendor datasheets, etc, try to include as much information as you can regarding author, title, date, etc.

1. V. V. Beletsky and E. M. Levin, *Dynamics of Space Tether Systems*, Univelt, Inc., San Diego, 1993
2. M. L. Cosmo and E. C. Lorenzini, *Tethers in Space Handbook*, Third Edition, December

1997. Available at the NASA Marshall Space Flight Center website: http://infinity.msfc.nasa.gov/Public/ps01/ps02/space.html

1. M. R. Long and C. D. Hall, “Attitude Tracking Control for Spacecraft Formation Flying,” in *Proceedings of the 1999 Flight Mechanics Symposium*, Goddard Space Flight Center, May 18-20, 1999, pp. 319–332
2. J. D. Thorne and C. D. Hall, “Minimum-Time Continuous Thrust Orbit Transfers,” *Journal of the Astronautical Sciences*, Vol. 45, No. 4, 1997, pp. 411–432
3. J. L. Schwartz, M. A. Peck, and C. D. Hall, “Historical Review of Air-Bearing Spacecraft Simulators,” *Journal of Guidance, Control and Dynamics*, Vol. 26, No. 4, 2003, pp. 513–522
4. Tretkoff, Ernie. "Space Debris: The Growing Threat in Earth's Orbit." *APS News, vol. 17, no. 6.* <https://www.aps.org/publications/apsnews/200806/spacedebris.cfm>
5. NASA. “Orbital Debris.” Retrieved February 6, 2023, from <https://www.nasa.gov/mission_pages/station/news/orbital_debris.html>

# Appendices (A, B, C, etc)

Appendices should include information that supports or amplifies the material in the main text. You may have no appendices, or you may have several. Usually appendices are “numbered” using capital letters A, B, C, *etc*, and are included in the Table of Contents following the Chapters.

Note the use of 12 point Times New Roman font, one-inch margins, and page numbers in the footer (within the bottom margin).