**School of Engineering Technology Thesis and Capstone Directed Research Project Checklist**

**SoET Graduate Education Committee: Version 4-17-23**

The checklist must be followed no matter which Fall, Spring, or Summer Semester candidacy is sought, and before University Graduate School Deadlines. Submitted document must be run through and evaluated by the committee chair using iThenticate. A successful certificate (no plagiarism) must be sent to Ms. McLeland. The completed thesis or capstone directed research project must be sent to Ms. McLeland from the major professor.

**THESIS AND DIRECTED PROJECT FORMAT CHECKLIST**

The following checklist was created to avoid formatting errors that can result in the Graduate School’s rejection of your thesis for final deposit or approval, from the School of Engineering Technology Graduate Education Chair. Follow current Academic Research Writing Expectations (ARWE) document, noted APA 7th edition comments, and graduate school guidelines.

**THE CORRECT SEQUENCE OF SECTIONS IN YOUR THESIS OR REPORT**

The sequence of pages must be:

1. ETAF (Form 9 thesis only)
2. TITLE page
3. Statement of Approval Page
4. Dedication page (optional, but common)
5. ACKNOWLEDGEMENTS page (optional, but common)
6. TABLE OF CONTENTS page(s)
7. LIST OF FIGURES page(s) (required if document has figures)
8. LIST OF TABLES page(s) (required if document has tables)
9. LIST OF ABBREVIATIONS page(s)
* Required because of business, industry, and government pervasive use of acronyms
1. GLOSSARY (required, each term must be cited and in the List of References unless the definition is the authors’ original work.)
2. ABSTRACT page is not more than a single page. Follow APA format, version 7 or newer.
3. Main body (the CHAPTERS) with properly numbered bold font headings and section and

sub‐section headings)

* + Chapter 1‐**INTRODUCTION**
	+ Chapter 2‐**REVIEW OF LITERATURE**
	+ Chapter 3‐**RESEARCH METHODOLGY**
	+ Chapter 4‐**RESULTS**

## Chapter 5‐SUMMARY, CONCLUSIONS, and RECOMMENDATIONS (make sure the title fits on one line for the start/heading of Chapter Five, you may need to “tweak” the single line margin so it fits on one line)

1. LIST OF REFERENCES
2. APPENDIX or APPENDICES (as appropriate with titles) major headings appendix A then italic
3. VITA (usually for Ph.D.; and optional for M.S. candidates)
4. PUBLICATION(S) (as appropriate)

**FORMATTING RULES THAT APPLY TO YOUR ENTIRE THESIS OR REPORT**

Major sections include TITLE PAGE, ACKNOWLEDGEMENTS, TABLE OF CONTENTS, LIST OF FIGURES, LIST OF TABLES, LIST OF ABBREVIATIONS, GLOSSARY, ABSTRACT, new chapter, LIST OF REFERENCES, and APPENDICES. (Bold). DON’T split Tables or Figures. Keep Tables and Figures on one page. Rotating a Table or Figure into landscape mode is allowable on a single page.

The margins for the first page of a major section must be as follows:

* Top = 1”
* Bottom = 1”
* Left = 1”
* Right = 1”

The margins for all other pages must be as follows:

* Top = 1”
* Bottom = 1”
* Left = 1”
* Right =1”
* Header =1”
* Footer = 1”

The font choice for the entire document must be Times New Roman size 12-point font including page numbers. All major headings chapter headings, thesis title size 14-point bold font. Captions, footnotes, and data w/tables need to be in 10-point font.

**FORMATTING RULES THAT APPLY TO YOUR FRONT MATTER SECTIONS**

The following rules apply to front matter sections. The front matter sections include:

* + TITLE page
	+ Dedication page (optional, but common)
	+ ACKNOWLEDGEMENTS page (optional, but common)
	+ PREFACE page(s) (optional, but rare)
	+ TABLE OF CONTENTS page(s)
	+ LIST OF FIGURES page(s) (required if document has figures)
	+ LIST OF TABLES page(s) (required if document has tables)
	+ LIST OF ABBREVIATIONS page(s) (recommended because of SoET’s pervasive use of acronyms)
	+ GLOSSARY (required), each term must be cited and in the List of References unless term is original work/description. The terms are unique to the study.
	+ ABSTRACT is no more than one page. Read and Follow APA 7th edition or newer regarding format, 250 words maximum.

**Page Headers/Footers**

• Page numbers in front matter are formatted in Roman numbers – do no write the word

 “page” in front of actual page number.

• Page numbers themselves need to be in the same font and point size used in the body of

 the document.

**TITLE page**

* The SoET requires the university standard thesis title page for both theses and capstone directed research projects. Starts on new page.
* No page number on title page.
* Title of thesis or directed project must be in ALL CAPS.
* Title of thesis or directed project must match the Form 9 and Form 32.
* Correct manuscript type must be indicated on the title page (Thesis or Capstone Directed Research Project) The students’ name must be in mixed‐case (upper and lower case) The correct graduation semester and year of final oral defense term must be specified.
* If “School of Engineering Technology” is not listed in the drop-down menu on department/school you will need to type in the name

**STATEMENT OF APPROVAL page**

* All committee members names and departments/schools/company names are listed. Committee listing needs to be centered and in bold. Be sure to include the correct salutation for committee members, Dr., Professor, Mr./Ms., etc.
* Six lines after committee listing, include Dr. Duane D. Dunlap

**DEDICATION page (optional, but common)**

* Starts on new page
* Note that this is the only section in the front matter for which there is no heading
* The content of the dedication must be double‐spaced
* The content is centered both horizontally and vertically on the page – in other words, in the center of the physical page
* Dedications are brief, for example…(To my parents, who inspired me to pursue higher education…)

**ACKNOWLEDGEMENTS page (optional, but common)**

* Starts on a new page
* Page heading, ACKNOWLEDGEMENTS, must be in ALL CAPS, 14- point bold font, and centered at the top of the page
* The content of the acknowledgements must be spaced 1.5 lines.
* The content is centered both horizontally and vertically on the page- in other words in the center of the physical page
* Dedications are brief, don’t italicize

**TABLE OF CONTENTS page(s)**

* Starts on new page
* Page heading, TABLE OF CONTENTS, must be in ALL CAPS and centered at the top of first page
* Front matter page numbers are Roman number
* Indentation subsequent lines of text under the check boxes.

**LIST OF TABLES page(s)**

* Starts on new page
* Table caption must be centered on page and single spaced.
* Page heading, LIST OF TABLES, must be in ALL CAPS, 14 point bold font, and centered at the top of first page
* Entries must be single-spaced

**LIST OF FIGURES page(s)**

* Starts on new page
* Figure caption must be centered on page and single spaced.
* Page heading, LIST OF FIGURES, must be in ALL CAPS and centered at the top of first page
* Entries must be single-spaced (figure number and title of figure) Text describing figure needs to be presented before the actual figure itself.

**LIST OF ABBREVIATIONS page(s)**

* The abbreviation section is required in all SoET thesis and capstone direct research project reports because our industry uses many acronyms.
* Starts on new page
* Page heading, LIST OF ABBREVIATIONS, must be in ALL CAPS and centered at the top of first page
* Entries must be single‐spaced, but with a blank line between entries.
* Entries must be alphabetized by acronym.
* Just include acronyms/abbreviations and spelled out terms –no definitions.
* Definitions having citation go in the GLOSSARY section.
* If a table was used to construct the list of abbreviations, the lines must be invisible

**GLOSSARY**

* The purpose of a Glossary in your Thesis/CDRP is to list terms unique to your study. Put your Thesis/CDRP into perspective of the reader, reviewing for the first time. If your Thesis/CDRP includes uncommon, specific terms unique to the study, or industry-business terms, the glossary serves as the reference for the reader. The Glossary is a reference throughout reading the Thesis/CDRP.
* Starts on new page
* Page heading, GLOSSARY, must be in ALL CAPS and centered at the top of the first page
* Entries must be single‐spaced, but with a blank line between entries
* Entries must be alphabetized, cited, and in the List of References unless original author definition.

**ABSTRACT**

* Starts on new page and a follows APA 7th edition or newer format.
* Page heading, ABSTRACT, must be in ALL CAPS and centered at the top of the first page
* Abstract must be written as a summary (in past tense of course) of entire thesis and report, not just another introduction. The abstract must cover the problem statement, prior research literature, methodology, findings, and conclusions. Do not simply copy and paste from Introduction or Conclusions.
* The body of abstract must be double-spaced.

**FORMATTING RULES THAT APPLY TO THE MAIN BODY OF THE REPORT**

The main body of the report are the CHAPTERs.

**Formatting sections and subsection headers CHAPTER headings**

* All chapters start on a new page
* Numbered, centered, and ALL CAPS

**First Level sub‐section headings within a chapter**

* Do NOT start on a new page
* Numbered #.#, centered, underlined, and mixed case

**Second Level sub‐section headings within a chapter**

* Do NOT start on a new page
* Numbered #.#.#, centered, NOT underlined, and mixed case

**Third level sub‐section headings within a chapter**

* Do NOT start on a new page
* Numbered #.#.#.#, left‐‐‐justified, underlined, mixed case

**Fourth level sub‐section headings within a chapter**

* Do NOT start on a new page
* Numbered #.#.#.#, left‐‐‐justified, NOT underlined, mixed case

**Page Headers/Footers**

* Page numbers in the main body of the report (the chapters) needs to be Roman number – do no write the word “page” in front of actual page number.
* No footers or footnotes are allowed.

**Special Caution for CHAPTER 1 (INTRODUCTION) and CHAPTER 3 (RESEARCH METHODOLOGY)**

* The INTRODUCTION and RESEARCH METHODOLOGY chapters and sections from original project proposal must be **converted to past tense** to reflect that your research or project has now been completed.

**In‐text citations for references (APA).**

In-line references are similar to footnotes, except they are recorded directly in the text paragraphs as opposed to at the bottom of the page. See APA 7th version or newer publication standard for the correct format and style to be followed.

* If following APA (as taught in TECH 64600) – in-line references need to use the APA parenthetical citation format as implemented by the university as the format for theses. Single space the reference, double space between references. See ARWE document.
* There is an APA style for in-line references to conversations, instructional materials, and other unpublished works. Do not include a reference within the LIST OF REFERENCES. **Be sure to follow the List of References format in the ARWE document (as taught in MET 527).**

## Figures and their Captions

* Figures must be numbered sequentially within chapter numbers

(e.g. Chapter 2 figures would be numbered 2.1, .2.2, 2.3, etc.)

* Figure numbers and captions are centered beneath the actual Figure.
* The number must be preceded by the word “Figure”.
* The number must be followed by a title/caption
* The word, *Figure*, and the *number* are *italicized*. Use a capital “F” when writing the word Figure.
* The title of the Figure is NOT italicized.
* **The figure is always be located AFTER its first mention in the body of the text, as close to that mention as possible.**
* Figure needs to be on one page. However, if Figure exceeds one page, each new page of the Figure must include the figure number, caption, and the parenthetical “continued.” For example:

*Figure 2.4:* Sample Work Break Down Structure (continued)

**Tables and their Captions**

* Tables must be numbered sequentially within chapters

(e.g. Chapter 4 tables would be numbered 4.1, 4.2, 4.3, etc.)

* Table numbers and captions are centered above actual table
* The number must be preceded by the word “Table”
* The number must be followed by table title/caption
* The word, *Table*, and the *number* are *italicized*.
* The title or caption must NOT be italicized.
* There can be no vertical interior or exterior lines inside tables. (See your APA manual for examples)
* There should be a horizontal line before and after the actual table.
* There should be a horizontal line beneath all column headings.
* If column headings have sub-column headings, the sub-column headings should be underlined.
* The Table should always be placed AFTER its first mention in the body of the text.
* If the table exceeds one page, each new page of the table must include the figure number, caption, and the parenthetical “continued” for example:

*Table 4.4:* Work flow efficiency data (continued)

**FORMATTING RULES THAT APPLY TO YOUR BACK MATTER SECTIONS**

The following rules apply to back matter sections. The back matter sections include:

* + LIST OF REFERENCES
	+ APPENDICES
	+ VITA (usually only required of Ph.D. candidates, M.S. students is optional)
	+ PUBLICATIONS (if applicable)

## Page Headers/Footers

* Page numbers in back matter sections should be Arabic numerals – do no write the word “page” in front of actual page number
* No footers or footnotes are allowed.

## LIST OF REFERENCES – Follow ARWE document example for format

## There must be a LIST OF REFERENCES header on the page that begins the actual citations. The usual rules for major section heads apply (one-inch margin before the heading; one inch after).

## Full citations in must be ARWE/APA format. To help with citations, consider using the “Son of Citation Machine” on the web. Full citations in must be APA. To help with citations, consider using the “Son of Citation Machine” on the web.

## APA style citations need to be sequenced alphabetically by first author (see APA manual for special situations).

## Each citation must be single-spaced. The second and subsequent lines of each citation are indented 0.5 inches. Be Sure to Double space between each reference.

* Individual References can NOT be split across pages
* The capitalization of article titles can be tricky and differs according to type of publication. When in doubt, consult APA version 7 or newer.
* The citing of page numbers can be tricky and can differ according to type of publication. When in doubt, consult APA version 7 or newer.
* Publications retrieved from the web require special formatting. SEE ARWE document.
* Conversations or unpublished instructional materials. Because personal communication cannot be recovered, only cite personal communication within the text of the paper. Do not include a reference within the LIST OF REFERENCES. Only include references in the reference list for sources that can be found or located by the reader. To cite personal communication, list the initials and last name of the communicator, the words "personal communication," and as exact a date as possible. See APA version 7 or newer manual for additional information.

**APPENDICES**

* If multiple appendices, each must start on new page with centered single line title “Appendix A Title” at the top of the page, followed by three blank single‐spaced lines.
* If single appendix, there should be no alpha designator.
* Figures must be numbered sequentially within APPENDIX designators

(e.g. APPENDIX C figures would be numbered C.1, C.2, C.3, etc.)

* Tables must be numbered sequentially within APPEDIX designators

(e.g. Chapter B tables would be numbered B.1, B.2, B.3, etc.)

* Table numbers and captions are centered above actual table
* All other formatting rules for tables apply here as well.

**VITAS**

Vitas are typically required for Ph.D. candidate. M.S. candidates can include if so desired. Vitas are typically included because the research is related to some aspect of their industry work experience or the intent to pursue a Ph.D. or other terminal degree.

* There must be a cover page with “VITA”, centered horizontally and vertically. No page number for this page. The actual vita starts on the next page.
* There are no Purdue formatting requirements for the Vita.

**PUBLICATIONS**

Students are asked to include copies of their published papers (or papers submitted for publication) if those papers are related to their thesis in any way.

* Publications should be published, or as submitted to the publisher or conference. Publications need not be converted to the thesis format.

**G****ETTING FORMATTING ADVICE**

Every graduate program at Purdue has an approved thesis format. For SoET, thesis format advisor also assists with capstone directed research project reports. If you have any questions about formatting your thesis, dissertation, or capstone directed research project report, to contact Ms. McLeland or Dr. Dunlap.

**Filename Format**

* Filename for a thesis shall be, Firstname\_Lastname\_MSET-Thesis\_August-2021.PDF.
* Filename convention for Capstone Directed Research Project shall be Firstname\_Lastname\_MSET-CDRP\_August-2021.PDF.

*Note: Month and Year shall be the month and year of final oral defense*

Template: <https://www.purdue.edu/gradschool/research/thesis/templates.html>

Thesis-CDRP Glossary Format Example:

**GLOSSARY**

**Additive manufacturing** The process of joining material layer by layer, using data from a

3D model (Bikas et al., 2015).

**Density** The mass of a component per unit volume (Olsen, 2020).

**Elongation at Break** The amount deformation, or change in part length at breakage

(Olsen, 2020).

**Megapascal (MPA)** A unit of pressure. The megapascal is one million pascals, or one

million newtons per square meter (DeWood, 2014).

**Traditional manufacturing** The process of cutting away from a block of material to achieve

the desired shape (Bikas et al., 2015).

**Ultimate Tensile Strength** The amount of load at which breakage occurs (Olsen, 2020).

**Yield Strength** The amount of load at which permanent deformation occurs

(Olsen, 2020).

**ACADEMIC RESEARCH WRITING EXPECTATIONS (ARWE)**

Updated:11/5/2021 Dr. Dunlap, MET 52700/MS Thesis/Ph.D./Directed Research Projects (CDRP)/Dissertations

**Notes complied by Graduate Faculty and Graduate Students**

Read, memorize, use, and print this document to follow as a daily writing reference for all writing assignments/deliverables. Paying attention to the following details will cause considerably less consternation, help you obtain higher assignment/research evaluation scores, and potentially help you graduate in a reasonable timeframe. The quality of your academic writing reflects your intellectual merit and **is** assessed in your thesis/CDRP or assignments. You are a student of the Purdue Graduate School. Seek the Purdue Writing Lab (PWL) for help as needed. The PWL is aware of this document and can help you.

**Introduction**

Academic, Research, and or Technical writing is not the same as conversational or storytelling writing. The School of Engineering Technology faculty expect exemplary writing in all scholastic endeavors. Word choice, sentence structure, related syntax, and formatting of academic papers in MET 52700/Theses/Capstone Directed Research Projects/Dissertations under our guidance/approval follow 80% of the APA manual 7th edition guidelines. The remaining 20% of the parameters are a compilation of graduate school guidelines/templates, elements/items shown in Table 1 and 2 below, and the Checklist provided by the SoET. The required additional reference to be used for MET 52700 can be found at <http://guides.lib.purdue.edu/c.php?g=707312>

Sloppy, awkward, and passively worded sentences as well as the overuse of adverbs, reflect a doubtful, indolent, or unfocused writer or researcher. The graduate faculty expect you to write concisely, backing up your ideas/work backed up with references that have integrity. Passive voice, dangling modifiers, and unclear pronoun references leaves doubt in the reader’s mind and, requiring additional writing time/rework. Eliminate sloppy writing from your graduate education vocabulary and writing style.

A couple more items of important note: first, more than 50% of your references **must** come from your program of study courses and/or the Purdue University Library Portal (<https://www.lib.purdue.edu/>)[.](https://www.lib.purdue.edu/) Second, Wikipedia and other related internet repository sites are ok to review and get ideas. However, those resources, are not always credible. Therefore, use extreme caution when you cite or use in your List of References. You are responsible for following all the details below.

**Academic Research Writing Dos and Don’ts**

TABLE 1

|  |
| --- |
| **Helpful Tips and Rules to Follow** |
| **General** |
| Do NOT use passive voice, pronouns, adverbs, or emotive language. |
| Never begin a sentence with an acronym. Don’t use the same word twice in a sentence. |
| Do NOT use prepositional phrases {PP} (or passive words) to start/begin a sentence. |
| Do not write in first- or second-person; always write in third person. |
| Phrases NOT approved for use: What is, Who is, They are, This was, This is etc. |
| Do not begin sentences using the words (or words similar to): this, with, an, and, it, is, its, it is, etc. |
| Know the difference between Affect vs. Effect. Understand how to use each depending on what you are conveying to the reader. |
| When an assignment is “x” pages long, fill entire page(s) with text, tables(s), graph(s), etc. |
| **Formatting** |
| Use left justification for all papers. Type and printout assignments, no handwriting. |
| Use an indent for each paragraph. Body of paper is double-spaced. |
| Maximum sentence length is to be no longer than 22 words. |

**ACADEMIC RESEARCH WRITING EXPECTATIONS (ARWE)**

Last Updated: 11/5/2021 by Dr. Dunlap

|  |
| --- |
| Spell out numbers less than 10 unless associated with the body of your work. |
| Include page numbers at the bottom right of pages using the same font/point size as body of text. The title page has no numbering. HOWEVER for the CDRP, page numbers appear in upper right hand corner. |
| Do not include a running header(s) on pages. |
| *After* discussing a Table, Figure, or Graph in the body of your text, display it. Make sure it is formatted to APA 7th edition guidelines. Do not break a given table across multiple pages. |
| **Citation** |
| Be extremely careful citing dictionaries or Wikipedia. Best bet, go into the Purdue Library Portal, no worries then. |
| Reference all non-original pictures. |
| When in doubt, cite and reference the thought or idea, or picture, table, graph too. |
| **References** |
| Do not construct a bibliography. |
| Reference list page(s) are titled “List of References” (centered) and are to be single spaced *within* each reference and doubled spaced *between* each reference. Indent after the first line of the reference |
| When referencing information/materials/reports from/via the Internet, be sure to include the “Retrieved on xx/xx/xxxx” date within the reference itself. |
| Pay close attention and adhere to APA 7th edition Table/Figure/Graph format and how to reference appropriately. |
| The Research Problem Statement have four sentences. At a minimum start, three of the four sentences must be cited and referenced to support and validate your statement(s). Sentence four must bedirectly aligned with one of the National Academy of Engineers, 14 Grand Challenges. |

**TABLE 2**

|  |
| --- |
| **Example Words, Phrases, and Syntax *NOT* to Use** |
| Additionally | Many, Some |
| Ah | May |
| Almost | Might |
| Believe | Most *(how much is most?)* |
| Big/Small, Good/Bad, Happy/Sad | Much |
| High/Low | Often |
| Can be | Plenty |
| Could / Could be | Should |
| Easy/Hard, More/Less | Significant – explain/detail how |
| Frequently | Slow/Fast |
| Generally speaking… | Modern/Old |
| He or She | Mature way |
| Heavy/Light | These |
| Here | They |
| Hope | This is |
| In | Very |
| It | We |
| Large or Small – Major or Minor | With |
| Long or Short | Strongest/Weakest |
| There was | Finest |
| Clearly or Meantime | Normal |
| A fraction | Unique or Usually |
| A lot | Simple/Hard |

Common Problems found and you need to avoid-

* Make sure wording in Chapters 1-5 are written in “Past Tense” terms. You are no longer “proposing” the research as the work as already happened.
* Don’t Stack Tables, Figures, Graphs **WITHOUT** having verbiage/ sentences between each.
* Abstract must follow APA 7th format.
* See ARWE document for List of References Format.
* Use SoET Thesis checklist for Chapter Titles.
* Make sure the title/heading of Chapter Five fits on one line.

Questions? Ask Dr. Dunlap