**Writing a CAPSTONE PROJECTS (Final Stage)**

**For BSIT, BSCoE, BSIE, MIT, MACOED**

**Thesis General Format**

The following are the parts of the study, optional and necessary, that must be followed and must appear in this order.

**Title Page.**

This page contains the title of the thesis, name of proponents and a statement regarding the qualification for which the thesis is submitted. It also contains the name of the institution, to which the thesis is being submitted, and the month and year of submission.

**Approval Sheet.**

This page bears the name of the proponent/s and title of the thesis, together with the signature of the adviser, college dean and members of the oral defense panel. This page certifies that the thesis has been duly approved, and must bear the date of approval.

**Acknowledgements.**

This section recognizes persons and organizations who/which assisted the proponents in the completion of the thesis. Acknowledgements should be expressed simply and tactfully.

**Abstract.**

This is a presentation of the thesis summary. Included in the thesis abstract are the statement of the problem, objective/s of the study, methodology, major findings, significance and conclusions. The abstract should not be less than 200 words but not to exceed 500 words, and should be typed single-spaced. Normally the abstract does not include any reference to the literature.

**Table of Contents.**

A sequential listing of all major parts of a thesis with corresponding page numbers. Included in the table of contents are the titles of chapters, sections and subsections, references and appendices. Also included are the titles of the preliminary pages as well as the required forms.

**List of Tables.**

A comprehensive listing of titles of all tables found in the body of the thesis with indication of the corresponding page numbers. Tables should be numbered in sequence, using Arabic numerals. For example, the third table appearing in chapter two should be labeled *Table 2.3.*

**List of Figures.**

List of charts, graphs, maps and other illustrations used in the thesis. Specific items consisting of 12 or more must be listed separately. For example, if there are more than 12 illustrations, then there must be a separate list of illustrations. List the exact title or caption of each figure and its corresponding page. Figures should also be numbered in sequence, using Arabic numerals. The first figure in the third chapter is labeled *Figure 3.1.*

**List of Appendices.**

An appendix or appendices, if any, should be after the References. Appendices include original data, preliminary tests, tabulations, tables that contain data of lesser importance, very lengthy quotations, forms and documents, computer printouts and other pertinent documents. Appendices should be arranged chronologically as they are cited in the main text. Use capital letters of the English alphabet to track appendices, and always begin with the letter A.

**List of Abbreviations and Symbols (Optional).**

All abbreviations used in the thesis are listed for easy reference of the reader. This section, however, is optional.

**Definition of Terms**

This section enumerates technical terms that are deem necessary in understanding the study. Operational terms and its definition is listed and defined inthis area of the documents.

**BODY OF THE THESIS.**

The main body of a thesis is divided into five (5) chapters, which may be further subdivided into sections.

**Chapter 1 – Project and Its Background.**

This chapter serves as a backgrounder for readers to have an overview of the study even without prior reference to other publications on the topic. The introduction is the first chapter of the thesis and must include the objective/s and justification of the study as well as the limitations set by the proponent. The introduction is the proper place to define any specialized terms and concepts used in the thesis.

**Project Contexts**.

**This area refer to the discussion of the project itself with the inclusion on general situation in terms of its exigency.**

**Purpose and Description**

The statement of the problem is the backbone of the proposal/paper. This is the main idea of the entire research project. This is a statement that you can prove with evidence/s. Well-constructed problem statements will convince your audience that the problem is real and worth having you investigates. Well-constructed problem statement defines the problem and helps identify the variables that will be investigated in the study.

**Objective of the Study.**

This section summarizes what is to be achieved by the study. This usually contains general and specific objectives. Research objectives are closely related to research problem.

**Significance of the Study.**

This section describes or explains the potential value of the study and findings. It should be clear in here, the target audience for the study and how the results will be beneficial for them. It answer the questions – Why is it important? To whom it will be beneficial?

**Scope and Limitation.**

This section sets parameters of the study. Limitations are the inherent problems encountered by the researcher, thus, stating the limitations of the study can be very useful for readers in interpreting the results of the study.

**Chapter 2 – Related Literature.**

The review of related literature showcases previous studies and publications relevant to the thesis. This chapter gives light as to what motivated the proponent/s in pursuing the specific field of study.

**Synthesis** – summary of the related literatures showing the gap and a need to develop/improve a system.

**Technical Background**

Include in-depth discussion on the relevant technical aspect of the project. It include software performance, hardware differentiation, implementation, constraints and other technical aspect of the area of study.

**Chapter 3 – Methodology Results and Discussion.**

Materials and Methods is the chronological listing of steps and procedure/s used by the proponent/s. Methods used for gathering of data, laboratory and field experiment, theoretical and/or conceptual frameworks, as well as techniques employed in the analyses of data must be specifically listed.

**Software Design, Products and/or Processes**

**System Architecture**

**Conceptual Design**

This section represents the application as a conceptual entity-relationship model. Verification of the conceptual design is required (usually included in the Results and Discussion chapter) to ensure that all needed data has been acquired and that it supports all processes identified in the requirement specifications.

**3.1.3 Use Case Diagram**

**Cost Benefit Analysis**

This section estimates the cost of software, hardware and labor required by the application of the project. It should compare the cost to implement such an application with the benefits delivered by the application. It should also demonstrate the values added to a given institution by the application of the project.

**Requirement Analysis**

**DFDzero**

**System Architecture/System Flow**

**Context Flow diagram**

**Block Diagrams**

**Flowchart of system**

**Development and Testing**

**Input and Output Reports and Analysis**

**Description of the Prototype**

**Implementation Plan**

**Implementation Results (optional)**

**Chapter 4–Recommendations.**

This chapter includes a summary of the main findings of the study. It also presents the significance of the study, and relates findings to the objectives and problems written in the introduction part of the study. Recommendation/s must be stated in this chapter. This part usually directs the reader to conduct further research on some specific areas related to the study.

**References.** This is a list of works cited, as well as works consulted but not cited (example, background reading not necessarily cited) in the construction of the research paper. The list of references is numbered and arranged alphabetically. For format on the writing of references, the APA (American Psychological Association) style of documentation shall be followed.

**Appendices.** An appendix or appendices, if any, should be after the bibliography. Appendices include original data, preliminary tests, tabulations, tables that contain data of lesser importance, very lengthy quotations, forms and documents, computer printouts and other pertinent documents. Appendices should be arranged chronologically as they are cited in the main text. Use capital letters of the English alphabet to track appendices, and always begin with the letter A.

**Thesis Physical Requirements**

* **Page** (if in hard copy form)
  + Use white letter-size paper (8 ½ x 11 in).
  + Orientation should be portrait style.
  + Text and figures are placed on only one side of the paper.
  + The other side should be left blank.
* **Font Type and Size**
  + AMAES uses American Psychological Association (APA) 6th edition style of writing and its official font is Arial size 12.
* **Pagination** 
  + Pages should be numbered consecutively throughout the research paper, including pages of figures, tables, appendices and bibliography.
  + Page 1 begins with the first page of the first chapter.
  + Preliminary pages preceding the first chapter are numbered using small Roman Numerals (i, ii, iii, etc). The title page should not be numbered although it is counted as page i.
  + Page numbers are placed at the center of the bottom of each page.
* **Spacing of text**
  + The body of the research paper should be typed double-spaced. The following, however, should be single-spaced:

- abstract

- footnotes

- quotations longer than three lines

- references and bibliography (except between entries)

- headings or subheadings

- multi-line captions of tables, figures, illustrations, etc.

* **Text alignment and Paragraph Indentation**
  + The text should be justified while keeping the first line of every paragraph indented.
* **Margin**
  + For the first page of any chapter, the left, top and bottom margins should be 40mm wide.
  + For the rest of the pages, the left margin should be 40mm and the top and bottom margins should be 25mm.
  + The right margin is 25mm for all pages. Make sure text is always justified on both sides. Use a five-space indention for every paragraph.
  + Margin specifications are meant to facilitate binding and trimming. All information (text headings, footnotes, illustrations, etc), including page numbers must be within the text area.
* **Binding**

- After the student/s successfully defended the thesis, integrated all recommendations and revisions, obtained all necessary signatures the manuscript must be photocopied and hard bounded.

For Campuses with JINCO’s printing services, the students must pay the appropriate printing fee and secure a job order from JINCO’s.

For Campuses without JINCO’s printing services students seek the services of an authorized printery for recopies and binding. Under graduate students must obtain at least four hardbound copies of their approved thesis: one copy for the school library, one for the respective colleges, another copy for the thesis adviser and the last is a personal copy for the proponent/s.

The following should be lettered in gold from the head to the foot of the thesis spine, using a 24-point font: proponent/s; degree for which the work is submitted; and year of submission.

The following particulars should be provided on the thesis cover, using 18-point gold block font: title of thesis; proponent/s; degree; name of school; and year of submission. The layout of the cover is very similar to that of the title page.

Following should be the cover color of the bound thesis:

College of Arts and Sciences - Maroon

College of Business Studies - Midnight Blue

College of Computer Studies - Royal Blue

College of Engineering - Dark Green

School of Graduate Studies - Black

After the approved copy of the thesis has been forwarded to the authorized printer for reproduction and binding, the student submits the official receipt to the thesis adviser. It is the duty of the adviser to collect from the printer the final copies of the thesis and forwards them to the library and the college dean.

CD Label. For capstone project or design project, the CD case cover follows the format of the Title Page on the harbound copy.

**Thesis Writing Convention**

* **Language**
  + The official language to be used in writing a research paper is American English.
  + Use only objective, expository English. Idioms, slang, subjective words and phrases, metaphors and undefined acronyms are not acceptable.
  + All sentences must be complete with acceptable grammar and correct spelling.
  + **Numbers**
  + Spell out all numbers less than ten unless they are attached to units of measurement (e.g. 5kg, 10ml).
  + Use figures for 10 or numbers more than 10.
  + If a sentence begins with a number, write the number in words even if it is more than 10.
  + If a series of figures is to be used, use numerals regardless of the value. Example:
  + In the room were 4 chairs, 12 boxes, 13 books, 10 files, 9 umbrellas and 8 pairs of shoes.
  + The number of computer units bought during the last five years was 8, 53, 27, 38, 52 and 9.
  + **Units of Measure**
* Whenever applicable, use SI units of measurement.
* Always use internationally recognized abbreviations for units of measure, and do not put a period after them. For example: 20 milliliters (20ml); 2.5 hectares (2.5ha); 3.7 metric ton (3.7mt) 80 kilometers per hour (80kph).
  + **Direct Quotations**
* Quotations must be copied accurately, word for word, and they must be placed inquotation marks unless they have been formally set off from the rest of the text.
* Parenthetical citation must follow each direct quote. The page number where the quote appears is included, in case the quote is lifted from a book. Otherwise, follow APA standards.
* Direct quotations must be minimized at all costs, except in some fields such as literature. Extensive use of direct quotations can be quite irritating for the reader.
* Students must learn to synthesize and paraphrase concepts in their own words and style.
  + **Footnotes**
* Footnotes should be used sparingly regardless of the field of study. However, it is recommended that citations be used instead of footnotes. Extensive footnoting tends to distract the reader from the main argument of the text.
* In cases where footnotes are necessary, the indicators used are superscript. The numbering of footnotes should begin with 1 and must be continuous throughout the whole text.
  + **Grammatical Tenses**
* As a rule of thumb, use the present tense when referring to previously published work and the past tense when referring to present results of the study.
* In a thesis, it is normal to go back and forth between present and past tenses. Most of the abstract should be in the past tense because present results are being described.
* On the other hand, the introduction, discussion and conclusion should be in the present tense because these chapters usually refer to previously published works.