# PHINM ARAULLO UNIVERSITY

CAPSTONE PROJECT

MAIN DOCUMENTATION OUTLINE

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Adviser’s Recommendation Sheet

Dean and Capstone Project Coordinator’s Acceptance Sheet

Panel’s Approval Sheet (For Final Capstone Project Documentation only)

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PHINMA ARAULLO UNIVERSITY

CAPSTONE PROJECT PROGRAM

DOCUMENTATION GUIDELINES

1. All Capstone project Main Documentation should adhere to the following standards:
2. Margins

|  |  |  |  |
| --- | --- | --- | --- |
| Left | **Right** | **Top** | **Bottom** |
| 1.5” | 1.0” | 1.2” | 1.0” |

1. Font

|  |  |  |
| --- | --- | --- |
| Font | **Size** | **Font Style** |
| 1. Text | Courier New | 11 | Regular  \* use *Italics* or single underline in emphasizing some text |
| 2. Heading or  Sub-headings | Courier New | 12 | Bold |

1. Spacing

* Double Space

1. Footer

<*Capstone Title> <Page No.>*

|  |  |
| --- | --- |
| **Line** | Black, 1 pt. |
| Text | Courier New, size 10, Regular |

1. Pages

* The page notation to be used is: <*chapter/appendix letter> - <page number>.* Thus the first page for Chapter 2 is at 2-1, while the first page of Appendix A is at A-1.
* There should be no page numbers for items before Chapter 1.

1. Sub-headings and text

All text and sub-headings should be in the following format as shown by an **example below**:

**2.0 REVIEW OF RELATED STUDIES**

* 1. **Computer-Assisted Instruction**

Computer-Assisted Instruction (CAI) refers to the use of computers to present drills, practice exercises, and tutorial sequences to the student.

One extensive type of CAI system is the PLATO [RALS1993]. It was developed by a group of engineers and educators in the Computer-based Education Laboratory at the University of Illinois, Urbane.

* 1. **Intelligent Computer-Aided Instruction**

Computer-Assisted Instruction (CAI) refers to the use of computers to present drills, practice exercises, and tutorial sequences to the student.

One extensive type of CAI system is the PLATO [RALS1993]. It was developed by a group of engineers and educators in the Computer-based Education Laboratory at the University of Illinois, Urbane.

**3.0 THEORETICAL FRAMEWORK**

* 1. **ICAI**

Computer programs that use artificial intelligence principles to help a person are called Intelligent Computer-Aided Instruction

**3.1.1 Major Characteristics**

Shown in Figure 1.0 are the four major characteristics that an ICAI program should have.

* + 1. **Mixed-Initiative Dialogue**

Mixed-initiative dialogue is one of the most distinguished aspects of ICAI programs. A more important characteristic of ICAI program from a design perspective is that they are constructed as knowledge networks.

1. Bibliography (References and Citations)

This section deals with the nature of reference materials (e.g. Books, Unpublished Materials, Journals and Periodicals, etc.). It speaks of the researcher’s awareness of the literature in his field and his critical resources.

Books:

<code> <author’s name> (<year of publication>). *<Book Title>,*

<site of publication>: <complete name of publisher>.

*Example:*

[CHIC1986] J M Chiclov (1986). *An Introduction to Distributed and Parallel*

*Computing.* Hemel Hempstead: Prentice-Hall International (UK), Ltd.

Journal:

<code> <author’s name> (<year of publication>). ‘<article title>*’, Journal Title,*

**volume number (issue number),** <pages where article could be found>.

*Example:*

[BAET1988] J C M Baeten & J A Bergstra (1988). ‘Global Renaming Operators in

Concrete Process Algebra’, *Information and Computation,* **78(3),**

pp 205 – 245.

Conference:

<code> <author’s name> (<year of publication>). ‘<article title>’*,* **In:** *Conference*

*Name*(editors of the proceedings, ed), <pages where article could be

found>. <site of publication>: <complete name of publisher>.

*Example:*

[PARK1981] D H E Park (1981). ‘Concurrency and Automata on Infinite Sequences’, **In:** *Fifth GI Conference* (P Deussen, ed), pp 167 – 183. Berline: Springer-Verlag.

World Wide Web:

<code> <author of the page> (year). ‘Homepage title’. URL site

*Example:*

[CRUZ1995] J Cruz (1996). ‘The Home Page of Juan De La Cruz’.

http://dlsu.edu.ph/aguinaldo.

1. Title Page

The first page of a thesis is the title page. The title page presents the title, the full name of the writer, and the submission statement, which includes the faculty or school, and the institution, the degree sought (granted), and the month and year in which the degree is to be (or was) granted.

1. Adviser’s Recommendation Sheet

No final thesis documentation will be accepted if all copies are not duly signed by the thesis adviser.

1. Dean Acceptance Sheet

No final thesis documentation will be accepted if all copies are not duly signed by the dean.

1. Panel’s Approval Sheet

No final thesis documentation will be accepted if all copies are not duly signed by all the defense panelists.

**PHINMA ARAULLO UNIVERSITY**

(In bold characters, font size 14)

**<CAPSTONE PROJECT TITLE>**

(In bold characters, underlined, font size 12)

###### A Capstone Project Proposal Presented to

College of Information Technology

PHINMA Araullo University

In Partial Fulfillment

of the Requirements for the Degree of

Bachelor of Science in Information Technology

by:

<last name, first name, middle initial of proponent 1>

<last name, first name, middle initial of proponent 2>

<last name, first name, middle initial of proponent 3>

<last name, first name, middle initial of proponent 4>

<Capstone Project Adviser’s Name>

Capstone Project Adviser

<date of submission>

(month and year)

**PHINMA ARAULLO UNIVERSITY**

(In bold characters, font size 14)

ADVISER’S RECOMMENDATION SHEET

(In bold characters, underlined, font size 12)

This Capstone Project Proposal entitled

<**Capstone Project Title>**

(in bold characters, font size 12)

by:

<last name, first name, middle initial of proponent 1>

<last name, first name, middle initial of proponent 2>

<last name, first name, middle initial of proponent 3>

<last name, first name, middle initial of proponent 4>

And submitted in partial fulfillment of the requirements of the

Bachelor of Science in Information Technology degree has been examined

and is recommended for acceptance and approval

<Capstone Project Adviser’s Signature>

<Capstone Project Adviser’s Name>

Capstone Project Adviser

<Date of submission>

###### Date

**PHINMA ARAULLO UNIVERSITY**

(In bold characters, font size 14)

DEAN AND CAPSTONE PROJECT COORDINATOR

ACCEPTANCE SHEET

(In bold characters, underlined, font size 12)

This Capstone Project Proposal entitled

<**Capstone Project Title>**

(in bold characters, font size 12)

After having been recommended and approved is hereby accepted

by the College of Information Technology

PHINMA Araullo University

<Capstone Project Coordinator’s Signature>

<Capstone Project Coordinator’s Name>

Capstone Project Coordinator

< Dean’s Signature >

<Dean’s Name>

Dean

<Date of submission>

###### Date

**PHINMA ARAULLO UNIVERSITY**

(In bold characters, font size 14)

PANEL’S APPROVAL SHEET

(In bold characters, underlined, font size 12)

This Capstone Project Proposal entitled

<**Capstone Project Title>**

(in bold characters, font size 12)

developed by:

<last name, first name, middle initial of proponent 1>

<last name, first name, middle initial of proponent 2>

<last name, first name, middle initial of proponent 3>

<last name, first name, middle initial of proponent 4>

after having been presented is hereby approved

by the following members of the panel

<Panelist 1’s Signature> <Panelist 2’s Signature>

Panelist Panelist

<date> <date>

<Lead Panelist’s Signature>

Lead Panelist

<date>

1. Table of Contents

Observe the following format:

TABLE OF CONTENTS

(in bold characters, font size 12)

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1.3.2 Specific Objectives 1-3

1. List of Appendices

Observe the following format:

**APPENDICES**

(in bold characters, font size 12)

Appendix <appendix letter>. <Appendix Caption>

Appendix A. Project Schedule and Work Assignment

Appendix B. Certifications

Appendix C. Transcript of Interview

Appendix D. Survey Forms/ Questionnaires

Appendix E. Sample Forms and Reports

Appendix F. Screen Design

Appendix G. User’s Manual

Appendix H. Program Listing

Appendix I. Others

***Project Schedule and Work Assignmen****t*

Observe the following format:

Project Schedule using GANTT Chart

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ACTIVITIES | **6/19** | **6/26** | **7/3** | **7/10** | **7/17** | **…** | **12/18** | **12/25** | **1/8** |
| Planning |  |  |  |  |  |  |  |  |  |
| <subtask1> |  |  |  |  |  |  |  |  |  |
| <subtask2>… |  |  |  |  |  |  |  |  |  |
| System Analysis |  |  |  |  |  |  |  |  |  |
| <subtask1> |  |  |  |  |  |  |  |  |  |
| <subtask2>… |  |  |  |  |  |  |  |  |  |
| System Design |  |  |  |  |  |  |  |  |  |
| <subtask1> |  |  |  |  |  |  |  |  |  |
| <subtask2>… |  |  |  |  |  |  |  |  |  |
| System Development |  |  |  |  |  |  |  |  |  |
| <subtask1> |  |  |  |  |  |  |  |  |  |
| <subtask2>… |  |  |  |  |  |  |  |  |  |
| **System Implementation** |  |  |  |  |  |  |  |  |  |
| <subtask1> |  |  |  |  |  |  |  |  |  |
| <subtask2>… |  |  |  |  |  |  |  |  |  |

Work Assignment

* Identify the project involvement/ participation of each group members.

**1. *Certifications***

Include the following certifications:

* Certificate of Interview
* Certificate to Use Company’s Data/ Information
* Certificate of Acceptance

**2. *Transcript of Interview***

- contains signed documentation of all questions and answers obtained during the data gathering step.

**3. *Survey Forms/ Questionnaires***

**4. *Sample Forms and Reports***

**5. *Screen Design***

Observe the following format:

Screen No. <screen#>

Screen Name: <name of the screen>

Narrative Overview:

<brief description about the different components of the screen describing its functionality> Screen Layout: <include the screen layout/ design>

*Example:*

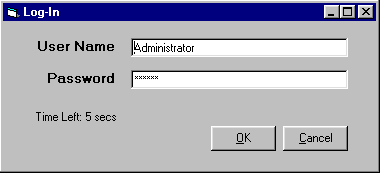
Screen No.1

Screen Name: Login Screen

Narrative Overview: Allows the user to try to enter the correct user name and password

within twenty seconds.

Screen Layout:



**6. *User’s Manual***

* A user’s guide in using the system. The manual is consisting of sample screens and their corresponding description, instructions on how to perform specific tasks or use specific object, and a complete illustration of the system’s usage (description that will assists the user on how to use the system).

**7. *Program Listing***

* This contains a printed copy of all the programs, modules, functions and procedures of the developed system

1. List of Tables

Observe the following format:

**LIST OF TABLES**

(in bold characters, font size 12)

Table <chapter#>-<table#> <Table Caption> <page>

*Examples:*

Table 1-2 Percentage Ratio of Sophomore vs. Seniors 1-6

Table 3-4 Mortality Rate of THESIS2 vs. School Year 3-7

1. List of Figures

Observe the following format:

**LIST OF FIGURES**

(in bold characters, font size 12)

Figure <chapter#>-<figure#> <Figure Caption> <page>

*Examples:*

Figure 2-2 Systems Development Life Cycle 2-16

Figure 4-1 Data Flow Diagram 4-12

1. Acknowledgment

The acknowledgment section contains expressions of appreciation for assistance and guidance. The help given by advisers and readers does not require written acknowledgment, but the recognition of generosity with time and knowledge is a courtesy that is widely appreciated. Acknowledgments should be expressed simply and tactfully and should fit into a single page only

1. Abstract

From 150 to 200 words using direct and complete sentences, the content should be informative enough to serve as a substitute for reading the thesis itself. This should contain a very brief rationale and statement of the problem or issue, a brief description of the research method and design, major findings and their significance, and the conclusion.

Do not put any citations or quotations. An abstract is usually limited to one page.

*Do not start the Abstract with “This thesis/ paper/ project…”*

1. Resource Persons

For each resource person:

**<Full name and Title> Dr. Juan Dela Cruz**

<Profession> Faculty

<Department> College of Criminology

<Name of Institution> PHINMA Araullo University

<e-mail address/ tel. no> [jdc@aupen.edu.ph](mailto:jdc@aupen.edu.ph)

464-3300/484-3300 loc. 112

1. Personal Vitae. For each proponent:

**<Last Name>, <First Name>, <Middle initial> Cruz, Maria Josefa F.**

<Address 1> 269 San Marcelino St.,

<Address 2> Golden Gate Subd., Tambo

<Address 3> Pasay City 1300

<Tel. Nos.> 833-8972/ 831-2213

<pager and cellular phone nos.> 1277-89221/ 0981-8711622

<e-mail address> [maria@skyinet.net](mailto:maria@skyinet.net)

1. The Text (or Body)

The text, or body, of a thesis begins with the first page of Chapter 1. All pages are numbered, including chapter and section title pages. Start using Footers in this part.

1. **Introduction**

**1.1 Background of the Study**

This section gives a background information on the study by discussing any or all of the following in textual paragraph form:

1. The general area in Computer Science or Information Technology where the study may be classified. Examples are the following:
2. For Payroll, Accounts Receivable/Payable, Inventory, Reservation, Library, etc. Systems, the general area which may be discussed is Information Systems.
3. For Expert Systems, CAIs, ICAIs, ITSs, etc., the general area is Artificial Intelligence.
4. For Editor Softwares, Utility Softwares, Compilers, etc., the general area is Software Technology.
5. For Multimedia Systems, Geographical Information Systems, Hypertext, etc., these are the actual general areas.
6. The current state of technology on the general area leading to the current state of technology in the specific area.
7. The specific company/corporation/institution on which the study is being conducted. A brief history, organization, some statistics (e.g. number of employees, locations/branches, etc.) products and/or services, etc.
8. A general and brief description of the system under study.
   1. **Statement of the Problem**
9. Current problems which are evident with the system or area under study. These problems may not necessarily be the problem of the study.
10. The problem of the study. This is identified by answering the question: What is being solved by this research or capstone project.

The statement of the problem is a clear, definite, and logical statement of the major problem(s) and the sub-problem(s) if any.

How to write the problem.

* State a **General Problem** or issue of the current situation/ system
* State the **Specific Problems** fully and precisely in enumerated form
* State the problem in complete grammatical sentence, punctuation is important. Provide justification to support the statement.
  1. **Objectives of the Study**

**1.3.1 General Objective**

* This is a statement that states what the research or capstone project is trying to accomplish.

**1.3.2 Specific Objectives**

* These are statements that try to achieve the general objective. Specify the things that would be done to accomplish the general objective.

Objectives are statements of WHAT the project is expected to accomplish. Each objective should be stated to describe what is to be done. Since objectives are associated with action, they usually start with action verbs.

Stating project objectives:

The study aims to…

develop conduct assess

design implement enhance

produce train strengthen

acquire improve evaluate

A satisfactory objective should be Specific, Measurable, Attainable/Achievable, Realistic, and Time-bounded. It should be stated to include the following information:

1. an action verb;
2. the outcome to be accomplished;
3. the time-frame the outcome is to be accomplished; and
4. the criteria or conditions for measuring the accomplishment.

Few objectives should be considered in a proposal and they should be arranged in their order of importance. It is more likely that few objectives can be successfully accomplished given the available resources.

Objectives must always relate to the expected outcomes or project outputs. Moreover, objectives determine the methodology – how each objective is to be accomplished.

Objectives are normally classified as general and specific. A general objective states what the research or thesis project is trying to accomplish. Specific objectives are statements that try to achieve the general objective.

Example:

1. System Development – Inventory System

General Objective

The project aims to improve the current inventory system of XYZ Company by reducing 80% of time needed between the project request and goods delivery before the end of the fiscal year.

Specific Objectives

Specifically, this study aims to:

* Improve the procedures for verifying invoices and shipments;
* Add an inventory control function to hold frequently used parts;
* Integrate the Goods Received System (GRS) and the Project Ordering System (POS) to reduce the manual effort needed to maintain information flows between these two computer systems.

Analysis of the objectives:

|  |  |
| --- | --- |
| Criteria | Justifications |
| Specific? | YES! Because the objectives state particular, precise and definite details about the project |
| Measurable? | YES! Because the objectives state weighable (80%) indicator to measure the success of the project |
| Attainable? | YES! Because the procedures, function and integration of GRS and POS is feasible and within reach |
| Realistic? | YES! Because the objective states practical and viable methodology |
| Time-bounded? | YES! Because the objective states the time when the system will be accomplished |

* 1. **Significance of the Study**
* A discussion on who benefits from the output of the research or capstone project.
* Discusses the contributions/benefits of the study to:

1. Individuals
2. Corporations
3. Country
4. World or humanity in general

* Enumerates the problems that may be solved by the output of the study.

The resources allocated for the proposed research (human, financial and material) should be justified in terms of the expected utility/significance of the results for the following concerns:

1. Nationhood and Development

* Will the research produce new technology?
* Does research address current social, economic, political and cultural problems?
* Will innovations in natural, infra and human rescue management result from the study?

1. Scientific or Artistic Domain

* Will the research contribute new information?
* Are data gaps to be filled?
* Is a new point of view to be applied to a previously studied phenomenon?

1. University Thrust

* Will it contribute to expansion of knowledge?
* Will it develop strong scientific base for national mastery?
* Will it develop strategies to address present socio-economic?

1. Specific Users/Beneficiaries

* Will it benefit specific users?
* How will it benefit these users?
  1. **Scope and Limitation**
* Discusses the boundaries of the system to be developed.
* Enumerates items that will not be covered by the study.
* Gives a general view of the features/characteristics of the output of the system.

1. **Methodology of the Study**

Identifies the formal method that the proponents intend to follow in order to accomplish what have been set in the objectives. The formal methodologies are any of the software engineering systems analysis and design methodologies:

1. Waterfall model or Software Development Life Cycle (SDLC) Model
2. Prototyping
3. The Spiral Model
4. 4th Generation Techniques
5. Agile Applications Development
6. Rapid Application Development (RAD)
7. Joint Application Development (JAD)
8. **Review of Related Studies**
9. General Literature Survey – resources according to your major or area of study
10. Abstracts/Compiled Abstracts – crude sources of materials
11. Bibliographical references – bibliographies of bibliographies
12. Directories and Periodical guides
13. Trade literature

* National Journals – research and development trend in the country
* Information Journals – research and development at international level

1. Go to Industry/Research Institutes/Government Agency/Private Corp. – interview/visit site and inquire the following:

* Inquire on their past projects, recommendations, future works that need to be done, problems encountered, limitations and coverage of works
* Inquire about present projects (if possible)
* See their facilities, library, and laboratory
* Try to interview their staff and personnel

1. Evaluation of Existing System/ Software

Literature or background of the study will:

* Reveal investigations similar to your study, how other researchers approach the problem
* Suggest method or technique of dealing with problems…suggest approach and strategies
* Reveal sources of data
* Reveal significant research personalities
* See your study in historical/associative perspective
* Provide new ideas and new approaches
* Provide information on what is current in terms of similar technologies or solutions to a particular problem domain

1. **Theoretical Framework/Conceptual Framework**

The theoretical/conceptual foundations in information technology that is necessary to accomplish the objectives set need to be discussed thoroughly and cited accordingly. It is a structure that holds together/ supports the fundamental principles of the study and is required to give legitimate basis defining the area of research.

*Examples:*

1. For Games Software: game trees, search algorithms
2. For Information Systems: general systems theory, transaction processing systems, human computer interface, etc.
3. For CAIs, ICAIs, ITSs: learning theories, testing theories, assessment theories, etc.
4. For Expert Systems: search engines, knowledge bases, etc.
5. **Description of the Existing System**

This section should provide necessary information on the current situation/system such as its nature, its description, users/beneficiaries, etc.

**5.1** Description of Current System

* 1. Hardware Setup
  2. Software and Applications being used
  3. Personnel
  4. Organizational Structure
  5. Sample Forms and Reports

1. **Proposed System**

This section should provide models that depict information (data and control) flow and content, partition the system functionally and behaviorally, and depict the essence of what must be built.

Deliverables from the Design of System Internals

1. Structure Charts – hierarchical diagram that show how an Information System is organized.
2. Fully factored structure charts
3. Complete descriptions of data couples and flags
4. Module Specifications
5. Input Specifications
6. Database Specification
7. Other Input Specifications
8. On-line or batch
9. Files
10. Other modules
11. Processing Specifications
12. Pseudocode
13. Nassi-Shneiderman Charts
14. Output Specifications
15. Database and file update specifications
16. Print or on-line specifications
17. Other modules
18. System Requirement Specification
19. Hardware Requirements
20. Software Requirements
21. Human Resource Requirements

The requirement definition describes everything about how the system is to interact with its environment. Included are the following kinds of items:

Physical Environment

* Where is the equipment to function?
* Is there one or several locations?
* Are there any environmental restrictions, such as temperature, humidity, or magnetic interference?

Interfaces

* Is the input coming from one or more other systems?
* Is the output going to one or more other systems?
* Is there a prescribed way in which the data must be formatted?
* Is there a prescribed medium that the data must use?

Users and Human Factors

* Who will use the system?
* Will there be several types of users?
* What is the skill level of each type of user?
* What kind of training will be required for each type of user?
* How easy will it be for a user to understand and use the system?
* How difficult will it be for a user to misuse the system?

Functionality

* What will the system do?
* When will the system do it?
* How and when can the system be changed or enhanced?
* Are there constraints in execution speed, response time, or throughput?

Documentation

* How much documentation is required?
* To what audience is the documentation addressed?

Data

* For both input and output, what should the format of the data be?
* How often will it be received or sent?
* How accurate must it be?
* To what degree of precision must the calculations be made?
* How much data flows through the system?
* Must any data be retained for any period of time?

Resources

* What materials, personnel, or other resources are required to build, use, and maintain the system?
* What skills must the developers have?
* How much physical space will be taken up by the system?
* What are the requirements for power, heating, or air-conditioning?
* Is there a prescribed timetable for development?
* Is there a limit on the amount of money to be spent on development or on hardware and software?

Security

* Must access to the system or to information be controlled?
* How will one user’s data be isolated from others?
* How will user programs be isolated from other programs and from the OS?
* How often will the system be backed up?

1. **Testing Activities**

After developing the system, testing must be performed to find and remove errors from a program.

1. **Installation Processes**

This section should discuss conversion planning and activities from the existing system to the new or improved system. There are three basic approaches used in converting to a new system: an immediate/ direct changeover, a gradual, step-by-step changeover, or a parallel system changeover. This section should discuss what type of installation or conversion approach will be used in the study and the different activities or process that will be performed to complete installation must be identified and discussed thoroughly.

1. **Summary of the Study**

This section should discuss what has been accomplished in the study written in the objective to see clearly all the significant aspects. It may be subdivided into those that are primarily aesthetic, those that announce the results on an investigation, and those that present a decision concerning a course of action. Also, it may be numbered with respect to problems and sub-problems in the study.

1. **Recommendations**

This section should furnish future undertakings based on the analysis and conclusion of the study. It may also recommend potential applications of the study, other solutions, enhancement and/ or developments related to the study.