Indiana University Engineering

Design Document

Team:

Project:

Date:

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# 2 Revision History

|  |  |  |
| --- | --- | --- |
| **Date** | **Author** | **Revisions Made** |
|  |  |  |

# 3 Design Status

|  |  |
| --- | --- |
| **Phase 6: Service / Maintenance** | **Status:** *Completed/ In Process/ To be done\**  **Semester:** *name in which it was completed* |
|  |  |
| **Phase 5: Delivery** | **Status:** *Completed/ In Process/ To be done\**  **Semester:** *name in which it was completed* |
|  |  |
| **Phase 4: Detailed Design** | **Status:**  *Completed/ In Process/ To be done\**  **Semester:** *name in which it was completed* |
|  |  |
| **Phase 3: Conceptual Design** | **Status:**  *Completed/ In Process/ To be done\**  **Semester:** *name in which it was completed* |
|  |  |
| **Phase 2: Specification Development** | **Status:** *Completed/ In Process/ To be done\**  **Semester:** *name in which it was completed* |
|  |  |
| **Phase 1: Project Identification** | **Status:**  *Completed/ In Process/ To be done\**  **Semester:** *name in which it was completed* |

**\*Note** : Identify which of the three (Completed/ In Process/ To be done) your project is in.

# 4 Project Charter

## 4.1 Description of the Community Partner

This section should address such questions as:

* Who is the project partner for this project?
* What is the overall mission of the project partner?
* Who will benefit from the project?
* Who will receive the project outcomes/deliverables?

## 4.2 Stakeholders

This section should address such questions as:

* Who will be affected by your project other than your customer?
* Who has vital interest in the project’s success?

## 4.3 Project Objectives

This section should address such questions as:

* Why are you doing the project (i.e. what is the motivation or need for the project?)
* How does your project fit within the mission of the project partner and your team?

## 4.4 Outcomes/Deliverables

This section should address such questions as:

* What are going to be the project results?
* When the project is finished, what will be left behind by your team?

## 4.5 Expected Semester Timeline

This section should address such questions as:

* What is the timeline for completion of the project?
* What are the major milestones?
* When is the project intended to be completed?

# 5 Semester Documentation (current semester)

## 5.1 Team Member

Insert a list and description of the team members and their specific roles and responsibilities.

## 5.2 Current Status and Location on Overall Project Timeline

Discuss what the current status of the project is and how that relates to the overall timeline developed in the project charter. Note any changes that will need to be made to the overall project timeline.

## 5.3 Goals for the Semester

Identify the specific goals for the project for the current semester, as agreed upon by the team, advisor and project partner.

## 5.4 Semester Timeline

Insert a detailed timeline for the current semester, making sure to identify important milestones, responsibilities and resources.

## 5.5 Semester Budget

Insert the expected budget for the current semester.

## 5.6 Transition Report

### 5.6.1 Summary of Semester Progress / Comparison of Actual Semester Timeline to Proposed Semester Timeline

Compare actual semester timeline to proposed semester timeline (if different). What aspects varied the most from proposed to actual?

Discuss the progress made during the current semester, including any pitfalls that you encountered that would be helpful for future teams to avoid as well as any best practices you found that helped you to advance the status of the project or work well as a team.

### 5.6.2 Draft Timeline for (next semester) and Relationship to Overall Project Timeline

Based on the work completed this semester, the work left to be completed, and the overall project timeline, create a draft timeline for the following semester.

# 6. Current Design

Write a detailed design description of the phase the project currently is in and work done this semester by the project team.

Example:

1. Rationale for design decisions.
2. Design sketches/flow charts/ calculations etc.
3. Include important information that your team has compiled.
4. Conclusion and recommendations.

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# Appendix A: Past Semester Archive

## A.1 Past Semester 1\*

Retitle this heading to reflect the appropriate semester (e.g. Spring 2011)

### A.1.1 Past Team Members

List team members from the appropriate semester including their roles and their contact information.

### A.1.2 Past Timeline

Paste in previous semester timelines to indicate what was accomplished during this semester.

**\*Note:** Keep adding the information after every semester.

# Appendix B: Overall Project Design

## B.1 Project Identification

|  |  |  |
| --- | --- | --- |
| **Phase 1: Project Identification** | **Status:** | **Evidence can be found:** |
| Goal is to identify a specific, compelling need to be addressed | | |
| * Conduct needs assessment (if need not already defined) |  |  |
| * Identify stakeholders (customer, users, person maintaining project, etc.) |  |  |
| * Understand the Social Context |  |  |
| * Define basic stakeholder requirements (objectives or goals of projects and constraints) |  |  |
| * Determine time constraints of the project |  |  |

**Summary of Project Identification phase of design****….**

## B.2 Specification Development

|  |  |  |
| --- | --- | --- |
| **Phase 2: Specification Development** | **Status:** | **Evidence can be found:** |
| Goal is to understand “what” is needed by understanding the context, stakeholders, requirements of the project, and why current solutions don’t meet need, and to develop measurable criteria in which design concepts can be evaluated. | | |
| * Understand and describe context (current situation and environment) |  |  |
| * Create stakeholder profiles |  |  |
| * Create mock-ups and simple prototypes: quick, low-cost, multiple cycles incorporating feedback |  |  |
| * Develop a task analysis and define how users will interact with project (user scenarios) |  |  |
| * Identify other solutions to similar needs and identify benchmark products (prior art) |  |  |
| * Define customer requirements in more detail; get project partner approval |  |  |
| * Develop specifications document |  |  |
| * Establish evaluation criteria |  |  |

**Summary of Specification Development phase of design….**

## B.3 Conceptual Design

|  |  |  |
| --- | --- | --- |
| **Phase 3: Conceptual Design** | **Status:** | **Evidence can be found:** |
| Goal is to expand the design space to include as many solutions as possible. Evaluate different approaches and selecting “best” one to move forward. Exploring “how”. | | |
| * Complete functional decomposition |  |  |
| * Brainstorm several possible solutions |  |  |
| * Prior Artifacts Research |  |  |
| * Create prototypes of multiple concepts, get feedback from users, refine specifications |  |  |
| * Evaluate feasibility of potential solutions (proof-of-concept prototypes) |  |  |
| * Choose "best" solution |  |  |

**Summary of Conceptual Design phase of design….**

## B.4 Detailed design

|  |  |  |
| --- | --- | --- |
| **Phase 4: Detailed Design** | **Status:** | **Evidence can be found:** |
| Goal is to design working prototype which meets functional specifications. | | |
| * Bottom-Up Development of component designs |  |  |
| * Develop Design Specification for components |  |  |
| * Design/analysis/evaluation of project, sub-modules and/or components (freeze interfaces) |  |  |
| * Design for Failure Mode Analysis (DFMEA) |  |  |
| * Prototyping of project, sub-modules and/or components |  |  |
| * Field test prototype/usability testing |  |  |

**Summary of Detailed Design phase of design….**

## B.5 Delivery

|  |  |  |
| --- | --- | --- |
| **Phase 5: Delivery** | **Status:** | **Evidence can be found:** |
| Goal is to refine detailed design so as to produce a product that is ready to be delivered! In addition, the goal is to develop user manuals and training materials. | | |
| * Complete deliverable version of project including Bill of Materials |  |  |
| * Complete usability and reliability testing |  |  |
| * Complete user manuals/training material |  |  |
| * Complete delivery review |  |  |
| * Project Partner, Advisor, and EPICS Admin Approval |  |  |

**Summary of Delivery phase of design….**

## B.6 Service / Maintenance

|  |  |  |
| --- | --- | --- |
| **Phase 6: Service / Maintenance** | **Status:** | **Evidence can be found:** |
| * Evaluate performance of fielded project |  |  |
| * Determine what resources are necessary to support and maintain the project |  |  |

**Summary of Service/Maintenance phase of design….**