

## **ME553: Project guidelines for spring 2014**

This document describes the guidelines for the team projects in the ME553 course (spring 2014).

*Inspiration, Ideation* and *Implementation* form the basis for the ME553 course project. Based on these ideals, the course project is divided into five phases. Each of these project phases consist of

- a) Goals : Analyses/learning outcomes for each project phase
- b) Methods/Frameworks: Tools and ideologies that are suggested for goals in each phase
- c) Deliverables: Specific reports/documents/analyses that are submitted for allocating grade points.  
A deliverable can be an *Individual Based* or a *Group Based* submission

The prescribed duration and grade percentage for each project phase are also listed.

Please note that this document is only a generalized overview of the course project. This document should only be used as an indicator of the overall intent of the project phases. The complete details will be elaborated at appropriate times during the course. The instructor reserves the right to modify deliverables, grade allocation and the duration of the project phases.

### **Inspiration**

#### ***Project Phase #1: Opportunity & Scenario Identification***

***Due: February 7<sup>th</sup>, 2014***

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#### ***Goals:***

- Develop five significant product-opportunity gaps (POG)
- Formulate the POG's as opportunity statements
- Visualize a scenario associated with the POG's

#### ***Suggested Methods/ Frameworks:***

- Social-Economic-Technological (SET) Factors
- Desirability-Viability-Feasibility (DVF) Analysis
- Design Thinker's Personality Profile (empathetic design)

#### ***[Individual] Deliverables:***

- Five Opportunity statements and corresponding scenarios

**Duration / Grade Percentage: 1.5 weeks / 5% [Individual Grade]**

# Ideation

## Project Phase #2: Value Opportunity Analysis

Due: February 21<sup>st</sup>, 2014

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### Goals:

#### [Individual]

- List and characterize the needs related to the five opportunities
- Analyze the value of the opportunities created
- Express the analysis into an objective categorical framework
- Choose one out of the five opportunities for the team to consider

#### [Team]

- Apply value analysis on the selected opportunities from every team member
- Choose one opportunity out of the four team opportunities

### Suggested Methods/ Frameworks:

- Preliminary Research (Observation for Needs identification)
- Kano Model (Needs Characterization)
- Weighted Matrix (Value Analysis)
- Storyboarding, Storytelling, Visual Thinking

### Deliverables:

- [Individual] : Needs and their Kano Analysis, Value Analysis Chart, Selected Team Opportunity
- [Team]: Value Analysis Chart for team opportunities, Selected Final Opportunity, Initial Storyboard

Duration/Grade Percentage: 1.5 weeks/ 5%

[Team Grade]

OFF CAMPUS Team Conference Call #1

## Project Phase #3: Understanding the Opportunity

Due: March 7<sup>th</sup>, 2014

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### Goals:

- Understand the Value Opportunity through in-depth research
- In-depth understanding of the user (intended market)
- Guideline development for future opportunity conceptualization

### Suggested Methods/ Frameworks:

Primary Research

- Interviews

- Visual Stories
- Task Analysis

#### Secondary Research

- Human Factors and ergonomics analysis
- Lifestyle references
- Research databases (literature review)
- Value map
- Functional decomposition
- Lean Quality Functional Deployment (Lean QFD)

#### **[Team] Deliverables:**

Extensive team report describing:

- Understanding of user and value opportunity
- Methods used in research
- Value map, functional decomposition and lean QFD for the opportunity
- Guidelines for forthcoming opportunity conceptualization
- Final Storyboard

**Duration/Grade Percentage: 2 weeks/ 8%**

**[Team Grade]**

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#### **Project Phase #4: Opportunity Conceptualization**

**Due: April 4<sup>th</sup>, 2014**

#### **Goals:**

- Turn Value opportunities into perceivably usable and desirable product concepts
- Generate many concepts with the team keeping needs in mind
- Analyze and evaluate concepts in the team and choose one

#### **Suggested Methods/ Frameworks:**

- Sketching, Diagramming
- Understanding Play Value & Brainstorming
- KJ Method
- Pugh Charts
- Morphology Chart
- Quality Function Deployment (QFD)

#### **[Team] Deliverables:**

- Concepts generated based on prior guidelines and needs
- Description of the analysis and evaluation of the concepts using the methods mentioned above
- The result of the analysis and the choice of concept
- Initial Prototype of the concept (either abstract, virtual or physical depending on project)

**Duration/Grade Percentage: 3 weeks/ 10%**

**[Team Grade]**

## **Implementation**

*Project Phase #5: Product Modeling and Rapid Prototyping*

*Due: April 25<sup>th</sup>, 2013*

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### **Goals:**

- Elaborate the product concept into a full-fledged model of the product (if applicable)
- Develop a detailed abstract or virtual model (if service based)
- Demonstrate the proof of the concept with a prototype

### **Suggested Methods/ Frameworks:**

- Abstract Prototyping
- TRIZ

### **[Team] Deliverables:**

- CAD Models of the Product (if applicable)
- A rapid (possibly low-fidelity) prototype of the product or Virtual/Abstract Prototype

**Duration/Grade Percentage: 3 weeks/ 12%**

**[Team Grade]**

**NOTE: Phases 3, 4 and 5 are subject to change. Any modifications will be notified at the appropriate time**