Koç University
College of Engineering
Mech 491 Engineering Design Project Proposal

Spring 2018

CATCHY PROJECT TITLE

Team Members:

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<th>Department</th>
<th>Student ID</th>
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Project Advisors:

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Executive Summary

A concise, non-technical summary of the entire document. This summary should describe the motivation for the work and a brief summary of the proposed approach. Nothing should be here that is not in the body of the text. Limit the executive summary to 300 words.
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Section 1  Introduction

What is the project about and what is your/sponsor’s motivation to select/sponsor the project? Review any prior work in the subject area. What is the state of the art? Who are the expected end users. Describe in detail customer requirements, preliminary specifications, related technology areas, competitive benchmarks, and any related patents. Comment on the scope of effort involved in general terms. You can subdivide this section as follows:

1.1  Concept

Problem statement...

1.2  Objectives

Describe the project goals and intended functions and features. Carefully state how you have narrowed or broadened the scope of the project based on available time and labor resource. Comment on critical design parameters and what challenges might stand in the way of accomplishing your design objectives. Be ever alert to professional and societal context of the design objectives as it relates to engineering standards, and realistic constraints that include one or more considerations of economics, environment, sustainability, manufacturing, ethics, health and safety, and social and political impact. Make sure your objectives are clear. Clear objectives lead to clear plan for generating the tasks to accomplish the design goals.

1.3  Elements of the engineering design involved

Elements of design, analysis, manufacturing, testing etc.

1.4  Background

Describe state-of-the-art and background of your project topic.....

1.5  Approach

Describe your attack plan.....

Section 2  S/T methodology and associated work plan

2.1  Methodology

Describe your design methodology and experimental set-up clearly.

2.2  Action Plan and Work Package Descriptions

The action plan consists of various tasks called work packages needed to implement the design strategy. The tasks should be linked to the objectives and the design strategy components. The tasks should be divided among the team members for a well-rounded experience for all. To be specific, one person doing all the analysis, another simulation, and another implementation, and yet another testing, does not lead to well round experience. All must share these activities, not necessarily in exactly the same proportion. In practice, engineers usually take ownership for a subsystem, component, element, part, assembly, etc., as a block. The design processes of analysis, simulation, implementation, testing, etc. are done for each such block and as an integrated whole. Someone or some “bodies” need to take responsibility for integration. Everyone needs to pay attention and be responsible for making sure his or her respective elements of the design fit together with everything else.

Detailed work package descriptions with contributors, objectives, task descriptions, etc. If the deliverable at the end of the semester is a product - a piece of hardware or software, or a combination of the two, you may use a general block diagram (a block diagram with multiple blocks – call it ‘super block’) to convey your design strategy. Each block in the super block must be as modular as possible, so that it can be implemented independently and re-assembled later.
Describe the function of each work package briefly and explain how it contributes to the overall design and feature list above. Include a discussion on interface with other blocks of your super block, and with super blocks designed by other teams, as applicable.

If, on the other hand, your project is exploratory in nature because, for example, the technology needed for product development is not mature, or more than a semester is needed to finish the project, or there is high risk associated with an identified technology, or the best technology solution is not clearly identified, then your strategy would have to be modified accordingly. Your strategy would be to generate information to be used by another team working on the same project in the following semester. A block diagram format for design strategy presentation may, or may not be appropriate. This must be decided on case-by-case basis.

You can use the following template.

<table>
<thead>
<tr>
<th>Work package number</th>
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<th>Start date or starting event:</th>
<th>Week 1</th>
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<td>Work package title</td>
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<td>Background research, etc.....</td>
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<td>Weeks per participant</td>
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**Objectives**
- List objectives of this WP.....

**Description of work**
List a task list with start-end weeks.....

**T1.1** (w1-w12) Maintain project web site
Establish and maintain a project web site for providing internal and external access to appropriate project related information.

**T1.2** (w1-w2) Task 2
.
.
.

**Deliverables**

**D1.1** (w3) Plan for the project web site.

**D1.2.x**
.
.
.

**Milestones**

**M6.1** (w3,w5,...,w11) Bi-weekly website updates

**M6.2**
.
.

**2.3 Demonstration**
Plan performance analysis measures and final demonstration of your project outcomes.

**2.4 Impact**
Expected impacts of your project outcomes.
2.5 **Risk analysis**
Plan the areas of risk and the associated actions to overcome these risks.

2.6 **Gantt Chart**

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**Section 3  Measure of success and the specific deliverables**
State the measure of success for your project and discuss specific deliverables that you will produce at the end of the project. Discuss also B-plan in the case that your proposed methodology fails.

**Section 4  Budget**
Estimated budget needed for completion of the project and sponsors if there exists any. Include a cost of the project based on labor and material. Include a list of parts, lab equipment, shop service, which are not routinely available at no cost basis. Give estimated cost of any such items.

**Section 5  Ethical, Professional and Societal Considerations**
Discuss possible ethical issues resulting from the outcomes of your project. You may also describe what professional codes and standards may be relevant for the project. Comment on which of the following considerations may or may not be relevant to your project: economic, environmental, sustainability, manufacturability, ethical, health and safety, social, and political.

**Section 6  References**
List all the sources that you have used in writing your proposal. You **must also cite** these references in the text properly. The following are the examples of appropriate formats:

**Journal article:**

**Book:**

**Book chapter:**
Online periodical:

Online document: