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| **HCMC UNIVERSITY OF TECHNOLOGY**  Faculty of Transportation Engineering  ----------o0o---------- | **SOCIALIST REPUBLIC OF VIETNAM**  Independence – Freedom – Happiness  ----------o0o--------- |

A BRIEF PROPOSAL OF THESIS /CAPSTONE PROJECT

Semester \_\_222\_\_\_\_

**1. Thesis/Project title:** Analyse the changes of steering feel in various speed in Toyota VIOS.

**2. Advisor’s full name:** PhD. Ngô Đắc Việt

PhD. Trần Đăng Long

**3. Student’s full name:** Trịnh Tiến Long **- ID: 1852047**

**4. Thesis content:**

**4.1. Type:** ◻ A product design ◻ A technical evaluation

A scientific research ◻ Other:

**4.2. Objectives & Technical requirements:**

\_ Analysis of the complete system dynamics of EPS, and implementation of the EPS simulation

model on Matlab/Simulink, with simulation results analysis using Simscape Multibody.

**4.3. Core problems to be solved & Solving ideas/methods:**

\_Build EPS model on Simscape to determine the torque acting on steering wheel with certain steering angle

**4.4. Works to be done & Required results:**

| **No.** | **Works to be done** | **Required results** *(Ex: data, equations, models, diagrams, parameters, charts, findings…)* |
| --- | --- | --- |
| 1 | Dynamic formula for EPS system | Equation |
| 2 | Solidwork model for simscape simulation | Model |

**4.6. Requested products:**

Technical report  Poster ◻ Scientific paper

◻ Software ◻ Firmware  Numerical model

◻ General layout drawings ◻ Detailed drawings  Assembly drawings

◻ Others:

**4.7. Scope of Thesis/Project:**

\_Components that are not related to the EPS system are ignored.

**4.8. Tasks of each team member:**

|  |  |  |
| --- | --- | --- |
| **No.** | **Member’s full name** | **Works assigned** |
| 1 | Trịnh Tiến Long | Summary the dynamic equation, simulate using simscape multibody |

**5. Technical strengths of team members and practical opportunities:**

\_Great skill on summarizing theory

\_ Background knowledge of Matlab Simulink/Simscape, automatic control facility.

**6. Technical weaknesses of team members and practical threats:**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Technical weakness/**  **Practical threats** | **Degree of risk of Thesis/Project failure**  *(Low/Medium/High)* | **Solutions to overcome** |
| 1 | Lack of solidwork skill | Medium | Learn how to use program immediately |

**8. Working plan for 15+1 weeks:** *(including: tasks to be done; solutions to overcome weakness and threats; mid-term report (X); …)*

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Works** | **Week** | | | | | | | | | | | | | | | |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **X** | **11** | **12** | **13** | **14** | **15** | **16** |
| 1 | **Introduction of project** | **x** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 | **Summarize theory** |  | **x** | **x** |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 | **Choose plan and prepare technical paper for reference** |  |  |  | **x** | **x** | **x** |  |  |  |  |  |  |  |  |  |  |
| 4 | **Summarize dynamic equation, get VIOS steering system parameter** |  |  |  |  |  |  | **x** | **x** |  |  |  | **x** |  |  |  |  |
| 5 | **Draw solidwork model** |  |  |  |  |  |  |  | **x** | **x** |  | **x** | **x** |  |  |  |  |
| 6 | **Build EPS model on MATLAB** |  |  |  |  |  |  |  |  |  |  |  |  | **x** | **x** | **x** |  |
| 7 | Make poster |  |  |  |  |  |  |  |  |  |  |  | **x** |  |  |  | **x** |
| 8 | Make presentation slides |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | **x** |
| 9 | Write full report |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | **x** |

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**Student:Trịnh Tiến Long** **-ID: 1852047** - **Signature:** Long

**Date** (dd/mm/yyyy): 24/04/2023

**ADVISOR**