**INCLUDE Course - CE2110-001 Applied Mechanics I: Statics**

**Identity and Agency Development (IAD) Projects**

As a part of the INCLUDE project, this course provides an opportunity to make your choice over the final exam or final project. Research indicates that you will learn better if you actively use your prior knowledge and personal strength. The purpose of the final project is to provide the opportunity to use your creative strengths to learn the Statics topics better without too much stress in the exam setup.

Please review the following project descriptions carefully. If you choose the final exam option, you don’t have to notify the instructor. Before deciding, carefully read the following description and rubric.

**If you fail to meet the deadlines of any stages or fail to meet the project scope, you can take the final exam by notifying the instructor via email.**



Figure 1. Strength Survey of Spring 2023 Statics Class (1/17/2023)

**Project format: individual project**

**Project duration**: 4/3/2023 – 4/28/2023 (4 weeks)

**Project due: 11:59 PM on 4/28 HuskyCT submission link**

1. **Project Description**

During the 4 weeks of period, you will create your own Statics problems related to your major and nearby circumstances. You will **create and solve a total of 9 problems**, each of which is exactly from the following textbook section. **You cannot use any problems from the textbook** (that problem will get 0 grade automatically), which means your problems must be NEW and CREATIVE.

1. 3D equilibrium of a rigid body: equilibrium of a point (section 2.5)
2. Moment of a force about an axis (section 3.2)
3. Equilibrium in 3D: calculating support reactions using both 3D force and moment equilibrium equations (section 4.3)
4. Centroid of Volume of a composite body (section 5.4c)
5. Analysis of Trusses with more than 4 segments (section 6.1)
6. Shear force and bending moment diagrams of a beam under concentrated loads AND a distributed load AND a concentrated moment (section 7.1)
7. Analysis of Machines: More than 3 parts (section 6.4)
8. Application of Friction for an actual structure (section 8.1)
9. Moment of Inertia of a composite body (section 9.2)
10. **Project Logistics**

**Project Timeline**

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| --- | --- | --- |
| **Date** | **Milestones** | **Notes** |
| 3/28 Tuesday | Submit the letter of intent assignment to the HuskyCT link | This is a true and false question in the assignment link. Click ‘True’ if you choose the project option. After this date, you will NOT be able to choose the project option |
| 4/3 Monday | Start your project | Choose a candidate structure/system for each subjectWrite the problem statements with reasonable dimensions and loads |
| 4/11 Tuesday | Project proposal submission to HuskyCT link | Submit your proposal as a Microsoft Word file using the format. Since you didn’t learn the moment of inertia, you can just plan to create the last problem in your proposal, i.e. complete problem statements and figures for problems 1) ~ 8), and add a plan for 9) |
| 4/17Monday | Instructor feedback | Receive instructor feedback and update the problem statements for the preliminary report |
| 4/21Friday | Preliminary report to HuskyCT link | Submit a preliminary report with ALL problems, statements, and hand-written draft solutions.  |
| 4/28Friday | Final report to HuskyCT link | Submit your final report in the HuskyCT link. |

**Project Grading:**

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| --- | --- |
| **Components** | **Points** |
| Project proposal | 9 |
| Preliminary report | 36 |
| Final report | 55 |
| Total | 100 |

**No late submission will be accepted. If you fail to meet the deadlines of any stages, you will take the final exam.**