

Outline – KI/Denmark High Collaboration

Below is an outline depicting the way KI and Denmark High have been working their project based collaboration. Please note that each year there has been changes made in an effort to continuously improve:

- 1) Two industry individuals have been working together on this project with Denmark. For KI it has been an Engineer and the HR Manager.
- 2) Identification of a project – Internally the engineer involved brainstorms some project ideas, discusses with other engineers and the engineering manager.
- 3) Once the project has been narrowed down, the Engineer and HR Manager meet with the Tech Ed teachers and Principal prior to school starting. This is a meeting to discuss a few things:
 - a. Is the project within the abilities of the students? Does it fit the class?
 - b. Is the project something that the teacher feels the students can complete within the school year?
 - c. Are there any improvements we should make regarding communication, interactions, type of training provided or anything?
- 4) Once everything has been agreed upon, the first step with student involvement is to meet with the class to launch the project. That first day, we do a few things as follows:
 - a. The teacher introduces us to the class and gives a brief overview of why we are there
 - b. We then talk a little about what prior classes have done. We also talk about the fact that there will be training along the way that will not only include technical training, but also some training related to interpersonal skills/employability skills.
 - c. Next we roll out the project to them and answer any questions related to the project itself. We typically have parts there and explain exactly what the problem is so they understand what needs to happen.
 - d. We then organize everything into a CI (continuous improvement) Plan. This is a document we use at KI when working on projects. I will include this document. This document can be used two ways. For a project like this, we are really using the first tab only and using it as a timeline for the project. For existing processes or projects we also would use the second tab which is used to track improvement metrics.
 - e. Once we are done with this, we will ask if there are any other questions. The teacher then typically breaks them into groups and asks each group to brainstorm the project separately.
 - f. The teacher also assigns one student to update the CI plan and forward to us bi-weekly.
 - g. Students are also given our email addresses to contact us with questions at any time along the way.
- 5) Each week for the next four weeks the HR manager comes back for one class period to conduct the following trainings, as well as get any updates they may have:
 - a. Safety
 - b. Communication Skills
 - c. Working as a team

- d. Problem solving
- 6) Over the course of this four week period, we typically have a brainstorming session as well and talk to the individual groups.
- 7) Typically by time the trainings are complete, the groups have come up with ideas and then they begin constructing initial prototypes.
- 8) Once the prototypes are done, we meet with the class to review the prototypes and discuss all of them. Ideally we talk about what the best concepts are from each group and try to apply them to a final prototype if possible. This final prototype serves as a proof of concept.
- 9) Once the final prototype is complete, the class comes to KI to present the prototype to our General Manager, Operations Manager, Engineering manager, a couple Engineers and a couple Process Managers.
 - a. They present a power point showing the problem they were challenged with and steps along the way.
 - b. After the presentation, we open it up for questions both ways. We will ask questions of them and ask that they feel free to ask us questions.
 - c. We then go down to the floor to trial the prototype. From this trial there typically are suggestions and questions that arise. The students then need to address those concerns/suggestions in the final design.
 - d. After the prototype trial, we give the students a tour of the facility which helps them understand our production processes better. If possible, we also show the prior year's project in production.
- 10) Students then begin working on the design and drawings. At this point there are typically many questions for the Engineer involved. Depending on the skill of the students, the Engineer sometimes ends up doing much of the drawing work. (opportunity for improvement to maybe include a CAD class in the project and touch more students)
- 11) Once the design is done, the students provide a Bill of Materials and initial costing. Once again, there are typically many communications with the Engineer through this process.
- 12) Once final design and costing is complete they submit it to KI for approval and it goes through out internal approval process.
- 13) Students again work closely with our Engineer to get components ordered
- 14) Students construct the piece of equipment and may have to do some troubleshooting along the way.
- 15) KI installs the safeties and controls.

**Important to note that both the Engineer and HR Manager are staying in contact with students on a bi-weekly basis at a minimum. Strong communication throughout the school year is the key.