PSU IE Dept Project Summary

The objective of this project is to create a new system for which the course coordinator of the Industrial and Manufacturing Engineering department can easily create a semester schedule that will optimize the number of courses available to students as well as finding rooms and instructors for each course. The initial phase of the project was to find a course scheduling model that will help benefit the department based on the needs of the department. The model that we got inspiration for this project was from a report titled “An integer programming formulation for a case study in university timetabling” written by S. Daskalaki, T. Birbas, and E. Housos from the University of Patras of Greece.

The second phase was to create a LINGO mathematical code based on this model as well as an Excel spreadsheet with values that can be imported into LINGO and have the results expressed in Excel again. In addition, information was gathered between the different engineering departments of Penn State University to determine where the proposed model can help improve the department’s scheduling process. Visual Basic code was also created to take the information from the output of the LINGO code and then design the schedule. The final step in this phase is to verify that the codes works, which basically means that the generator creates a schedule without any of the constraints being violated.

The final phase of the project was to validate the generator itself. The generator has to be able to create an optimal schedule that will work for the course coordinator as well as the students who will be taking the courses and scheduling them in the future. A survey was conducted for the students it regards to whether the generated schedules will work for them. Around 62% said that the Spring schedule works for them, while 71% said the fall schedule works for them. Results from the survey showed that the schedules would be able to satisfy the students desire to take the courses they wanted. The generator was also shown to the client, the course coordinator, to ask for any feedback about its use. With positive feedback from the course coordinator, the course scheduling generator was deemed validated. The current Undergraduate Course Coordinator, Ms. Elena Joshi, is using the course scheduling system to assist her in creating the course schedule for the Spring 2012 semester. The future plans for this system is to hopefully see this system implemented in other department across the Penn State University Campus.