

Engineering, Design and Society  
1500 Illinois Street  
Golden, Colorado 80402

## Engineering Design and Society Capstone Teaming Project

### Background

The Colorado School of Mines Engineering Design and Society Capstone Program encompasses 450 students majoring in Mechanical, Electrical, Civil and Humanitarian Engineering. Capstone Design@Mines collaborates with industry, government agencies and community organizations to put students on the front lines of innovation and discovery through real-world challenges. Each student is assigned a design team working on a year-long project. Currently the teaming process is manual and takes hours!

### Project Description

With each EDNS 491/492 program cycle, over 450 students have to be assigned to 60+ projects. Each project has a preferred team size and a preferred mix of majors. For example, Ball Aerospace may sponsor a project with a recommended team size of 6 with a recommendation of 4 Mechanical and 2 Electrical majors.

Capstone students complete a survey and pick their top 8 choices of projects. With the student preferences and project requirements, students are assigned a capstone project. Ideally, every student gets their top choice and all projects are filled with exactly the mix of student engineering disciplines requested by the client.

This project entails automation of this Capstone teaming project

1. Integrate the student project preferences with the client's project requirements to team the students
2. Allow program administrator to manually assign and/or change student project assignments
3. Allow administrator to set rules for teaming and build appropriate algorithms. Example, is students project preference top priority or client's project requirements?
4. Provide data analytics on the teaming results. Examples include
  - a. Number of students that received their 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, etc choice
  - b. Number of projects that were filled with the engineering disciplines requested by the client

Stretch goals include

1. Integration with Mines multi-pass
2. Creation of student survey to gather project request
3. Email students with project assignment

### Desired Skill Sets

1. Algorithm development and evaluation
2. Database structures

### Preferred Team Size

3-5 students

### Location of Work

Mines Campus

### Client Liaison

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