

Inter-Collegiate Capstone Project Collaboration: A Case-Study

Extended
Abstract

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34

Joint project with ¹Grove City College (GCC) and ²Rose-Hulman Institute of Technology (RHIT)

A forged capstone team involving two different institutions yields invaluable real-world preparation for engineers in an ever-changing, globally-shrinking environment.

Purpose of the Capstone Experience

- ❑ Give students the opportunity to apply the knowledge they have acquired
- ❑ Learn how teams employ the design process on a significant team project
- ❑ Gain experience in situations and settings similar to workplace environments

Conditions Making a Forged Team Possible

- ❑ Both institutions had supportive administrations and department heads
- ❑ Both capstone programs were a full year experience
- ❑ Both instructor teams agreed on the same criteria and project expectations
- ❑ Both campuses were in the same time zone

Thoughts after Project Completion

- ❖ *An in-person visit is extremely critical to establish good team dynamics (sooner would have been better)*
 - ❖ *Encourage impromptu meetings for building trust and team morale*
- ❖ *Regular combined meetings with all students and both side capstone instructors is crucial to success*
 - ❖ *Liaison who was at the other campus for part of project was helpful.*
- ❖ *Instructors should plan ahead on re-arranging or reducing project expectations to allow for the added time due to long-distance communication*
- ❖ *Combined deliverables are not critical but may help reducing some anxiety for the students*
 - ❖ *Try to arrange the same deliverable deadlines*
 - ❖ *Flexibility from both side instructors is expected*
- ❖ *Team successfully handled other realistic but unexpected challenges simulating a real-world project*



Project Team: Gabriel Gunning, Jacob Doll, Sallyanna Stangebye, Robert Romeo, Arrick Harbaugh (RHIT), Tom Piazza

RHIT Advisors: Dr Jim Mayhew, Dr. Shraddha Sangelkar

GCC Advisors: Dr Vern Ulrich

Challenges for a Forged Team

- ❑ Differing year formats: quarters versus semesters:
 - ❑ GCC ended on May 6th, RHIT ended on May 20th while the project was shipped May 10th
 - ❑ Winter break partially coincided, and Spring break coincided
- ❑ Credits awarded for capstone projects differed between the two schools
 - ❑ Project Team Lead was from GCC side, and he was also intern at the sponsoring company Kodiak Aircraft
 - ❑ GCC used goals to keep track of project management and RHIT used time log to manage project tasks

Reality: Both side teams had separate assignment - deliverables and different due dates. The sub-teams were passing the project reports along.

Lessons Learned

- ❑ Collaboration over distances can be challenging but can be accomplished
- ❑ Differences in CAD software can be an issue but is possible to resolve
- ❑ Communication must be clear and effective by all - students as well as the faculty instructors
- ❑ Conflict resolution is handled differently when teams separated by distance and trust building is hindered due to no prior interaction between students



Student Project: FAA certified Flammability Test Chamber
Sponsored by Kodiak Aircraft

Goal: Construct an FAA approvable flammability testing system to test the burn rates of materials used inside the aircraft cabin. Key FAA requirements include:

- ❑ Draft-free cabinet made of corrosion resistant material
- ❑ Precise flame orientations to achieve four unique tests
- ❑ Minimum flame temperature of 1500 °F