**Introduction to Aerospace Engineering**

**“TEAMS TEACHING AEROSPACE” TEAM PROJECT**

**Learning Objectives for Team Project**

1. Allow students to exercise curiosity, make connections, and create value while developing a product or “visual aid” to illustrate an aerospace concept or emerging trend.
2. Increase student familiarity with the fabrication facilities on campus (Maker Space, DSL, HSDC, and Machine Shop) and available CAD software.
3. Build fabrication experience typical of small student projects and increase confidence in solving open-ended problems.
4. Identify lessons learned about fabrication and working in teams.
5. Expand student personal networks, and provide opportunities to practice communication and professional skills in a team setting.

**Team Project Activities, Preliminary Phase:**

1. Visit campus fabrication facilities (Maker Space, DSL, HSDC, and Machine Shop) to learn how students can use them for class work or personal projects. Take photos documenting the visits; each member must visit (and be photographed) in at least one space. Teams should document visits to at least three of the four facilities in their report.

2. Research, brainstorm, and identify an idea for an inexpensive visual aid or demonstrator to illustrate an aerospace concept or emerging trend.

- OK to look for inspiration on the internet, and OK to talk to other teams for ideas, but the actual product will have to be your own work.

- Plan to use at least one of the campus fabrication facilities to make at least one component.

- Plan to create a CAD model of at least one component.

3. Create the Preliminary Team Report and upload it to CANVAS at the start of Week 8. (Due 10/7/2019)

**Preliminary Team Report: Include the following**

Cover page with project title, team name and number, and team photo with caption including names.

Part 1: Describe your site visits of the university making facilities.

* 1. Identify which team members visited the space and when
  2. Explain what you learned about using the space
  3. Include a photo of each facility visit (remember each team member must visit and be photographed in at least one facility.)

Part 2: Project Idea

1. Describe the aerospace concept or emerging trend you wish to explain and why it is important.
2. Describe your planned visual aid or demonstration tool, and identify what target audience this product is designed for. Will you use it to explain an aerospace concept to the general public? Fellow engineering students? Elementary school or high school students?
3. Planning /Forward Work: Identify your plan to fabricate your product and create the required CAD model. If teams already have a CAD model completed, it can be included in the preliminary report.

***Each team member should write at least one part of the report*.** Identify authorship of each paragraph or section in the headings. Examples:

“Digital Scholarship Lab (DSL) Visit (Jones)”

“Aerospace concept to be demonstrated (Hernandez)”

**Team Project Activities, Final Phase**

1. Create a CAD model of at least one component of your visual aid using the software of your choice. (Ideally the CAD model would be used as input to the fabrication process.)
2. Fabricate your inexpensive visual aid or demonstration tool; use at least one of the campus fabrication facilities to make at least one component.
3. Use your visual aid to teach someone outside of your team the aerospace concept. Take photos documenting the teaching event.
4. Create the Final Team Report and two PowerPoint slides; Upload it to CANVAS at the start of Week 15. (due November 25th)

**Final Team Report: Include the following**

1. Cover page with project title, team name and number, and team photo with caption including names. (Reuse/edit from Preliminary Report).
2. Describe the aerospace concept or emerging trend you wish to explain and why it is important. (Reuse/edit from Preliminary Report).
3. Describe your visual aid/demonstration tool and how you fabricated it. Include a photo and an image of the related CAD model.
4. Describe the process of using the visual aid/demonstration tool to teach someone (and include a photo).
5. Describe your team’s lessons learned from the project.
6. APPENDIX: Include Part 1 from Preliminary report: Site visits of university making facilities. (edit if needed)

**Final Report PowerPoint Slides (only 2, please!):** Along with the final report, upload two PowerPoint slides that identify your team, and show off your project experience- heavy on photos, light on text. A few of the teams will have their slides shown during the last day of the class.

**Team Project Grades vs Individual Project Grades:**

Though some team members may have more skills and experience than others, all team members are expected to contribute to the team project. In most cases, all members of the team will receive the same grade, but individuals who contribute little or nothing to the project will receive a reduced grade or zero grade on the team project.

Individuals will have a chance to provide feedback on the project, how the team performed, and whether anyone assigned to the team should receive a lower grade due to a failure to contribute. The instructor will consider this peer feedback when deciding whether a grade reduction is appropriate.

Any student that has a legitimate reason that he/she is unable to support his/her assigned team or some piece of the project, should notify their team and the professor as soon as possible, and preferably no later than 7 days before the next due date. Last-minute excuses dealing with problems of a routine nature will be considered a failure to plan, and will not be well received.

**Submission Requirements.** MS Word file or PDF for the report, PowerPoint for the slides.

Upload both the report and the slides at the same time to CANVAS.It is not necessary to provide a paper copy.