



Lockheed Martin Executive High School Internship Program Jan. 19 – April 30, 2021

Project Goals:

Students will be introduced to real engineers in order to think critically in the framework of spacecraft, exploration, engineering, problem solving, and development of skills such as oral communication, public speaking, research skills, media or engineering tool literacy, teamwork, planning, self-sufficiency, and goal setting.

Secondary Goals:

Through cross-district collaborations and presentations, students will be ambassadors for younger students, community building, and outreach.

Students will be asked to select an engineering research topic, engineering discipline, or project management topic that interests them. Students will conduct research on the subject, maintain a collaborative portfolio of findings or results, and create a final product. Final products will be presented to younger students and again as a more technical presentation for subject matter experts.

Structure:

1. **Tuesday Virtual Forums:** Students will meet weekly for full-group presentations by Lockheed Martin volunteers. The Lockheed Martin presentations are designed to inspire and inform students by discussing what happens at Lockheed Martin and how our students can best prepare to thrive in the aerospace industry. (3:00 – 4:00 pm MST)
2. **Small Groups:** Students will be assigned to a small group. (3-4 students each) Every group will have a lead mentor from Lockheed Martin that will facilitate projects, inform solutions, and connect students to aerospace resources. The assigned groups will meet with their Lockheed Martin mentor weekly to check on progress, present ideas, and learn from a Lockheed Martin professional.
3. Students must **collaborate** 1-2 times per week with their assigned group to ensure continuity and spend enough time on projects to fulfil EHSIP hours. This will be a combination of virtual meetings and shared documents. Each student will have responsibilities to contribute to the group's project.
4. Students will submit **weekly reports**. Each log entry will contain dates, hours, "what I did," and "what I learned." These hours will include individual time spent on research and completion of projects.
5. Two presentations will be required.
 - **School Presentations** should be aimed at getting students excited in the topic.
 - **Technical Presentations** are aimed at professionals. They can inform them of another field, an advancement in a field, or use to their current field.

Timeline

January – February: Literature Review, Project Proposal, Team Roles, Design and Planning

March: Implementation of the Project

April – May 1: Peer and Subject Matter Expert Reviews & Presentations

Below are project examples from the FALL 2020 student groups.

1. Mechanical Design for Deep Space Exploration (physically designing their own satellite based on commercially available CubeSat parts based on Marco, Janus, and Lunar Trailblazer)
2. Human Exploration & Communication (debunking movie communication with radio frequency facts; all the while learning about deep space communication, how we communicate with spacecraft, etc.)
3. Gardeners of the Galaxy – (a proposal to NASA for an advanced concept spacecraft supporting a future lunar astronaut base)

Lockheed Martin

Sue Linch is currently the Engineering Lead for the Janus Program, one of NASA’s Small Innovative Missions for Planetary Exploration (SIMPLEx). Sue has worked on various Space Exploration projects in Virginia and Colorado including Shuttle, Atlas, Odyssey, Phoenix, Spirit, Opportunity, Curiosity, and GOES.

Jeffco Executive High School Internship Program

(Sharon Usher – Jeffco Executive High School Internship Director and Jenny Herbaugh - Coordinator) execintern@jeffco.k12.co.us <https://sites.google.com/a/jeffcoschools.us/executive-high-school-internship/home>,

STEM School Highlands Ranch Coordinator: Gregg Cannady – gregg.cannady@stemk12.org
<http://stemk12.org/wp-content/uploads/2020/07/InternshipPolicyPaperwork.pdf>

Media Your work may be shared with industry and educational organizations.

I have read and understand and accept all of the statements recited in the Executive High School Internship Program and accept full responsibility as described.

_____ Date: _____

Student Signature

_____ Date: _____

Parent Signature

STEM and Rural Interns please download, sign, scan, and return to Gregg.cannady@stemk12.org

Jeffco Interns please download, sign, scan and upload in Schoology where you put your contract.