

# Integrated Aerospace Rover Systems Capstone

Unit 5 Project Brief

## Engineering Scenario

A complete rover system combines mechanisms, structures, controls, fabrication, testing, and documentation into one mission-ready engineering solution.

## Design Goal

Design, build, test, revise, and defend an integrated rover system that solves a defined aerospace mission problem.

<b>Criteria</b>	<ul style="list-style-type: none"> <li>System includes at least two interacting subsystems.</li> <li>Team uses evidence from mechanisms, structures, controls, materials, and performance testing.</li> <li>Prototype is documented with sketches/CAD, test data, and revision history.</li> <li>Final design review clearly defends the recommendation and next improvement.</li> </ul>
<b>Constraints</b>	<ul style="list-style-type: none"> <li>Use approved classroom equipment, materials, and tool access.</li> <li>Teams must manage roles, schedule, safety, and subsystem integration.</li> <li>The final design must be demonstrable or clearly supported by prototype evidence.</li> </ul>
<b>Required Evidence</b>	<ul style="list-style-type: none"> <li>Team concept and system architecture</li> <li>Subsystem sketches/CAD/build evidence</li> <li>Test plan and data</li> <li>Revision log</li> <li>Final presentation and engineering notebook package</li> </ul>
<b>Checkpoints</b>	<ul style="list-style-type: none"> <li>Define the mission and system boundary</li> <li>Create team concepts and combine ideas</li> <li>Assign subsystems and build plan</li> <li>Prototype and test</li> <li>Integrate, revise, and present</li> </ul>

## Final Design Review Expectations

Your final review should clearly connect the problem, evidence, prototype decisions, testing results, limitations, and next recommended improvement. Strong teams show how data changed the design rather than only describing what they built.

## Student Deliverable Reminder

Keep all sketches, calculations, data tables, photos, revision notes, and decisions in your engineering notebook or assigned project packet. The notebook should make your design process visible.