**Mechanical Proposal:**

Team Name: DYNAMICS

Project Name: ENDURANCE

Affiliation:

Submission Date:

Version: 1.0

**Team Members:**

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| **ID** | **SHORT NAME** | **DESCRIPTION** | **TEST METHODOLOGY** | **ASSUMPTIONS /**  **COMPLIANCE** |
| END\_ROV\_MECH\_A\_001 | Rover  Chassis | Chassis is the base frame of the rover to which all other components are attached.  It is the backbone of vehicle on which total load of the rover is applied.  The components which will be attached to the chassis will be:   * The axel through which wheels will be connected. * The body frame which will be enclosed by sheets of aluminium and glass. * The body frame will be divided in two parts – one for the electronic circuits, batteries, antennas, etc. and other part for science experiments and placement of arm.   Extra Details:   * We’ll be using “6061-T6 aluminium alloy” for the frame of chassis as it’s very light and inexpensive. * We’ll be using 12" balloon Tires as they provide good traction, are light weight and easily available. * The suspension used will be “Double wishbone suspension” which has a lot of advantages like allows for greater control over camber, caster and roll centre. | Testing the strength using solid works simulation initially and after fabrication, using field testing in real life. | The chassis will help the rover to be in stable position all the time (while its moving on different terrain or while it’s performing some specific tasks). |
| END\_ROV\_MECH\_A\_002 | Rover Arm | The rover arm (also called the instrument deployment device, or IDD) will holds and manoeuvre the instruments that will help in performing scientific tasks that are required and will help in getting up-close and personal with the rocks and soil.  Extra Details:   * The arm will be made by using some parts made of “6061-T6 aluminium alloy” and some “3D printed” as both are light weight materials, but provide great strength. * The degree of freedom of the arm will be 6(six) as it’s ideal for our design. | Testing the strength, power using solid works simulation initially and after fabrication, using field testing in real life to see the precision and actual capabilities. | Much like a human arm, the robotic arm has flexibility through joints: the rover's shoulder, elbow, and wrist.  The arm enables will help in performing functions such as drilling using drill, turning knobs, picking up something and placing at the desired location and other tasks as specified. |