Firstly, thank you for interest in the ANU Rocket team. It is truly exciting that budding and interested students now have the opportunity to apply their skills in the space sector with a real hands-on opportunity to construct and launch a high-powered rocket (HPR).

As this is the ANU’s first attempt at launching a rocket, we will be entering the 10,000 ft (approximately 3 km) altitude class competition in the Australian University Rocketry Competition (AURC).

This competition will require efficient and dedicated teamwork with an interdisciplinary approach to the engineering of the rocket to meet the strict CASA and AURC guidelines. The final launch of the rocket is in April 2019. A significant amount of the work will need to be completed in the next month, with continued work required until the launch date in April. It is expected that if you are selected, that you will be able to commit to working to the first deliverable due in September, and then onwards to April 2019. Note that if you are a final year student in 2018, you are still eligible to participate in the AURC until the launch date in 2019.

Once you have read this document, please complete the Google form by the C.O.B 3rd September to be considered for selection in the inaugural ANU rocketry team. Please select only two of the available positions.

This form can be found here: https://goo.gl/forms/f90Qj1eFkDf93q1x2

This document contains a brief description of each of the roles that the team is currently recruiting for. It should be noted that these roles will be quite flexible at the beginning of this project, and, if successful, you will be completing work outside of your formally assigned role. Additionally, you may be offered a role which you did not preference.

If you would like more information on the AURC, you can find that by following the subsequent links on the AURC homepage: https://ayaa.com.au/AURC

Warm Regards,

Broden Diggle
ANU Rocketry Founder
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Position Descriptions

Guidance, navigation and control (1)
The GNC team is responsible for ensuring that the rocket is able to be launched near vertically and reaches the 10,000 ft target with the utmost accuracy. Rocket recovery and the subsequent downfield distance the rocket will travel must also be considered as how far the rocket travels downfield is also assessed. This team is responsible for the rocket meeting the mission requirements.

Electronics
The electronics team is responsible for ensuring that anything electronic is integrated and functions properly. This includes ensuring that the launch system is correctly set up with the detonator, fail safe and abort controls all functioning properly. This is important to meet the safety requirements that are necessary to be able to launch requirements. Additionally, the integration of the altimeter and 4 kg payload to the rocket and data collection must also be wired and checked. This team will work under the GNC team.

Simulations, CFD and computer science (1)
The computer science team is responsible for two main objectives. One is to design and run the simulations of the rocket to ensure the design and key points of the launch, such as apogee height and parachute launch, will be not only successful but meet the strict CASA and Tripoli safety requirements. The second task of the team is to ensure that the telemetry and other data collected by the payload is successfully stored and actionable.

Manufacturing (1)
The manufacturing team will be in charge of building and constructing the rocket. This team will also have a say in the materials that will be used to construct the rocket. The team will be responsible for determining the best method of constructing a rocket that is able to have working payloads integrated, telemetry data recorded as well as selecting and constructing a rocket that can survive the harsh conditions that a rocket can face. In addition, working to a strict budget by using novel and critical thinking is crucial for the manufacturing team to succeed.

Structural Design and Analysis (1)
The structural analysis team will oversee the construction, design and test phase of the rocket. The team’s responsibilities include stress analysis, material analysis, aerodynamics analysis, as well as ensuring the success of the stage separation. The team will work closely with the manufacturing and computer science teams to ensure the rocket meets safety standards and will be able to return safely to earth.
Finance & Marketing (1)
The finance and marketing team will be responsible for the budgeting, financial allocation of funds, cash-flow and determining the feasibility of the project. The team will also be responsible for working with the project lead to garner additional sponsorship from key industry stakeholders. The finance team will be a key component of the rocketry team, ensuring that the team has enough funds to launch the ANU’s first ever student constructed rocket.

Integration (1)
The integration team will be responsible for ensuring that the entire system is successfully integrated and that each team is meeting the requirements of the other teams. This team will also ensure that the motor and body selected will be able to be integrated. In particular, this team will also ensure that the recovery systems along with the payload systems are not only functional, but have fail safes.

Propulsion Engineer (1)
Without an appropriate and working motor, there is no rocket. The motor engineering team will be responsible for ensuring that the motor performs to the specifications determined by the manufacturer and the simulations. This person will understand how the motor works, its weaknesses and strengths, how to repair it, how best to reuse it and what the best practice in the industry is for high powered rocket motors.

Team management (1)
Last, but certainly not least, is the role of team management. This role is less of a hands-on position, but more of an over-arching control position. The team management team will be responsible for the team meeting the strict internal deadlines as well as those of the AURC. They will be responsible for ensuring each team is communicating with each other and that the overall goals of the team are being achieved.