

Reason for objection against the rejection of the Team Rovernauts of the Jesco von Puttkamer School

Objection from 6.10.2022

Justification from: 19.10.2022

from:

Team Rovernauts
Jesco von Puttkamer School
in Campus of International Space Education Institute
Wurzner Str. 4 04215 Leipzig Germany

to:

HERC Implementation Team
NASA Office of STEM Engagement - stem.nasa.gov

Dear HERC Implementation Team,

This is to justify our appeal submitted on 06/10/2022 for the Jesco von Puttkamer School's rejection to the Human Exploration Rover Challenge.

Bases:

Guidebook NASA Roverchallenge:

https://www.nasa.gov/sites/default/files/atoms/files/herc_handbook_2023_072822_508.pdf

Proposal of the team Rovernauts: [link zur Website](#)

Editors: Rovernauts (former Team Germany)

1. Cosma Heckel (15), cosma.h@rovernavts.de
2. Arthur Sommer (17), rthrsommer@gmail.com
3. Lennox Jones (17), translations

guidance:

Mr. Ralf Heckel, ralf.heckel@spaceeducation.de

scoring panel from HERC by email from 10/06/2022:

1. Facilities and Equipment: No hours of accessibility or supplies
2. Hazard Recognition: Lacking detail with facilities
3. PPE Procedures: Plan for PPE doesn't actually mention any PPE
4. Technical Design: No fabrication in wheel or drivetrain sections; nothing in task attempt section
5. Timeline: Less information than handbook timeline
6. Budget/Funding: Lacking budget detail
7. STEM Engagement Plan: A display of previous rovers is not STEM Engagement. No hands-on activities with direct participants through which STEM learning takes place
8. Other: Proposal nomenclature wasn't followed

To 1.:

There are no fixed working hours, but there is a rolling time system.

The students come from various cities. Public transportation has different travel times. To work on the project, students use their free time on weekends and vacations. The school provides accommodation and meals. For this reason, there can be no fixed working hours. The system of fixed working hours was not recommended even by the founders of the school from the Apollo era. The work is always based on the successes and experiences and according to the timeline defined in deadlines. After 17 years of experience of participation in the competition, they have never been able to establish fixed working hours. There are always problems to be solved, which cannot be tied into fixed working hours. According to the basic value of safety, only enough sleep of the participants is taken care of.

The limitation of the proposal to 10 pages did not allow the space for this statement, which has been part of the rules of our school for 17 years already.

To 2.:

- 2.1.1 Occupational safety in the workshop: "In all areas of the workshop and godfather companies there are boards with the written safety rules and pictograms. The responsibility lies with the teachers and volunteers (age over 18) of the group or the company leaders. On machines there are descriptions and storage for safety goggles, gloves, helmets or safety hats. Students must put on their overalls (space suits) for increased safety"
- 2.1.2 Fire security and evacuation plans: "In all areas of the campus there are boards with the evacuation route, fire extinguishers and a meeting point on the parking lot. The Jesco von Puttkamer School makes an annual fire security instruction."

To 3.:

- 2.3 Methods to include necessary caution statements in plans, procedures, documents, including the use of proper personal protective equipment (PPE): "All personal protective equipment (ppe) has fixed places with descriptions."

To 4.:

- 3.1 Basic overview of the rover and its components: „most important changes consist of: [...] New gear-concept“

- 3.2 Wheel design and fabrication plans: “During the pandemic, we have been improving and building the design of our new wheels. The wheels consist of a lasered aluminum cage with hub. Around this cage there are 26 pipe segments made from plastic, which, with the help of a net structure that is reinforced with glass fibre, is protected against dust and sand. The wheel tread consists of rubber, which has been cut with the use water jet, in a pattern designed by us.”
- 3.3 Drivetrain concept and design with fabrication plans: “Due to the new rules of the NASA Rover Challenge, we plan on using belt drives. These consist of toothed belts used in the cycle industry that will be modified by us to serve our needs. For this, a new differential gear must be built. Additionally, we plan on using different gears, yet we haven’t met a final decision.”
- 3.4 Task sites that the team intends to attempt and design of the task tool: “The tools for the tasks are extensive and will be designed by our team after the beginning of school in September. There are already early designs from our summer camp. We mainly plan on using vacuum tubes.”
- 3.5. Major technical challenges and possible solutions: “Another challenge is understanding the task for the collection of liquid ground samples and the realization of this with the right tool.”

To 5.:

- 4.1 development schedule/timeline, deadlines: “Aug/Sept 22 launch of Artemis 1 and VIP-tour at KSC, invitation by NASA-HQ
September 22 promotion and STEM activities to create the final team
October 22 Deadline for application of team members when fall break starts
December 22 CAD-design ready, starting hardware, currently working on tools
February 23 Hardware ready, beginning of testing and tuning
March 23 Testing and tuning finished
April 23 packing of luggage

Timetable for Huntsville 2023

04/15/23 Flight to Huntsville
04/16/23 Team begins assembly of rover
04/17/23 Tuning, controlling, Team clothings finished
04/18/23 Assembly of rover finished
04/19/23 Excursion to UAH and partner schools in the name of Youth Council (US generalconsulate of Leipzig/US embassy Berlin)
04/20/23 Competition Day 1, Registration, assembly of pit box
04/21/23 Competition Day 2, Excursion 1 & 2
04/22/23 Competition Day—Rain date
04/23/23 Packing of luggage, cultural excursion
04/24/23 Flight to Germany”

To 6.:

- 4.2 budget plan: “Material-costs are at about 15.000 € (ca. \$ 18.000) per rover and year. However, all used materials will be financed by donations, so the material costs are zero. Education-costs for teaching the team are paid by the Jesco von Puttkamer School and its corporate citizenship supporters
US-travel costs are 1.332\$/participant 850 \$ Flight 262 \$ Hotel (2 weeks) 150 \$ Rental car (part per participant, 3 weeks) 20 \$ Fuel 50 \$ Fees and entrance“

- 4.3 funding plan: “Our school is teaching us crowdfunding. That is why we are able to collect our travel costs by ourselves and with help of our school as an educational unit. The calculation is easy. Every student has to collect 4×300 \$ from different industrial partners. This budget is a limit for leading employees in companies. Every student asks the boss of the godfather companies for financial support. If a team member has problems to collect the money, other teammates will help or guide them. Every student also gets a travel flat rate from their home school – therefore they have to write a report for the school website. Additionally, the Space Hotel in Leipzig allows donations to the roverteam from their visitors. More than 5000 guests a year pay total donations add up to quite a considerable amount. With the average guest paying 3 euro per night for education, that adds up to 15.000\$ from donations per year that is available to the

To 7.:

- 1. Facilities and Equipment: “The NASA core values are the house rules.”
- 5. STEM Engagement: Social media: “The Rovernauts have their own fan page on Facebook, which gets update daily and reaches a lot of people.”
- 5. STEM Engagement: Events: “09/09/2022 Unveiling of a plaque to Jesco von Puttkamer in Huntsville
09/22/2022 Event for 89 years Jesco von Puttkamer in Leipzig
Sept 2022 Presentations in schools about Artemis 1 Launch and NASA Rover Challenge
Oct 2022 Several official presentations at space conferences
Nov 2022 “Day of space flight” science conference for Europe in Germany
Jan-Apr 22 Social network, work with the press, exhibitions” + Photos

To 8.:

- Indicated formal inaccuracies in the proposal could not be proven. Request for a more detailed description of the problem.

The team of the Rovernauts from Leipzig
of the Jesco von Puttkamer Campus

and the international members and advisors of the
International Space Education Institute

Cosma Heckel
Arthur Sommer

Yvonne & Ralf Heckel, CEO