

In pictures: RCA and Nasa collaboration leads to Mars rovers of the future

TECHNOLOGY (/BROAD-TOPICS/TECHNOLOGY) / 04 JULY 11 /

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It's not every day Nasa (<http://www.wired.co.uk/tags/nasa>) comes into class to lecture about its future technology projections. But for one group of design students, it was all part of a project to design a Mars rover (<http://www.wired.co.uk/news/archive/2010-10/22/mars-rover-curiosity-cam>) for the future.

International students from the Royal College of Art (<http://www.rca.ac.uk/>) were given a "special request" by Nasa's Johnson Space Center (<http://www.nasa.gov/centers/johnson/home/index.html>): to predict and design a small pressurised rover to explore the surface of Mars in 30 years' time.

Pictures: See the designs now

(<http://www.wired.co.uk/news/archive/2011-07/04/students-design-mars-rover-of-the-future/viewgallery#image-number=1>)

It may seem like a grown-up version of the "draw a spaceship" challenges given to primary school children, but Ashley Hall, Deputy Head of the Department of Innovation Design, suggests otherwise. In an interview with Wired.co.uk, he said: "Designers are just beginning to think about space (<http://www.wired.co.uk/news/archive/2010-01/21/ford-goes-to-cyberspace-to-help-astronauts>) being a creative environment, what with SpaceShipOne (<http://www.wired.co.uk/news/archive/2011-05/5/spaceship-two-completes-first-feathered-flight>), Virgin Galactic (<http://www.wired.co.uk/tags/Virgin%20Galactic>) and private enterprise moving into space and space hotels."

The challenge is relevant for the design students' Extreme Environments module, which the surface of Mars (<http://www.wired.co.uk/tags/mars>), with winds of several



Mission Terraforming: This rover preparing Mars for future colon modules on the surface of Mars greenhouses for food production systematic research and will ut The first mission is to send fully seeding process, while the seco four crew members to carry out greenhouses as well as conduct botanical modules. RCA

hundred kilometres per hour and cold temperatures, fits pretty well.

Daniele Bedini (<http://www.wired.co.uk/news/archive/2009-04/27/sex-in-space-the-final-fantasy>) from Nasa's department of Space Architecture came on board with the project and helped to show the students how the space agency predicts future technologies.

Hall says: "Nasa showed up their system of push pull technology projections. Push technology using the information we know now, which we can use and exploit to push us towards new developments. Pull technology are new manufacturing systems which we can use to pull us towards new designs."

Using this system, Nasa has mapped out the next 30 to 40 years of new missions -- and the students were to do the same.

Hall explains how the class was given "a lot of freedom" with the task, which spanned a month. "We only described the physical conditions of the planet," he says. "The level of gravity there, the gases, the deep terrain. The rest was left up to them to help them project." The "rest" being Conops, or a concept of operations -- a collection of details that every projected space flight uses to exist, for example how many astronauts are travelling and how long they are going to be in the rover.

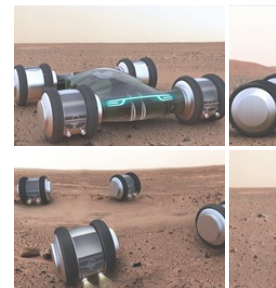
This flexibility made for varied results. "I think what's interesting to me is the diversity of the approach from the different groups," Hall says. "One has created a module which digs itself under the surface, which solves a lot of issues."

This is the third consecutive year the RCA has run the Extreme Environments project with a space bias. In the past, designs for space hotels and capsules have been realised for exhibition at design weeks. The designs for the Mars rover have been sent off to Nasa, and the students are awaiting feedback.

In the meantime, however, you can see the futuristic projections and their descriptions in our gallery below.

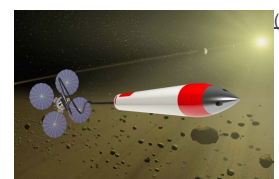
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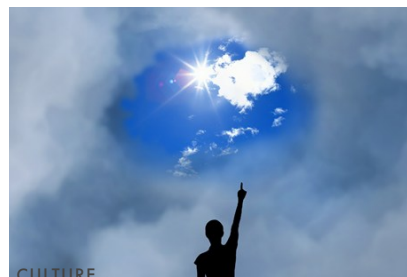
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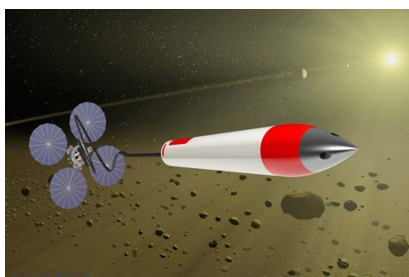
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