

To Mars And Beyond: The AURORA Student Design Contest

Calling all students and universities!

The European Space Agency (ESA) is looking for innovative, imaginative ideas, concepts and technologies that will enhance Europe's long-term Aurora programme for the robotic and human exploration of the Moon, Mars and asteroids.

Teams of graduate and undergraduate students from universities in Europe and Canada are invited to participate to this exciting programme by entering the Aurora Student Design Competition. Each team will be expected to work with its professors and supervisors to produce a project relevant to the Aurora programme.

Each University, through its student team, is allowed to be represented by one project in each of the following five categories:

Flagship class missions

These are major missions intended to achieve important technological and scientific goals within the framework of the Aurora programme, such as carrying out a soft landing on a planetary surface or returning a sample from another object back to Earth. They may involve several independent elements, such as orbiters, sub-satellites, landers, rovers, penetrators, airborne robots, planetary ascent vehicles or re-entry vehicles.

Arrow class missions

These are cost-capped, rapid development missions to demonstrate new technologies or mission approaches (e.g. in preparation of more complex Flagship class missions). They might provide engineering or scientific data needed to constrain later mission designs. Arrow missions would also include concepts that exploit opportunities for "hitch-hiker" payloads to be carried on (already planned) European or international missions.

Human Missions

Crewed missions beyond Low Earth Orbit (i.e. beyond the International Space Station). The mission concepts might involve exploration of the Moon, Mars or asteroids, setting up of exploration-enabling space infrastructure or preparation/training activities required for later, more ambitious missions.

Surface Robotics

Robotic systems enabling mobility or interaction of a landed or airborne spacecraft with the surrounding environment. They may include power generation, improved survivability, extension of lifetime and exploration capabilities, alternative locomotion systems, novel resource (e.g. energy, fuel) management approaches, alternative architectures, non-conventional materials etc.

New enabling technologies

Innovative technological concepts that would enable or facilitate robotic and human exploration of the Moon, Mars and asteroids. Some of the key technology areas include power generation, propulsion, atmospheric entry, descent and landing, and communications.

Each team that has been selected to represent its university in the contest is invited to send in an outline of its proposal by **March 9th, 2003**, together with a supporting letter from the university.

Judging of the entries in each category by a panel of experts will take place at a special event scheduled to take place in September 2003.

Competition Prizes

The European Space Agency, together with other sponsors and partners, will be offering prizes for the best projects in each category.

The full list of prizes will be announced at a later date. First prize for each category is likely to be one of those detailed below or another of comparable importance:

- a professional visit to the European space centres, including the European spaceport (CSG) in Kourou, French Guiana;
- attendance at the IAF Congress in Vancouver, Canada, at ESA's expense;
- sponsorship to present the winning project at suitable conferences and symposia.
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Important Dates

End January 2003	Announcement of the Aurora Student Design Competition
9 March 2003	Deadline to submit outline of the design project
14 March 2003	Notification to the pre-selected teams
30 July 2003	Deadline to submit the final project
8 – 9 September 2003	Aurora Academia Workshop, project presentations and prize award

Would-be entrants are invited to read the Aurora Student Design Contest rules book that is available on the ESA web site (www.esa.int).

Please for more details refer to the Contest Handbook that can be downloaded at:

http://www.esa.int/export/esaMI/Education/SEMEHI1A6BD_0.html

Queries and projects outlines shall be sent to [**student4aurora@esa.int**](mailto:student4aurora@esa.int)

Information on the Aurora programme and the missions currently under study will be soon be available on the Aurora Web Site