

20th Annual Student Space Design Competition
*Educational Outreach for the 25th Symposium for Space Nuclear Power and Propulsion,
Space Technology and Applications International Forum (STAIF-2008)*

20th Anniversary Student Space Design Competition
Guidelines

This year marks the 20th year of the New Mexico Student Space Design Competition. The Student Space Design Competition is held annually in conjunction with the Symposium on Space Nuclear Power and Propulsion, a conference held within the Space Technology and Applications International Forum (STAIF). The Competition is sponsored by the University of New Mexico's Institute for Space and Nuclear Power Studies and the UNM Department of Chemical and Nuclear Engineering. The goal of the Competition is to enhance mathematics, science, and engineering education through student involvement in the state of New Mexico. Education is the key to ensuring a secure, quality future and remaining competitive in the world community as we become more dependent on science and technology. Students are invited to participate in the Student Design Competition as individuals, team pairs, or classes.

Project Objective

The objective of this year's project is to design an orbiting space colony capable of housing at least 200 inhabitants. The colony will provide for their daily needs, supplying the residents with food, water, and breathable air. A self-contained community the orbital colony should be a place for its inhabitants to live and work in space.

Contest Rules

Any student entering the competition must be enrolled in a public or private high school, middle school, or junior high school in the state of New Mexico, and must be sponsored by a faculty member, with at least one faculty member per school in attendance at the competition.

Entries can be submitted to one of three divisions:

Division I: Students in grades 9-12 and/or previous competition winners.

Division II: Students grades 6-8.

Division III: Any class project.

Students may enter the competition in Divisions I or II as an individual or as a team of two members. Division III is for class projects and must be represented by **up to two** students within the class and their sponsoring teacher.

Submission of Projects

Any individual student, team, or class wishing to compete must submit an Application Form and proposal through their school faculty member sponsor. A teacher/sponsor is guaranteed space for up to four (4) entries, in any combination of divisions. Additional entries will be accepted if space permits. Forms can be faxed or mailed to ISNPS - see the correspondence mailing and email addresses and phone numbers listed below.

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Prizes

The following prizes are available:

Division	Place	Prize
Division I ¹	1st	200
	2nd	150
	3rd	100
Division II ¹	1st	100
	2nd	75
	3rd	50
Division III ¹	1st	100
	2nd	75
	3rd	50

¹ All prizes will be in the form of a gift certificate to the UNM bookstore for the named amount..

Highlights of Preparation

Designs should be in the form of: **(a)** a one-page proposal; **(b)** a poster explaining the main details of their project; **(c)** a scale model of the concept; and **(d)** a written design report and 100-word abstract. The judges will be supplied with copies of the proposals, design reports, and abstracts, and will interview the students concerning key features of the student's project. Students may use notes recorded on a reasonable number of 3x5 index cards during the interview.

The students entering the competition must complete all work themselves. Ideas from published materials or other sources may be used, but must be clearly and appropriately referenced.

Proposals are submitted with the application form and should briefly describe the key features of the proposed design while not exceeding one page. Proposals should be prepared in a 12-pt, easily readable font (Times-Roman or Arial recommended), and must be readily reproducible.

Posters should be free standing, measure approximately 48x36 inches (including wings) side-to-side and be displayed vertically. The top nine inches should include a project title, the name(s) of the students, and their school. The body of the poster should include labeled drawings (3-7 drawings per poster are recommended), use scaled drawings where applicable, illustrate key features of the design, and expand upon difficult points of detail. Scale models (and assembled support equipment, if applicable) must fit on a standard 30x36 inch tabletop space. Contestants can get an idea of what is involved by observing the Space Design Competition Archive Web page, which includes previous years' entries (<http://www.unm.edu/~isnps/outreach/archives.html>).

Design reports should explain the design and provide justification for key choices. Reports are submitted approximately one-week before the contest and are expected to be approximately six to eight pages in length, including references, but excluding the cover

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Evaluation Guidelines

The following guidelines will be used in judging each project:

1. Thoroughness (40%). Includes presentation and understanding of technical issues; project meets mission requirements; model is built roughly to scale; components and functions are clearly identified; project includes the most recent data available on the Martian environment.
2. Originality and Creativity (30%). The project shows new and original thinking, creative ways of implementing guidelines, new materials and technologies, etc.
3. Quality (20%). The poster format is correct, as listed above, well designed, neat, and clear in presentation; the model is well built, effectively laid out, and attractively presented; the written materials accurately document the results of the project.
4. Engineering Effectiveness (10%). Credit will be given for maximizing functionality of the project while minimizing cost and risk.

Judging

Students must be present at the time of judging, as this is part of the educational process. The judging will be held Monday morning, February 11th, 2008. Tables will be provided for each exhibitor. Auxiliary equipment, such as projectors, computers, etc., used in the exhibit must be provided by the entrants. Parents and teachers will not be allowed in the exhibit area during judging.

Judges have the final decision on issuance of places and all prizes may not necessarily be awarded. .

Deadlines

The following deadline must be observed in order to remain eligible for the competition:

Deadline	Action
Friday, January 11, 2008	Application forms and one-page proposals are due to ISNPS
Friday, February 1, 2008	Design reports, 100-word abstract, and Permission Slips³ are due to ISNPS
Monday, February 11, 2008	Judging will be held at STAIF-2008, at the Hotel Albuquerque (I-40 and Rio Grande Blvd Nw.)

³ Failure to provide a Permission Slip will result in automatic disqualification.

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Correspondence

Any correspondence can be addressed to:

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Proposals, abstracts and design reports can be emailed (as an attachment) to Tim Schriener at the above email address. **Application forms** and **permission slips** can be faxed to Tim at the above fax number; however, original application forms and permission slips will need to be submitted either in person or by mail.

Additional information and pdf copies of the competition's documents and forms can be found at the Space Design Competition website:

<http://www.unm.edu/~isnps/outreach/SDC.html>

Schedule of Events

This is preliminary schedule an updated event schedule will be posted to the website when available.

Time	Activity	Comments
7:30-8:10 a.m.	Registration and exhibit set-up	
8:10-8:15 a.m.	Welcoming Remarks	
8:15-8:45 a.m.	Guest Speaker (TBA)	
8:45-10:15 a.m.	Judging	Students at their exhibits to answer Judge's questions
NASA Education Specialist (TBA)	Teachers are invited to meet with a NASA education specialist during judging to discuss NASA programs and resources for educators	
10:15-10:30 a.m.	Break	Snacks will be served
10:30-11:00 a.m.	Visit STAIF Exhibits	See STAIF-2008 website for list of exhibitors
11:00-11:30 a.m.	Guest Speaker (TBA)	
11:30-11:50 a.m.	TBD	
11:50 a.m.-12:30 p.m.	Awards Ceremony	Held in conjunction with the STAIF-2008 Plenary Session