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NASA

# MICI

MINORITY INNOVATION  
CHALLENGES INSTITUTE

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Florida A&M

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PRESENTATIONS

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EXPO HALLS



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CHALLENGES INSTITUTE

**Funded By:**



**National Aeronautics  
and Space Administration**

**Managed By:**



**Florida Agricultural  
and Mechanical University**

MICI is a project operated under the NASA MUREP MSP portfolio.

[www.NASAMICI.com](http://www.NASAMICI.com)





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## **MISSION:**

**To increase the number of  
under-represented undergraduate and  
graduate students participating in  
NASA technical competitions.**



**Space Grant and other NASA entities have proven that competitions:**

- 1. Provide hands-on and real world experience for students**
- 2. Increase the likelihood of student retention in STEM**
- 3. Make the students more desirable to employers**



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**MICI works to increase participation  
from under-represented  
students in 2 ways**

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## 1. Hosting live virtual conference sessions on NASA technical competitions

The screenshot shows a virtual conference session interface. At the top, the MICI logo is on the left, and navigation links for 'ABOUT US', 'MY PROFILE', and 'LOGOUT' are on the right. Below the logo are links for 'EXPO LOBBY', 'EXPO HALLS', 'PRESENTATIONS', 'CHAT GROUPS', and 'HELP DESK'. A 'SPONSORS' section is partially visible. A digital clock shows '12:15 22 PM EST'. The main content area features the NASA logo and the title 'NASA University Student Launch Initiative (USLI)'. Below the title are two images: one of a group of students and one of a rocket launch. A video feed on the right shows a man speaking. At the bottom, there is a 'PRESENTATION SCHEDULE' section with an 'Audience' list containing 'Room Chat'.



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## VIRTUAL CONFERENCE SESSIONS FEATURE:

- \* Live broadcasts with full audio/video of presenter
- \* Simultaneous display of PowerPoint presentations
- \* Ability for students to submit questions via chat OR via their computer's microphone
- \* Ability to access recordings of all presentations 24 / 7 / 365
- \* Conference-like interface that encourages students to explore different technical contests





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**MICI has produced more than 70 hours  
of presentations from:**

- \* NASA contest organizers**
- \* Contest subject matter experts**
- \* NASA Representatives from Education**

**covering 11 different challenges plus  
other NASA opportunities for students**



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### UNIVERSITY STUDENT LAUNCH INITIATIVE

This competition challenges university students to design, build & fly a reusable rocket with payload to one mile in altitude. It engages students in scientific real-world engineering processes with NASA engineers.



### The eXploration Habitat (X-Hab) Academic Innovation Challenge

The challenge is for a senior and graduate level design course in which students design, manufacture, assemble, and test an inflatable loft that will be integrated onto an existing NASA built operational hard shell prototype.



### Aeronautics & Space Technology Student Opportunities

A wide range of Aeronautics and Space Technology Opportunities for students including the Aeronautics Academy, the Space Technology Fellows Program for grad students, and the Aeronautics Scholarship.



### Intercollegiate Rocket Engineering Competition

Students are challenged to launch a 10 pound payload to 10,000 feet or 25,000 feet above ground level. Students are encouraged to design and construct as many of the rocket parts as possible.



### NASA's SOLAR System

SOLAR stands for Student On-Line Application for Recruiting interns, fellows, and scholars. It serves as a one-stop shopping portal for students to search and apply for all types of NASA opportunities.



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### NASA LUNABOTICS COMPETITION



The challenge is for students to design and build a remote controlled autonomous excavator, called a lunabot, that can collect and deposit a minimum of 10 kilograms of lunar simulant within 15 minutes.

### ELEVATOR 2010



The power beaming / climber competition challenges universities, enthusiasts and private industry teams to design and build the best possible Space Elevator climber prototype.

### STRONG TETHER



The Space Elevator requires a tether that is sufficiently light & strong enough to bear its own weight against the earth's gravity. This competition requires teams to produce a tether that can withstand intense pressure.

### GREEN AVIATION ENGINEERING CHALLENGE



NASA invites students to propose ideas and designs for future aircraft that use less fuel, produce less harmful emissions, and make less noise.

### Reduced Gravity Education Flight Program



This program allows undergraduate students to successfully propose, design, fabricate, fly and evaluate an experiment aboard an airplane that makes several maneuvers which result microgravity (0G).



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## **SpaceTech Engineering Design Challenge**

The purpose of this challenge is to submit an original design for technology that will further Space Exploration & Development in accepted areas for technology development.



## *The Great Moonbuggy Race*

Students are required to design a vehicle that addresses a series of engineering problems that are similar to those faced by the original NASA Moonbuggy. Students must navigate their vehicle through a timed course.



## **NASA ESMD Systems Engineering Paper Competition**

**NASA Exploration Systems Mission Directorate (ESMD) invites U.S. Universities to submit a paper related to Grounds Ops, Lunar & Planetary Surface Systems, Spacecraft, or Propulsion, using an engineering approach.**





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**1,061 students and 255 faculty members are registered in MICI who represent 425 universities.**

**126 of these universities are MSIs**

**60% of the students registered in MICI are minorities**

*All of the demographic data is collected immediately upon registration*

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**The second way MICI works to  
increase participation from  
under-represented students is:**

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## 2. Providing small grants to MSIs to participate in NASA technical challenges

You've Got Funding!





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## MICI Grants to MSIs:



- \* Provides up to \$4,000 to an MSI to help underwrite costs associated with competing in a NASA technical competition
- \* Funds can be used for equipment and/or travel to the competition
- \* Encourages MSIs to build a senior design course or special topics course around the challenge
- \* Requires them to participate in virtual mentoring sessions pertaining to the challenge.

## **2011 MICI Grants to MSIs**

**21 MSIs submitted an application for grant funding.**

**10 MSIs were selected for funding based on:**

- (a) experience of faculty in leading outside student projects / initiatives**
- (b) level of willingness to implement a course around the challenge**
- (c) a distribution geographically and ethnically diverse awards.**



# MICI

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**So, how can MICI and Space Grant programs work together?**



- 1. MICI can serve as a vehicle for NSGCFP to reach MSIs on a national scale.**
- 2. MICI can promote specific SG technical challenges, opportunities, activities.**
- 3. If SGs want to provide funding, MICI has a system in place to award these funds to MSIs to compete in technical challenges.**



**FYI ...MICI is funded on a no-cost extension  
through September 30, 2013**

**We are open to any ideas for partnerships  
which would allow us to continue to serve  
under-represented students  
nationally or in specific states.**





**VISIT MICI WEBSITE:  
NASAMICI.com**



**VISIT MICI VIRTUAL  
CONFERENCE:  
NASAMICIconference.com**

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