**Student Design Projects**

**Marshall Space Flight Center**

**A. Description/Instructions**

Marshall Space Flight Center intends to recruit university Student Design teams to study and provide solutions to NASA aerospace problems and projects.

There are many accredited colleges of engineering in the U.S. and all are required to teach a Student Design capstone course each year. Professors teaching/administering these courses must find suitable topics/projects which lend themselves to completion in either one semester (15 weeks) or two (30 weeks).

Because space is challenging and inspiring to college students, NASA projects, such as those listed, could be appealing to professors operating Student Design classes.

Marshall researchers are eager to have teams of advanced students (seniors) applying their skills/knowledge to develop solutions to aerospace problems. Using NASA projects as the subject of Student Design studies has been piloted at Marshall, with excellent results.

The projects listed below have been proposed by Marshall personnel and are available to colleges and universities. To choose one of the listed projects, your team and faculty advisor first complete a one-page proposal using the template format attached and send it to: Brooke Graham, Program Manager, Alabama Space Grant Consortium/NASA EPSCoR, at [brooke.graham@uah.edu](mailto:brooke.graham@uah.edu).

After evaluation, those proposals chosen for funding will be notified. MSFC will contribute $1,000 to a chosen Student Design team (one semester project) and $2,000 to a team completing the two-semester option. The final deliverables would be a written project report for a one semester effort, and a final report plus a prototype/model for a two-semester course. Several Student Design teams will be selected each year, and funding provided, depending on budget approval.

Weekly telecons between NASA mentors and Student Design teams will provide progress information on each effort, and address questions from the teams on modifications, adding experts, providing utilization of facilities, etc.

Development of NASA’s future workforce is our motive for engaging young professionals (college students) in aerospace projects.

**B. Advisor/Team Student Design Proposal Template**

Proposer – Faculty Advisor for Student Design Project

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Academic Rank: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Department: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Contact Information: Email: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Phone: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Advisors Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

University’s Name & Address: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date the Student Design Course will begin \_\_\_\_\_\_\_\_\_\_\_\_ and end \_\_\_\_\_\_\_\_\_\_\_\_ (Period of Performance)

Title of Project to be Studied: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student Design Course: ⬜ One semester, or ⬜ Two semesters

Marshall Mentor’s Name and Organization: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Approximate number of student participants: \_\_\_\_\_\_\_\_\_\_\_\_

Will there be a graduate student as a mentor for this project: ⬜ Yes ⬜ No ⬜ Maybe

Proposed approach to solving the problem/s and/or completing the project:

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Provide a schedule/timeline covering all aspects of the problem/project: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Date Submitted: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**C. MSFC Projects Listing**

1. Phased Array Ultrasonic Testing Roller Probe Design – James Walker/EM21
2. Lunar Sample Return Vessel – Travis Belcher/EV34
3. Specimen Holder for Studying Space Environmental Effects – Tracie Prater/EM04
4. High Performance Nuclear Thermal Propulsion (NTP) - Mike Houts/ST23

**Proposals for 2020-2021 Student Design courses should be submitted by September 11, 2020 to Brooke Graham, Program Manager – Alabama Space Grant Consortium/NASA EPSCoR, at brooke.graham@uah.edu.**

**Awards and regrets will be announced.**

**NASA MSFC intends to review proposals as they are received.**