

# **MARAD/SNAME STUDENT DESIGN COMPETITION**

## **Background**

The Maritime Administration (the Agency, MARAD) is the recognized experienced advocate and catalyst within the government for public/private sector commercial partnerships in the maritime arena. Research partnerships are formed with government agencies, industry and others to evaluate and demonstrate the effectiveness of advanced performance technologies and processes to operate in a safe, secure and environmentally responsible manner. In this context, the described project complements the agency's strategic vision and is permitted by the provisions as set forth in the Merchant Marine Act of 1936, Section 209 (Authorization of Appropriations).

The purpose of the MARAD/SNAME Student Design Competition is both to challenge college student teams and to reward them for their development of superior vessel designs or transportation systems. The specific technical design challenge presented to students will vary from year-to-year.

## **The 2010-12 Student Design Competition**

For the 2010-12 academic year the focus will be on the design and operation of a ferry as outlined below.

## **Statement of Work**

The Agency, in concert with the Society of Naval Architects and Marine Engineers (SNAME), shall conduct a design competition for a Marine Highway Transport systems outlined below that is economically competitive, safe to operate, energy efficient and environmentally friendly. This student competition will be open to international student teams. Judging of entries will be conducted by a select team of Agency personnel, SNAME members and members of the maritime industry.

The designs should be innovative, using cutting-edge technology concepts that employ the latest advances. Each design effort should assess the influence of weight, space, cost and operational performance.

## **Factors to be considered in the evaluation process include:**

- Rationale for selecting the vessel type and operational system,
- General Arrangement
- Safety analysis in light of ferry casualties.
- Propulsion system analysis,
- Environmental impact analysis and
- Economic analysis including required freight rate or equivalent.

Although no limits are placed on the size of the student design team, the judges will take into consideration the size of the team in judging the scope and outcome of the student design entry. Timeliness of the reporting requirements will also be a consideration. In addition, the duration of the project, or the number of semesters, will be considered.

**Criteria:**

Design a service for transport of 150 trailers per day from Bridgeport, CT to Jacksonville, FL and return with an equivalent number of trailers per day. Trailers are assumed to be 53 ft. long, 8.5 ft. wide and 13.5 ft. high. The vessels should be capable of providing accommodations for the drivers and the designer is to determine the number of vessels necessary to perform the service. Transit time does not necessarily need to be within a single day, but the designers should discuss the rationale for the selected speed and frequency of arrival. Designers must research any dimensional constraints imposed by the respective ports. The final report should provide sufficient detail to provide confidence that the design is feasible and should provide proforma economic operating analysis to yield a Required Freight Rate for profitable operations.

**Judging criteria:**

- Thoroughness of design including accuracy of calculations,
- Cost and practicality of the design,
- Energy efficiency and reduced emissions,
- The presentation and
- A business plan and economic analysis.

**Deliverables:**

1. Notification of Intent to Participate: January 31, 2011
2. Progress reports:
  - Mid-point of each semester of student involvement
  - End of each semester of student involvement
  - Final report at completion of project
3. All submittals shall be electronic.

**Completion Date:** June 30, 2012

**Competition Awards:**

**The competition awards will be presented at the**

**SNAME 2012 Annual Meeting  
Location and Dates TBD**

The winning design teams will be awarded cash prizes as noted:

First Place	\$4000
Second Place	\$2000
Third Place	\$1000

The winning design team faculty advisors will be awarded cash prizes as noted:

First Place	\$1000
Second Place	\$ 500
Third Place	\$ 500

**Panel of Judges:**

1. Capt. Lawson Brigham, USCG (Ret), PhD, Professor, University of Alaska, Fairbanks
2. Mr. Edward. N. Comstock, President, Society of Naval Architects and Marine Engineers
3. Mr. Ronald Kiss, Past President, Webb Institute

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