

international student offshore design competition

OBJECTIVES:

The intent of this competition is to develop an appreciation of the design process, encourage teamwork, and establish mentor relationships between students and offshore industry professionals.

Undergraduate design course projects are the primary focus of the competition. However, thesis and independent study projects are also eligible, with the eligibility being limited to team members with no more than five years of college/university work at the closing entry date. The emphasis is on teamwork and the combining of multiple technical consideration.

DESIGN REQUIREMENTS:

The design entry must address eight of the areas of competency listed below. Five must be chosen from the list of "Fundamental Competencies and three from the more specialized competencies (or proposed by the applicant team if not listed).

Fundamental Competencies

- General Arrangement and Overall Hull/System Design
- Weight, Buoyancy and Stability
- Global Loading
- General Strength and Structural Design
- Cost
- Risk Assessment
- Construction, Fabrication and Installation

Specialized Competencies – Floating Structures

- Hydrodynamics of Motions and Loading
- Wind and Current Loading
- Mooring/Station Keeping (or propulsion, tendon design)
- Structural Design: local strength design with attention to fabrication
- Structural Analysis: global strength
- Fatigue Strength
- Specialized Floating Vessel Design (operations support or construction vessels, drilling and production vessels, etc.)

Specialized Competencies – Marine and Mission Systems

- Marine Engineering: choice, arrangements and sizing of marine systems and equipment
- Power Generation, Distribution and Electric Load Analysis
- Electronics & Instrumentation
- Definition, development and mechanical design of specialized mission systems (petroleum production or exploration, offshore construction, risers, subsea, etc.)

Specialized Competencies – Subsea

- Static Riser Analysis
- Dynamic Riser Analysis
- Deep Sea Well Control
- Subsea Processing

RULES:

1. Team members should be in the first five years of full time university study, with no more than a 5-year academic equivalent (credits) completed at the closing entry date. This may be interpreted to be a standard (US) 4-year undergraduate program plus first year graduate work; a 5-year or an expanded undergraduate program and is inclusive of undergraduate students of more than five years reflecting a change of major.
2. The team leader must be a member of SNAME or ASME. This is inclusive of student membership applications received by February 28, 2003.
3. Teams are limited to a maximum of six people.

SUBMISSION REQUIREMENTS:

General:

- Electronic submission (CD) of the design report in .pdf format is required.
- The submission cover letter is to be signed by all team members and the faculty advisor.
- All documents must be submitted in English.

Executive Summary:

- Overview: Provide a brief overview of the project, its industry relevance, and the methodology used to define and develop the design.
- Regulatory Compliance: Present the regulatory framework and applicable rules associated with the end use of the design.
- Competencies: Define the 8 competencies presented including a summary of results and the location within the report for both the methodology and results associated with each competency addressed.
- The Executive Summary shall be limited to 6 pages, double spaced, with 12 point font.

Body of Report:

- Introduction: Provide an overview of the flow of information and intent of the design. The intro should include a summary of the team organization.
- Literature Review: Present the problem at hand from an industry view point based on, and citing, existing pertinent literature in the field.
- Objectives: Clearly state the chosen objectives that the design is intended to satisfy.
- Design Methodology: Define the analytical approach and methods used to evaluate each of the chosen competencies. Identify the applicable regulatory and statutory requirements.
- Results: Present the results of the analysis for each of the competencies and any other work required to support the design effort.
- Conclusion: Summarize the level of completion of the design and identify the areas most in need of additional analysis.
- Appendices: This section will include all drawings, computer print-outs, spreadsheets, detailed calculations, etc.

Presentation:

- The presentation is intended to complement the Executive Summary.
- It is to be 15 pages/slides or less and delivered in either MS Power Point HTML, or Flash format.

Additional information will be posted at:

www.isodc.net

UFRJ Wins First SNAME and ASME International Student Offshore Design Competition with Novel FPSO Design

**For Immediate Release
September 25, 2002**

(Houston, TX) A team from the Naval and Ocean Engineering Department at the Federal University of Rio de Janeiro (UFRJ) has won the first International Student Offshore Design Competition sponsored by the Society of Naval Architects and Marine Engineers (SNAME) and the Ocean, Offshore and Arctic Engineering Division of the American Society of Mechanical Engineers (ASME) with their entry "Preliminary Design of the 'Maracanã' FPSO Unit."

The entry was one of eight projects submitted by students from universities around the world. The UFRJ team was honored with a cash prize of \$1,500 and the opportunity to present the "Maracanã" floating production/storage and offloading unit (FPSO) to industry at the SNAME Annual Meeting in Boston on Sept. 25-28.

"We created this competition to promote the challenging and exciting opportunities in the offshore industry," said John Filson, Design Competition Coordinator. "Plus it offered the chance to increase awareness of good engineering talent as well as develop closer relationships with industry professionals and academia." Filson says this first year was successful in terms of the participation level and quality of entries.

Alexandre Alho, Assistant Professor, UFRJ and Advisor to the six person award-winning design team, said, "This gave them real-world experience and it was not only good from a technical engineering standpoint but also from a business perspective as I worked side-by-side with my students as fellow professionals."

According to Alho, to simulate an actual commercial project, the team was divided into six main categories: structure, stability, marine engineering, sea keeping and costs with a team leader or project manager. "The biggest challenge for us was this was not a conversion of an existing ship but an FPSO design from the beginning," said João Alberto Rangel de Almeida, Team Leader. "We worked with a software program to extrapolate design dimensions and optimize the weight and cost of the structure."



The Federal University of Rio de Janeiro (UFRJ) award-winning design team from the first International Student Offshore Design Competition (ISODC) sponsored by the Society of Naval Architects and Marine Engineers (SNAME) and the Ocean, Offshore and Arctic Engineering Division of the American Society of Mechanical Engineers (ASME). The team's winning entry was "Preliminary Design of the Maracana FPSO Unit."

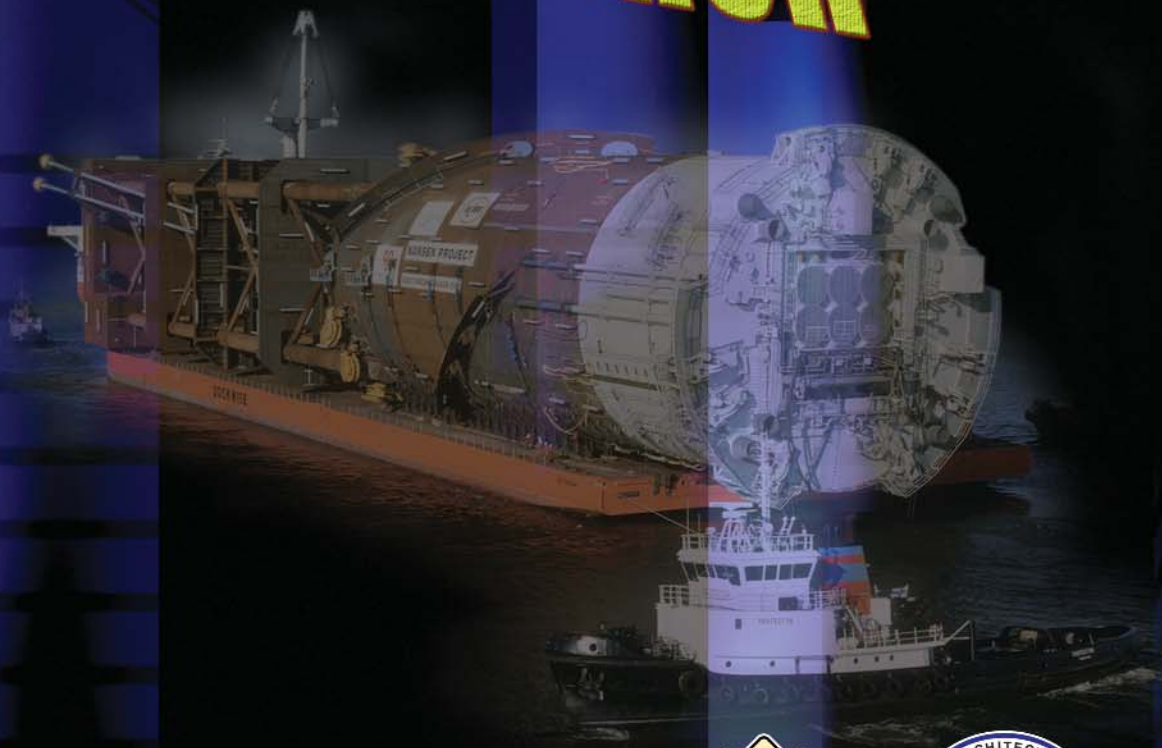
Standing (left to right): UFRJ Assistant Professor and Advisor Alexandre Alho, Eleandro Meira de Oliveira, Antonio Goncalves de Vasconcelos Neto; Front (left to right) Rodrigo Klim Gomes, Alberto Rangel de Almeida, and Maiza Pimenta Goular. (not pictured Cassiano Rodrigues Neves.)

The students used research and data from Petrobras to base their design model on a site-specific structure located offshore Brazil in the Campos Basin.

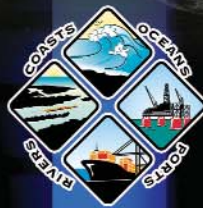
The award winning "Maracanã" FPSO features a symmetrical ship form with 30m depth, 48m width, 270m length and a load capacity of 1.5 million barrels. To view the full entry, you may visit the International Student Offshore Design Competition (ISODC) website at <http://www.isodc.net>.

The UFRJ team members are: Rodrigo Klim Gomes, Eleandro Meira de Oliveira, João Alberto Rangel de Almeida, Antonio Goncalves de Vasconcelos Neto, Maiza Pimenta Goular and Cassiano Rodrigues Neves.

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2003



*Man's mind stretched to a new idea
never goes back to its original dimensions
— Oliver Wendell Holmes*

THE CHALLENGE

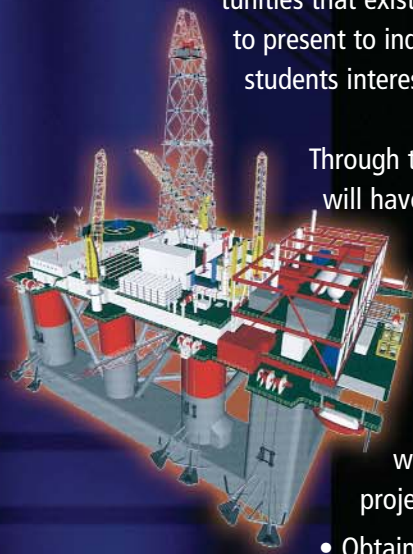
Some of the most exciting and challenging careers can be found in the Offshore Industry. Since the beginnings of offshore drilling over 50 years ago, many of the great modern engineering achievements have been made. It has all required innovation, cutting edge technology and team work from many diverse disciplines and industries.

The excitement of working in the Offshore Industry comes from being part of a creative design process, from working with the most advanced engineering technology and from conquering significant obstacles.

The Offshore Industry has shown an enormous appetite for the best, brightest, and most creative engineering talent. Through the International Student Offshore Design Competition (ISODC), the Society of Naval Architects and Marine Engineers (SNAME), Offshore Ocean Arctic Engineers Division of ASME, and COPRI Division of ASC have joined forces to introduce students and faculty to the opportunities that exist in the offshore sector and to present to industry the talented, energetic students interested in joining their ranks.

Through this competition, students will have many opportunities:

- Learn about offshore design, the industry, and its many challenges
- Meet and work with prospective employers who will mentor you through your project
- Obtain an inside view of the jobs that exist in the Offshore Industry
- Develop skills working as part of a team with diverse tasks and talents



- Develop experience in setting goals and planning and managing the project.
- Discover something about yourself.

Are you up to the challenge? Bring your collective skills, talent, and creativity together and form the team to take and win the challenge. The sky...well, maybe the sea... is the limit!



JUDGING

A panel of industry experts will select the top five project submissions finalists. The finalists will be chosen based on:

- Utility, relevance and general interest to the Offshore Industry of the system designed
- Demonstrated grasp of the key design issues
- System integration
- Demonstrated teamwork
- Quality of work in the technical summaries
- Creativity of design

A winner will be selected from the finalists based on:

- 40% Competencies
- 5% Design Integration
- 15% Executive Summary
- 10% Presentation
- 10% Documentation
- 10% Demonstrated Teamwork
- 10% Creativity

Discovery consists of looking at the same thing as everyone else does and thinking something different. —

Albert Szent-Gyorgyi, 1937 Nobel Prize in Physiology and Medicine

MISSION



First: Promote student interest in the Offshore industry, it's technology, and the practice of Naval Architecture, Marine, Ocean and Mechanical Engineering for offshore applications.

Second: Promote recognition by educators of the significance of Naval Architecture, Marine, Ocean, Mechanical, and Civil Engineering to the Offshore Industry.

Third: Promote participation of the Offshore Industry in the education of Naval Architects, Marine, Ocean, and Civil Engineers.

Additionally: Develop appreciation of the design process and encourage interdisciplinary teamwork and collaborative effort. It is further hoped to develop mentor relationships with students and general contact between industry professionals and individuals in academic environments.

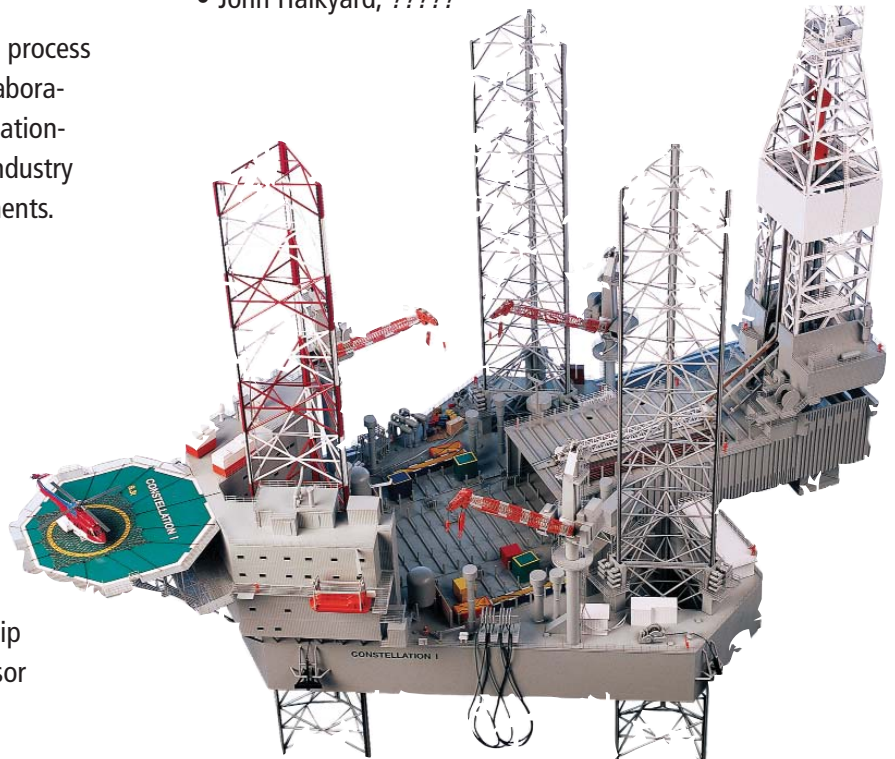
PRIZES

The prizes will include:

- Cash Prizes: 1st-\$1500, 2nd-\$750, and 3rd-\$500
- Award Plaques for the top three design projects
- Travel subsidies are being developed for the top teams to attend the annual SNAME meeting
- Special awards such as trips offshore and/or to ship yards for the winning team and their faculty advisor

COMMITTEE MEMBERS

- Rod Allan, *Transocean*
- Andy Breuer, *ABS Americas*
- Jeffrey Falzarano, *University of New Orleans*
- John Filson, *FSEA*
- Rebecca Gallagher, *ABS Americas*
- Thomas Johnson, *Scientific Marine*
- Peter Noble, *Conoco Phillips*
- Christina Nordstrom, *ExxonMobil*
- Eric Powell, *Proceanic*
- Robert Randall, *Texas A&M University*
- Lars Ronning, *Alan C. McClure & Associates, Inc.*
- Curt Gibby, *GCG Consulting*
- Steve Leverette, *Atlantia*
- Malcolm Sharples, *Offshore, Technology & Risk Consulting*
- John Halkyard, *?????*





(Preferred: Electronic Registration on Website: isodc.net)

University/Institution: _____

Team Members:

Name	Signature	Major/Class Standing	Expected Degree/Date
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Team point of contact:

Name	Address	Phone	Email
_____	_____	_____	_____

Faculty point of contact:

Name	Address	Phone	Email
_____	_____	_____	_____

Project Title: _____

8 Technical Areas of Competency:

- | | |
|----------|----------|
| 1. _____ | 5. _____ |
| 2. _____ | 6. _____ |
| 3. _____ | 7. _____ |
| 4. _____ | 8. _____ |

The Above Entry Form May Be Faxed To: (713) 789-1347

To Be Attached:

- Project Description: Summary of project theme, design objectives, design approach and formulation of the design team. [Limit 500 words]
- If the entry is produced from a credited design course, the syllabus and associated credit / semester hours should be included with your entry.
- Signed cover letter from the project's faculty advisor / team leader, on university letterhead.

Schedule:

- Registration submission deadline:
February 28, 2003
- Design entry package submission deadline:
June 27, 2003
- Top 5 designs announced:
August 11, 2003
- Winner announced:
September 8, 2003

3 Easy Ways to Enter:

- Web:** www.isodc.net
- Fax:** 713-789-1347
FAX your completed entry form
- Mail:** your entry form.
It must arrive on or before the February 28th deadline
c/o Lars Ronning,
Alan C. McClure & Associates
2600 South Gessner, Ste. 504
Houston, TX 77063