



13th Edition

VEDAM

presents

SAMUDRAMANTHAN

IIT KHARAGPUR

Boat Expo



RULES

Introduction to the Event

Ships are behemoths of engineering, spanning hundreds of meters in length. They ship trillions of dollars worth of goods annually and support the global economy. The sheer amount of trade from shipping arises due to the robust nature of these engineering marvels.

Planning the internal structure of ships is incredibly complex. One has to include different components such as accommodation, machinery spacing, equipment storage, cargo holds, and control centers for operational planning. BoatExpo 2021 is a unique engineering event, challenging participants to design the interior structure of the ship while adhering to good engineering practices. Samudramanthan welcomes teams from colleges all over India to take part in this unique and challenging contest!

Stages & Timeline

BoatExpo 2021 will be organized in 2 rounds where participants will receive an opportunity to submit their designs to the judging panel, and if selected for the next round, will receive a chance to present and field questions on their submission.

Stage 1: Design Document Submission

The problem statement for BoatExpo 2021 is provided in the next section. Participating teams must work on solving the design problem posed, and collate their ideas into a document- the “design submission”. They have to address various topics mentioned below and achieve a solution that is both feasible and practical. The submission will be in a single .pdf file that must be uploaded within the specified deadline. The deadline for submission of round 1 is 14th March, Sunday, 2021 at 11:59 PM.

Stage 2: Design Presentation during SM21

Once your team is selected to progress to round 2 of BoatExpo 2021, we will intimate the platform for presentation and the timing. You will be required to present your design submission to a judging panel. The limit for this is strictly 10 mins, with an additional 5 mins reserved for a QnA session.

Problem Statement

The problem statement for Boat Expo 2021 is as follows:

You work for Boat Design Inc. which handles construction of coastal vessels. They plan to enter the passenger and vehicular transport industry soon, and they turn to you for help in designing the interior of their vessel.

Your task is to supply a presentation on the interior of a Ro-Pax vessel with certain specifications:

- 1.The overall vessel length is 80 meters, while the length between perpendiculars is 75 meters.
- 2.The molded vessel beam is 10 meters.
- 3.The hull depth is 10 meters, and the superstructure can extend to 5 meters above the uppermost deck.
- 4.It is powered by twin water jet propulsion systems that are located at the aft.

You can take the following assumptions:

- 1.The average length of a vehicle including clearance is 4 meters.
- 2.The average weight of a passenger is 70 kgs.
- 3.The vessel is barge-shaped i.e., box shaped. The waterplane area is rectangular.
- 4.The route is a short one which does not require stay over 4 hours.

Your submission should have the following parameters:

1. The number of decks for the vessel. The 2 sectional plans for each deck (profile and top view) should be provided keeping in mind good design practices. Furthermore, the views of the superstructure should also be provided.
2. Explain the reasoning behind the positioning of each deck, what is carried on board, and the logic behind this arrangement.
3. Estimate the gross cargo deadweight of the vessel (passenger, vehicles, and basic supplies).

Some internal design components you should include are:

- 1.Engine room and ballast tanks
- 2.Vehicle deck
- 3.Passenger deck

Besides these, the rest of the components are up to the participants. You are encouraged to create innovative designs to address possible design requirements and problems.

In case you have taken any other assumptions, clearly mention it in the submission.

Judging Panel & Criteria

The judging for BoatExpo 2021 will be solely on the basis of criteria as laid down by the judges. The judging panel will comprise of esteemed professors and technical experts from the Department of Ocean Engineering and Naval Architecture, IIT Kharagpur.

Judging criteria for round 1:

1. Adherence to rules stated in this document (10)
2. How well the design has been presented in the submission (30)
3. Has the problem statement been adequately addressed (30)
4. Proposed design and adherence to engineering rules (30)

Judging criteria for round 2:

1. Originality and creativity (20)
2. Organization and logical presentation of thoughts (20)
3. Presentation and delivery (20)
4. Knowledge on the subject (20)
5. Question-Answer session (20)

A 3D CAD model of the designed ship with section views will lead to bonus points for that team.

Rules and Regulations

1. Teams can consist of 3 - 5 members. The members need not be from the same university/organization.
2. The problem statement will be released only on the Samudramanthan official website at <https://www.samudramanthan.in>
3. The deadline for submission is 14th March, Sunday, 2021 at 11:59 PM, and it must be in a single file uploaded in the .pdf format. All submissions must be on the Samudramanthan portal and no mailed-in submissions will be considered.
4. Only the top 20% of participants will be considered for stage 2. In case of a tie, both teams will be considered.
5. Selected teams will be informed about the platform for stage 2 in advance, and must ensure it is installed and in working condition.
6. It is preferred if all team members actively take part in the presentation for stage 2. Strict adherence to the time limit is encouraged, with the risk of a penalty for exceeding it.
7. Plagiarism is strongly discouraged, and any team found indulging in unfair practices will be summarily removed from the event. If the violation is found to be serious, they may also be removed from Samudramanthan 2021.
8. The decision of the judges is final and binding on all participants and teams.

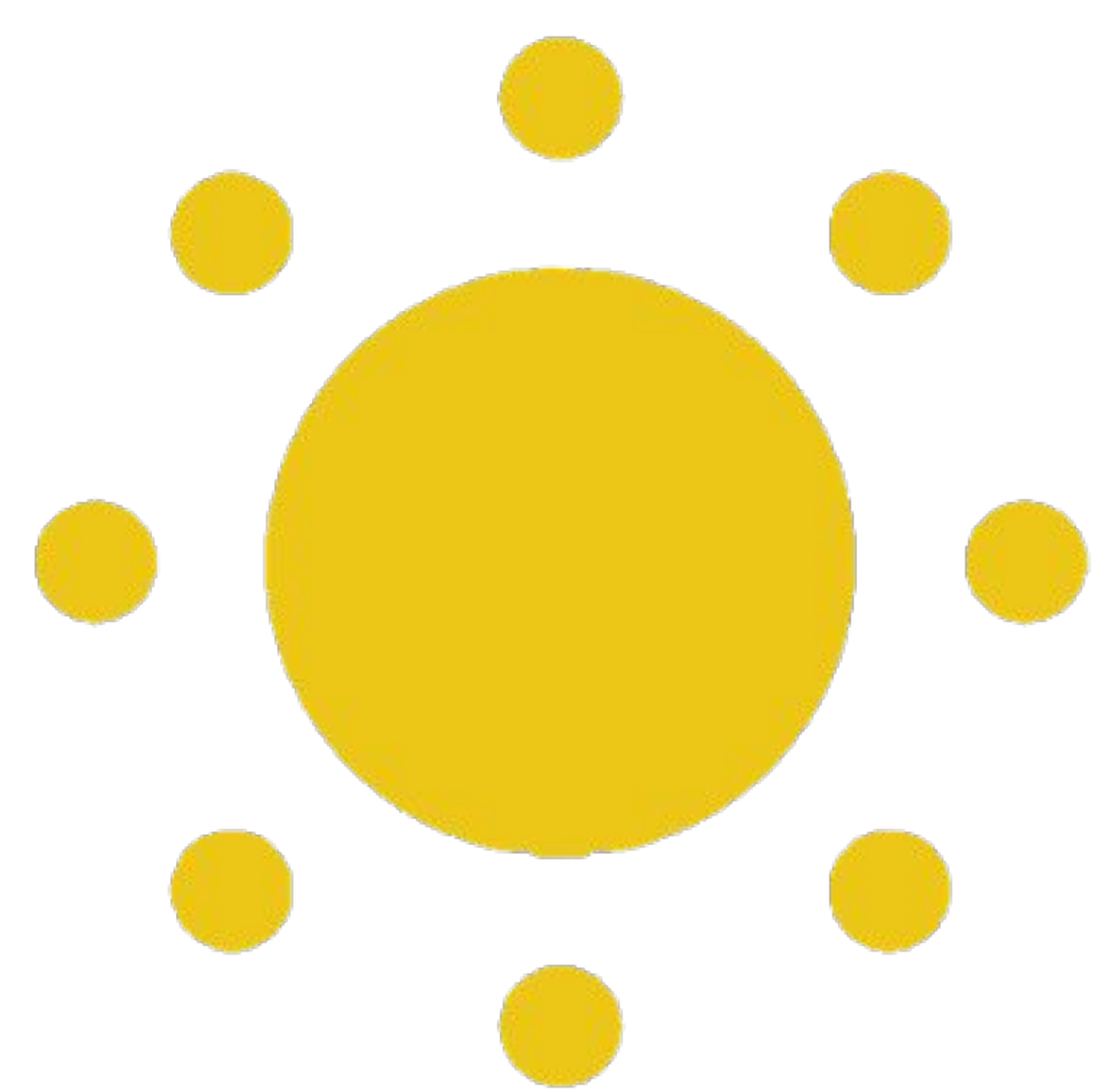
Prizes & Rewards

All participating teams will receive certificates of participation from Samudramanthan, IIT Kharagpur. The top design submissions may be published on our social media pages to appreciate their unique designs and design approach.

BoatExpo 2021 will award 3 cash prizes to the top 3 participating teams on the basis of the presentation made in round 2. The prize money is as follows:

1. First prize: INR 5,000/-
2. Second prize: INR 3,000/-
3. Third prize: INR 2,000/-

The winners will also receive e-Certificates from Samudramanthan and a mention on our social media pages. In case of a tie between 2 teams, the prize money will be divided equally between them, and they will both receive the mention and the e-Certificates.



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(19th - 21st March 2021)

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