

The problem statement for Boat Expo 2021 is as follow:

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.