

## REAL CASE TASK SUSTAINABILITY EVENT DEEP DIVE TOPIC



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## **REAL CASE SCENARIO**

ALTHOUGH THE SAFETY REGULATIONS AND THE CAR'S SAFETY DEVICES IN THE PAST 25 YEARS IN MOTORSPORTS WENT THROUGH AN ENOURMOUS DEVELOPEMENT, THE ADVANCEMENT CAN NEVER STOP IN THIS FIELD. THEREFORE FS EAST 2016 REAL CASE SCENARIO TOPIC AIMS TO FOLLOW THESE DEVELOPEMENT TRENDS.

In this Real Case Scenario your team is an OEM company, which is developing safety devices for Formula Student cars. Your task is to design a head protection equipement in front of the driver's head. The device has to prevent the impact of the drivers' head with a sphere object at speed of 125 km/h. For the details, see the figure below. The annual production volume should be 1000. Keep in mind, your solution should enable the installation of the component for different Formula Student cars with the least modification. Don't forget about ergonomics, visibility and easy and safe driver egress!



The result of your development has to be presented in at the Cost Event during the cost report discussion and you can only use two flip chart sheets (68x98 cm) to aid your presentation.

During the presentation keep in mind to show the following points:

- Desing, geometry
- Material selection
- □ Bacis structural compliance
- Design for manufacturing

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- Manufacturing process
- □ Assembly and installing processes
- Cycle times
- Recyclability
- □ Total Cost (use the cost tables for it)

As there are many right soluitons for the task, we expect you to substantiate your decisions with detailed supporting data (e.g. decision matrices, diagrams, references) wherever possible.

For the cost calculations you are expected to use the FSAE Cost Tables. However, in case of a material or process that is not available in the system, please use an estimated cost!

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## **SUSTAINABILITY TASK**

The automotive industry is increasingly required to meet the triple-bottom-line challenge (People, Planet, Profit) posed by sustainability.



Your task is to give a 10 minute presentation on the sustainability of the internal combustion engine used in a Formula Student car from the environmental point of view!

During your presentation you should take into consideration the five stages of the Life-Cycle Assessment (as defined by Michael T. Ashby):

- □ material extraction,
- manufacturing,
- use,
- end-of-life (disposal),
- □ transportation.

Even though the current and emerging regulations are mainly aimed at the environmental impact, that can't be isolated from the social and economic aspects. Therefore, please incorporate into your presentation a few possible trade-offs or synergies between:

- □ ecological innovation & employment,
- □ ecological innovation & innovation costs,
- □ ecological innovation & functional requirements!

We ask you to go into as much detail as possible, and in the end come to a conclusion (Are the currently used engines sustainable? If yes, why? If not, what changes could be made? Which LCA stage has the biggest impact on the environment?, etc.) based on your data!

Keep in mind:

- □ that there is not a "best one way",
- □ that you don't need to substantiate your presentation with exact numbers,
- to share your starting assumptions,
- □ to draw a conclusion from your data,

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□ to prepare a logical and coherent presentation.

You are expected to give the 10 minute presentation as part of the Cost Event during the discussion with the Cost Judges around your car. Please note, that you can only use one flip chart sheet (68x98 cm) to aid your presentation!

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## **DEEP DIVE TOPIC**

In the business world you can never forget about risks as they are present in all businesses. Their scope is mainly determined by the type of the business.

When planning or reviewing a new business, it is a critical point to identify and outline the risks and develop strategies to manage them. Understanding potential risks and preparing strategies to reduce their effects are necessary steps as they facilitate the business to recover quickly if an unexpected incident occurs.



Your task is to give a max. 7-minute separate presentation on risk assessment with an emphasis on two key risks and their management plan to your 'probable business partner'.

Keep in mind

- □ try to ask as many "what if" questions to find your business's risks,
- □ think broadly, there is no best answer,
- □ share your general assessment and why those 2 key risk were chosen to be presented,
- □ draw a conclusion ,
- □ keep the given time,
- □ be prepared for questions from the judges on the deep dive part too, separately from your business plan presentation.

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