2021 Formula Student Taiwan –

Real Case Scenario

**Issued: April 27th, 2021**

FSAE Rule S.3.3.3 states that the Cost and Manufacturing Event will be a “Real Case” scenario (Cost Scenario) where students will have to respond to a challenge related to cost or manufacturing of the student vehicle.

The real case scenario for this event will be the following:

The following problems occurs to ( A ) part, which your company developed, and has already started mass production & sales to customers.

* The part cost is 15% higher than reasonable price based on other companies’ part.
* An inspection process is planned to be added, because quality control concern is found on ( B ) after the start of production. The part manufacturing process time is estimated to increase 20%, compare to the original plan because of the added inspection process. As a result, the part cost is estimated to increase 5 % for the added inspection process.

You should study more than one set of solutions to the problems above, and compare them. Based on the pros and cons matrices of the solutions, you should choose and explain your best solution. The design of this part is important, but the judges will rightly reward teams whose primary focus is on the manufacture and most importantly the fully costed plan for materials, manufacturing and associated logistics

* If you think it is okay not to solve all the problems, you should explain the reason why you judge you could remain the problem.
* You can change your engineering design and production process, but a newly proposed process with solutions also should satisfy the production capability of 100,000 vehicles per year

# Cost Planning

* Process & tooling.
* No of Cavities/parts per cycle/cycle time (how many machines do you require to complete the task?).
* Material usage (cost per unit / kg).
* Tooling cost (capital outlay and deprecation cost).
* Capital equipment cost (building, running costs, utilities ect).
* Labour costs (management, HR, line staff, transportation and logistics).
* Secondary processes (QC).
* Design for ease manufacture (cost).

The blanks above should be selected by your team from the following.

(If ICV/EV 2 teams join this competition from your university or school, you should choose different part each other.)

|  |  |
| --- | --- |
| A | B |
| Suspension | Cracking of the A arm |
| Coolant Lines & Radiator | Coolant leakage |
| Steering (System ST parts) | Free Play of the steering Wheel |

The presentation must fulfill the following requirements:

* No longer than 5 minutes.
* You may use the material which you prepared beforehand.
* No handouts or use of electronic devices.
* Must be based on the system of the vehicle of the cost report which you submitted.

Your presentation will be evaluated on:

* The process or methodology(ies) used to develop the proposal(s)
* The solutions presented
* The credibility and feasibility of the proposal

Things and important factors to take into account:

* This task and the output that you will present are based as it would be in a real world situation.

# For this special task please use real world costs assumptions NOT Formula Student cost tables or costing assumptions (e.g process times). Please consider the costs and rates involved in production and manufacture at current market rates for materials, labour, machinery/fixed assets and standardise these costs into US Dollars ($) at the prevailing rate.

* **Use standard business/accounting practices (capital outlay, deprecation and remaining asset NBV) to estimate the EXACT unit cost and profitability of the chosen object.**
* Identifying cost reduction opportunities (short/medium or long term) for your chosen solution.

An additional 5 minutes will be used for the judges to ask questions about your proposal and to request additional clarifications as needed.

The team’s presentation skills will not be scored.

The presented solutions, the reasons of your choice and the contents of the discussion are grounds for the scores of the real case scenario.