



CLASS II RULES

FORMULA STUDENT PORTUGAL 2023



BUSINESS PLAN PRESENTATION (BPP)

B1 – Business Plan Presentation Objective

B1.1 - The objective of the BPP is to evaluate the team's ability to produce an effective business model, relating to their team and their prototype. In doing so, the team must create value for a potential investor, partner or sponsor and ask for support - financial or otherwise - in return.

B1.2 - As opposed to the traditional BPP competition, teams will behave as they would in a pitch meeting for their own Formula Student team.

B1.3 - The judges should be treated as if they were potential investors, partners or sponsors.

B1.4 - Teams will not be penalised for not having a completed prototype or for a completed prototype's quality.

B2 – Submission files

B2.1 - Teams are required to submit a one pager for judges, introducing themselves and their team, as well as a request to the potential investor, partner or sponsor.

B2.2 - Teams are required to submit a 10-slide presentation ahead of the competition.

B2.3 - Presentations should cover the following subjects:

- Timeline, current status, accomplishments
- Management team
- Value Proposition
- 2 year strategy plan, including performance targets
- Key financials, targets and use of investment (financial or otherwise)

B2.4 - All files submitted must be in the following formats:

- Presentation slide pack: "BPPP_CLASS_2_#(CARNUMBER).pdf".
- Supporting document(s): "BPPSD_CLASS_2_#(CARNUMBER).pdf".



BUSINESS PLAN PRESENTATION (BPP)

B3 – Business Plan Presentation Procedure

B3.1 - Presentations are limited to a maximum of ten minutes and will be stopped after this amount of time.

B3.2 - During the presentation there will be no questions from the judges. A Q&A session of 15 minutes will follow the presentation.

B3.3 - Up to two team members may participate in the presentation.

B3.4 - All team members involved in the BPP must be in the podium area and must be introduced at the beginning of the presentation.

B3.5 - Only team members who are part of the “presentation group” may participate in the Q&A session.

B3.6 - Ahead of the competition, teams will receive a brief description of a specific investor, partner or sponsor they will be pitching to. It is expected that teams tailor their presentation to this stakeholder.

B4 – Additional Support Material

B4.1 - LCD TV-style screens or video projectors will be provided by the organisers, but teams should bring their own laptop computers and may use their own projectors if they wish. The screens/projectors will have HDMI and VGA Input Connectors. Teams are responsible for the compatibility of their computer equipment and setting up of the screens. Overseas teams should ensure they have PT compatible power leads/adaptors.

B4.2 - Teams are allowed to provide judges with other materials, printed or otherwise, as long as they are referred to during the presentation.

B4.3 - Teams are responsible for ensuring they have the necessary support for the presentation, including internet access.



BUSINESS PLAN PRESENTATION (BPP)

B5 – Scoring

B5.1 - Teams will be evaluated on content of the presentation, visual aids, performance on the Q&A session and overall delivery.

B5.2 - The breakdown of points awarded for BPP is as follows:

- 20 - Content
- 10 - Finances
- 20 - Stakeholder Engagment
- 15 - Demonstration and Structure
- 10 - Delivery
- 10 - Questions
- 15 - General Impression
- 100 - Total

B5.3 - Content points will only be awarded for material in the presentation (not in supporting material).

B5.4 - All teams will be judged individually initially in an event opened only to their team members. The top teams will then be selected to take part in BPP finals, in an open event. The top places of BPP will be disclosed after the finals.

B5.5 - BPP finals must be performed by the same team members and with the same presentation delivered in the initial stage of the competition.

B5.6 - The BPP finals do not necessarily have a Q&A session.

B5.7 - The scoring of the BPP is based on the average of the scores given by each of the judges.

B5.8 - The scoring for the non-finalist is calculated as followed: *(To be announced)*

B5.9 - The scoring of the BPP finalists will vary from 90 to 100 points and is scored immediately after the BPP finals by all judges.



BUSINESS PLAN PRESENTATION (BPP)

B6 – Penalties

B6.1 – In case the team does not show up to their assigned slot a 50 point penalty is applied to their overall Class II score. This does not apply in case the team notifies the organisation at least 12 hours before their assigned slot.

B6.2 – In case the team appears late to their BPP event slot a penalty of 10 points is applied to their BPP event score.

B6.3 – If a team does not submit all of the documents in B2 on the assigned deadline a penalty of 10 points will be applied in their BPP event score.

B6.3 – If a team does not submit all of the documents in B2 on the 48 hours after the deadline a penalty of 20 points will be applied in their BPP event score.

B6.4 – If a team does not submit all of the documents in B2 on the 10 days after the deadline the team will not be allowed to participate in the BPP event.



COST AND MANUFACTURING

C1 - Cost and Manufacturing Objective

C1.1 - In the Cost and Manufacturing Event teams are tasked with showcasing their understanding of manufacturing processes and the cost associated with construction of a single seater formula student car. This includes all the trade-off decisions between content and cost, make or buy, and the differences between prototyping and mass production.

C1.2 - The teams are not required to present a functional Formula Student car.

C2 - Submission files

C2.1 - Teams are required to submit 5 documents to participate in the Cost and Manufacturing event: A Costed Bill of Materials (CBOM) of the frame and body; a Detailed Bill of Materials (DBOM) of the suspension ; A support material document; A cost explanation report; A Manufacturing Plan;

C2.2 - Templates will be provided for the CBOM, DBOM and the Manufacturing Plan.

C2.3 - The Support Material file should contain technical drawings and renders of the assemblies listed in the CBOM and DBOM.

C2.4 - The Cost explanation file should contain a detailed explanation of the methods and processes used to derive the costs in the CBOM.

C2.5 - All documents should be submitted as pdf files with the following filenames:

- DBOM: "DBOM_CLASS_2_#(CARNUMBER).pdf".
- CBOM: "CBOM_CLASS_2_#(CARNUMBER).pdf".
- Support Material: "COSTSM_CLASS_2_#(CARNUMBER).pdf".
- Cost Explanation: "COSTE_CLASS_2_#(CARNUMBER).pdf".
- Manufacturing Plan: "COSTMP_CLASS_2_#(CARNUMBER).pdf".



COST AND MANUFACTURING

C3 – Cost and Manufacturing Procedure

C3.1 - The Cost and Manufacturing starts with a brief presentation (no longer than 3 min) of the team. The team's presentation is followed by a 30 min Q&A session where the judges will query the team on the topics described in section C5.

C2.2 - The session will be divided into 3 parts:

1. BOM discussion - Evaluates the team ability in the preparation of the CBOM and the DBOM in completeness, correctness and feasibility.
2. Cost Understanding - Evaluates the general knowledge of cost and manufacturing processes.
3. Manufacturing Plan - Evaluates the overall readiness of the team to manufacture a Formula Student Car over the next year.

C4 – Additional Support Material

D4.1 – There are no restrictions on the type of support material that the team can bring.

D4.2 - The team must come to the Cost and Manufacturing event prepared to show all submission documents to at least two judges. This means at least 2 copies of the support documents.

D4.3 - The team can present the submission documents on a tablet or laptop.



COST AND MANUFACTURING

C5 - Scoring

C5.1 - Teams will be evaluated on content of the presentation, visual aids, performance on the Q&A session and overall delivery.

C5.2 - The breakdown of points awarded for Cost and Manufacturing Event is as follows:

30 - BOM discussion

30 - Cost Understanding

30 - Manufacturing Plan

10 - Support Material Content and Quality

100 - Total

C5.4 - All teams will be judged individually initially in a pre-assigned slot opened only to their team members. The top teams will then be selected to take part in COST finals.

C5.6 - The Cost finals procedure is similar to the regular Q&A session.

C5.7 - The scoring of the COST is based on the average of the scores given by each of the judges.

C5.8 - The scoring for the non-finalist is calculated as followed: *(To be announced)*

C5.9 - The scoring of the COST finalists will vary from 90 to 100 points and is scored immediately after the COST finals.



COST AND MANUFACTURING

C6 – Penalties

C6.1 – In case the team does not show up to their assigned slot a 50 point penalty is applied to their overall Class II score. This does not apply in case the team notifies the organisation at least 12 hours before their assigned slot.

C6.2 – In case the team appears late to their Cost and Manufacturing event slot a penalty of 10 points is applied to their Cost and Manufacturing event score.

D6.3 – If a team does not submit all of the documents in C2 on the assigned deadline a penalty of 10 points will be applied in their Cost and Manufacturing event score.

D6.3 – If a team does not submit all of the documents in C2 on the 48 hours after the deadline a penalty of 20 points will be applied in their Cost and Manufacturing event score.

D6.4 – If a team does not submit all of the documents in C2 on the 10 days after the deadline the team will not be allowed to participate in the Cost and Manufacturing event.



ENGINEERING DESIGN

D1 – Engineering Design Objective

D1.1 - The Design event aims to evaluate the team’s engineering process, understanding and effort to design a formula student car that can participate in the next year Formula Student Events.

D1.2 - The teams are not required to present a functional Formula Student car but are nonetheless encouraged to bring already manufactured components of the car (e.g. a fully or partially welded chassis) as well as any other relevant components.

D2 – Submission files

D2.1 - Teams must submit two mandatory documents to be able to participate in the Engineering Design Event. These are described in sections D2.2 and D2.3

D2.2 – Engineering Design Report (EDR)

D2.2.1 – Teams must submit an 8 page report that details the overall concept and goals for the car combined with a summary of each subsystem design and it’s relation to the overall concept.

D2.2.2 – The EDR must not exceed 5 pages of written text and must contain 3 pages of technical drawings.

D2.2.3 - The drawings must show the vehicle from the front, the top and the side. One drawing per page.

D2.2.4 - The EDR should be submitted as a pdf file with the following file name “EDR_CLASS_2_#(CARNUMBER).pdf”

D2.3 - Design Specification Sheet (DSS)

D2.3.1 - Teams must submit a DSS according to a predefined template which will be provided by the competition.

D2.3.2 - The DSS should be submitted as a pdf file with the following file name “DSS_CLASS_2_#(CARNUMBER).pdf”



ENGINEERING DESIGN

D3 – Engineering Design Procedure

D3.1 – The engineering design starts with a brief presentation (no longer than 3 min) of the team. The team's presentation is followed by a 30 min Q&A session where the judges will query the team on the topics described in section D5.

D3.2 – The team will receive both written and verbal feedback from all the judges involved in the design session but not necessarily at the very end of the session.

D4 – Additional Support Material

D4.1 – There are no restrictions on the type of support material that the team can bring.

D4.2 – The combination of support material plus components that the team brings to the engineering design event must be so that both team members and judges can comfortably move in a designated area of 5 by 5 metres.

D4.3 – D4.2 is evaluated at the discretion of the head judge who can request for the team to remove components/materials so that the D4.2 is complied.



ENGINEERING DESIGN

D5 – Scoring

D5.1 - Teams will be evaluated on content of the presentation, visual aids, performance on the Q&A session and overall delivery.

D5.2 - The breakdown of points awarded for Engineering Design Event is as follows:

25 - Aerodynamics

25 - Vehicle Dynamics and Suspension

25 - Powertrain

20 - Electronics

25 - Structural

20 - Technical Management

10 - Engineering Design Report

150 - Total

D5.3 - All teams will be judged individually initially in a pre-assigned slot opened only to their team members. The top teams will then be selected to take part in Engineering Design Event finals.

D5.4 - The Engineering Design Event finals procedure is similar to the regular Q&A session.

D5.5 - The scoring of the Engineering Design Events is based on the average of the scores given by each of the judges.

D5.6 - The scoring for the non-finalist is calculated as followed: *(To be announced)*

D5.7 - The scoring of the Engineering Design Event finalists will vary from 135 to 150 points and is scored immediately after the Engineering Design Event finals.



ENGINEERING DESIGN

D6 – Penalties

D6.1 – In case the team does not show up to their assigned slot a 50 point penalty is applied to the overall Class II score of the team. This does not apply in case the team notifies the organisation at least 12 hours before their assigned slot.

D6.2 – In case the team appears late to their design event slot a penalty of 10 points is applied to their engineering design event score.

D6.3 – If a team does not submit the EDR or DSS on the assigned deadline a penalty of 10 points will be applied in their engineering design event score.

D6.3 – If a team does not submit the EDR or DSS on the 48 hours after the deadline a penalty of 20 points will be applied in their engineering design event score.

D6.4 – If a team does not submit the EDR or DSS in the 10 days after the deadline the team will not be allowed to participate in the engineering design event.

D6.5 - If the team submits an EDR or DSS with a non compliant format a penalty of 5 points is applied in their engineering design event score.



ADDITIONAL RULES

S1 – Penalties

S1.1 Teams that are selected to any finals and do not show up to their assigned slot will have a 50 point penalty in their overall Class II score

S2 – Special Awards (to be announced)