STEM RACING™
UNITED STATES

Competition Regulations

Professional Class

2025-26

Ver. 1

CONTENTS

Please note: any amendments made prior to the event will be indicated using red underlined text. ~~The old regulation will be indicated in strike-through text.~~ Updated versions of the regulations will be posted on the official STEM Racing USA website (within the Team Portal) as a new revision.

Note: These rules and regulations have been adapted from previous versions of the US Competition Regulations. Teams are expected to read through this whole document without assumptions from previous documents.

Rules related to the **REGIONAL FINALS** will be indicated in green text, as shown.

Rules related to the **NATIONAL FINALS** will be indicated in blue text, as shown.

After reading through this document, **and the technical regulations**, if you still have questions about how the competition will run, please contact **info@STEMRacing.us.** We're here for YOU!

ARTICLE C1 – DEFINITIONS

C1.1 Competitions

C1.1.1 2026 Competition Season – The 2026 Competition season includes the US Regional Finals and the US Nationals Finals. The 2026 season is designed to correspond with the 2025-2026 school year and runs through the Spring of 2026. Competitions are managed by STEM Racing™ USA and Nexus North America.

C1.1.2 US Regional Finals – The US Regional Finals are held virtually – team submit portfolios and their verbal presentation recording digitally for judging, along with mailing a car for physical racing. Racing events are streamed via YouTube and a LIVE Awards Ceremony is held via Zoom. Teams will compete in either the Eastern, Central, or Western Regional Final (depending on their home state). This competition serves as a qualifier for the US National Finals – the top team from each state will advance (followed by the next highest points scorers overall).

C1.1.3 US National Finals - The United States (US) National Finals is held over several days and includes various programmed social and competition activities. The competition aims to provide all students with an education and personal development opportunity and determine the US National Champions who represent the US at the World Finals.

C1.2 Parc fermé

A secure area where all submitted cars and components are held to prevent unauthorized handling, but to allow technical inspections to be conducted by the Judges. (Literal meaning in French of 'closed park').

C1.3 Competition Schedule

The competition program will detail the schedule of judging activities for all teams. This will be released on the STEM Racing USA website prior to the competition.

C1.4 Key performance indicators (KPI's)

These are portions of text featured on the score cards within a corresponding points range. The KPI's describe the type of evidence the Judges will be looking for to score the team appropriately.

C1.5 Car race time value

A 'car race time' value is the actual time taken for a STEM Racing car to travel the track from start to finish, measured from the instant the start box fires to when the car breaks the finish line timing beam. In the case of reaction races, the 'car race time' value is calculated as the 'total race time' value displayed on the electronic start gate minus the 'reaction time' value displayed for that race.

C1.6 Total race time value

The 'total race time' value is displayed in the total time field on the electronic start gate at the conclusion of every race. This time is the sum of the 'car race time' value and any 'reaction time' value displayed on the electronic start gate.

C1.7 Reaction time value

A 'reaction time' value is the time recorded from the instant the five (5) start lights extinguish to the instant the start trigger is activated by the driver. This value is displayed in the reaction time field on the electronic start gate.

C1.8 Project elements

These are any materials and resources that the team presents as part of its entry for any judging activity.

C1.9 Race events

The US Regional Finals will each feature **one** racing session: Time Trials. The US National Finals will each include **two** separate racing events: Racing Session 1 and Knockout Racing. Please see C3.5 for the breakdown of scorecard changes between the Regional and National Finals.

C1.10 Engineering drawings

Engineering drawings are CAD produced drawings, which along with relevant CAM programs, could theoretically be used to manufacture the fully assembled car by a third party. Such drawings must include all relevant dimensions, tolerances, and material information. STEM Racing engineering drawings must include detail to specifically identify and prove compliance for the virtual cargo and wing surfaces. **Engineering drawings should include all items listed in the Table of Contents (see Appendix 1)**

C1.11 Renderings

Renderings are images intended to illustrate the three-dimensional form of an object. These can be generated in isometric projection, oblique projection, or perspective.

ARTICLE C2 – GENERAL INFORMATION

C2.1 Competing teams

C2.1.1 Each team must consist of a minimum of 3 students to a maximum of 6.

C2.1.2 Only members of the official competing team (maximum 6) are permitted to wear the team's uniform.

C2.1.3 During the competition, only the official core team members (maximum of 6) can represent the team at registration, Pit Display set up, Scrutineering review, Verbal Presentation, all judging interviews, Safe/Fit to race fix, racing, on-stage presentations, and any direct communication with the Chair of Judges or Event/Competition Directors.

C2.1.4 Team affiliated students (also called support members) and supervising adults/teacher must adhere to C2.1.3. If a uniform is to be worn it must be significantly different than the official core team's uniform. This is to assist the Judges in recognizing the official core students. STEM Racing™ reserves the right to impose a penalty of up to 20 points at the discretion of the chair of judges if it is felt team affiliated students are influencing the judging process or violate C2.1.3 above.

C2.2 Competition program, team number ballot and team name

C2.2.1 STEM Racing will issue the competition program showing all scheduled judging activities, with judging times listed against team competition numbers. **Team IDs, will be assigned after registration for competition randomly to each team.**

C2.2.2 No teams participating in the challenge are permitted to use any of the Formula One Word Marks (shown below) in their team name, logo, domain name, and/or any social media handle. For example, "Infinity F1" is not allowed and should be changed to something similar such as "Infinity" or "Team Infinity". No team will be permitted to use any of the prohibited word marks within their team name when participating in STEM Racing from 2017 onwards.

The F1 IN SCHOOLS Logo, F1, FORMULA 1, FIA FORMULA ONE WORLD CHAMPIONSHIP, GRAND PRIX and related marks are trademarks of Formula One Licensing BV, a Formula 1 company. All rights reserved.

C2.2.3 **Prohibited Characters** – Teams may not use the following characters in their officially submitted Team Name: < (less than), > (greater than), : (colon), " (double quote), / (forward slash), \ (backslash), | (vertical bar or pipe), ? (question mark)

C2.3 Team responsibilities

C2.3.1 Teams must read the **US Technical Regulations** carefully to ensure their cars comply with those regulations.

C2.3.2 Teams must read the **US Competition Regulations (this document)** carefully to ensure that all project elements satisfy these regulations and that they understand the requirements and procedures for all aspects of the competition and judging.

C2.3.3 During the competition it is the team's responsibility to ensure that team members are present at the correct time and location for all scheduled activities.

C2.3.4 Security of the pit display and its elements is the team's responsibility during competition. At the National Finals, teams are encouraged to always have at least one team member at their Pit Display, outside of scheduled judging events.

C2.4 Role and responsibility of supervising teacher / adult.

C2.4.1 It is the primary responsibility of any event accredited supervising teacher/adult to ensure duty of care/well-being for all their student team members. Any concerns arising during the event in relation to this should be brought to the attention of the STEM Racing Event Directors immediately.

C2.4.2 Lead Adults during scheduled judging sessions may not interact in any way with the student team, judges, or judging process. Any incident considered inappropriate will be brought to the Chair of Judges' attention and **10 penalty points** may be applied to the associated team.

C2.5 Regulations documents

C2.5.1 STEM Racing issues the regulations, their revisions, and amendments made.

C2.5.2 **Competition Regulations** – (This document). The Competition Regulations document is mainly concerned with regulations and procedures directly related to judging and the competition event. Competition Regulation articles have 'C' prefix.

C2.5.3 **Technical Regulations** – A document, separate to this one which is mainly concerned with those regulations that are directly related to STEM Racing car design and manufacture. Technical Regulation articles have a 'T' prefix.

C2.6 Interpretation of the regulations

C2.6.1 The final text of these regulations is in English, should any dispute arise over their interpretation, the regulation text, diagrams, and any related definitions should be considered together for the purpose of interpretation.

C2.6.2 Text clarification - Any frequently asked questions that are deemed by STEM Racing to be related to text needing clarification will be answered. The question and the clarification will be published to all teams at the same time.

C2.7 Supplementary competition regulations

Other documents may be issued by STEM Racing that provide teams with further logistic and other important event information. Any supplementary regulations will be issued to all lead teachers and team managers, where the team manager has supplied STEM Racing with a contact email address. **All supplementary regulations issued will also be added to the Team Portal.**

C2.8 Design ideas and regulation compliance queries

Teams are not permitted to seek a ruling from STEM Racing or any competition official or judge before the event as to whether a design idea complies with the regulations. Rulings will only be made by the Judges at the National Finals. Design compliance to the regulations forms part of the competition. As in Formula 1, innovation is encouraged, and STEM Racing teams may also find, sometimes controversial ways, of creating design features by pushing the boundaries in order to get an extra competitive edge.

C2.9 Team partnerships

C2.9.1 STEM Racing teams are encouraged to develop mentoring partnerships with businesses, industry, or higher education organizations throughout their project.

C2.9.2 All design work, text and scripting for all project elements presented for assessment must be wholly undertaken and created by the team. This includes all CAD and CAM data, electronic portfolio, and graphic content.

C2.9.3 All aspects of any partnerships should also be represented in the team's portfolio. For project elements produced utilizing some outside assistance, teams should be able to demonstrate to the judges a high level of understanding of, and justification for, any of the processes used.

C2.9.4 'Common sense' will prevail for project elements or components that a team has purchased from a supplier. E.g. bearings, screw eye, display hardware. Teams should be able to explain and justify why a specific component was selected / purchased over other similar available components.

C2.10 Mandatory project elements required for USA Competition entry

A summary of the mandatory elements required for judging at the **REGIONAL FINALS**:

- One (1) STEM Racing car (no replacement parts will be permitted). This must be mailed to STEM Racing prior to the event.
- One (1) digital Design & Engineering Portfolio
- One (1) digital Enterprise Portfolio
- One (1) digital Project Management Portfolio
- One (1) digital "Pit Display" Plan (see template in appendix)
- A recorded 10-minute Verbal Presentation
- A digital Team Video Challenge submission
- A digital set of engineering drawings including orthographic and 3D renders for Scrutineering judging
- A digital copy of the team's logo
- Car Submission Checklist which must include the official Model Block holographic sticker (mailed physically with car submission)

A summary of the mandatory elements required for judging at the **NATIONAL FINALS EVENT**:

- Two (2) identical STEM Racing cars including all optional replacement components.
- One (1) STEM Racing display car for use in judging events.
- One (1) fully machined, unfinished, unassembled STEM Racing model block car body identical to the car body used on car A & B.
- One (1) unfinished, manufactured Halo identical to the halo used on car A & B
- Two (2) identical 'hard copy' Design & Engineering Portfolios
- Two (2) identical 'hard copy' Enterprise Portfolios
- Two (2) identical 'hard copy' Project Management Portfolios
- A Pit Display
- A 10-minute Verbal Presentation
- One (1) 'hard copy' set of engineering drawings including orthographic and 3D renders for Scrutineering judging
- A digital copy of the team's logo
- A laptop containing all CAD data and relevant CAD software (needed for judging, not submission)
- Project Submission Checklist which must include the official STEM Racing Model Block holographic stickers.

The above lists are detailed in the remainder of ARTICLE C2.

C2.10.1 **Cars** - Each team must produce…

Regional Finals: One STEM Racing race car which will be mailed in to the competition

National Finals: Three identical STEM Racing cars – two race cars and a third display car. **Please Note:** Only the two race cars will be submitted for scrutineering and racing. The third display car should be used at the team's pit display.

C2.10.2 **Portfolios** - Refer to ARTICLE C5, C6 & C7 of these regulations along with the Design & Engineering, Project Management, and Enterprise judging score cards for portfolio specification and content requirements. Each team must produce…

- **Regional Finals:**
  - One (1) digital 7-page (one-page front cover + 6 pages of content) maximum Design & Engineering portfolios
  - One (1) digital 7-page (one-page front cover + 6 pages of content) Enterprise portfolios
  - One (1) digital 5-page (one-page front cover + 4 pages of content) Project Management Portfolios
- **National Finals:**
  - Two (2) identical 'hard copy' 11-page (one-page front cover + 10 pages of content) maximum Design & Engineering portfolios
  - Two (2) identical 'hard copy' 11-page (one-page front cover + 10 pages of content) Enterprise portfolios
  - Two (2) identical 'hard copy' 7-page (one-page front cover + 6 pages of content) Project Management Portfolios

Portfolios must be presented in a Tabloid (11"x17") sized format. One (1) physical set will be submitted (refer to C2.13) and one (1) for exhibition within the team's pit display.

C2.10.3 **'Online' submission of both portfolios, set of engineering drawings including orthographic and 3D renders for judging preview** - teams must submit their three portfolio documents (Design & Engineering, Project Management, and Enterprise) and one set of engineering drawings including orthographic and 3D renders in digital format to STEM Racing before **Wednesday December 3rd at 11:00pm EST for the Regional Finals. Submissions are due by the Monday prior to the competition at 11:00pm (23:00) EST for the National Finals.** Late submission will incur a **50-point penalty per day**. The official date and submission link will be posted on the STEM Racing USA Team Portal website for registered teams.

The digital submission must exactly match the hard copy in content and format.

It is recommended that when creating the PDF file, teams consider embedding any unusual font types they may have used within their portfolio documents to help ensure they display correctly when opened by the Judges. The following file conventions must be adhered to:

a) Documents must be submitted in separate single Portable Document Format (PDF) files.
b) PDF files must be no greater than 75MB.
c) Text included in the PDF files must be highlightable to facilitate the similarity checking process. STEM Racing™ reserves the right to impose a penalty of up to 20 points to any team failing to comply with this request at the discretion of the chair of judges.
d) The files must be named:
"your_team_number_team_name _engineering.pdf",

"your_team_number_team_name _projectmanagement.pdf",
"your_team_number_team_name_enterprise.pdf" and
"your_team_number_team_name_engineering_drawings_renders.pdf"
"your_team_number_team_name_pit_display_plan.pdf" **[Regional Finals ONLY]**

For example: "**T01_Infinity_Racing_enterprise.pdf**".

C2.10.4 **Pit Display –** Refer to ARTICLE C7 for further pit display specifications and content requirements. For the…
Regional Finals: Each team prepares a Pit Display Plan using the provided template (see appendix), in place of a physical display.
National Finals: Each team will be provided with a dedicated exhibition style space for set-up of their pit display elements. The specific style and size of this space will be announced in a supplementary document prior to the event (approximately 3m wide x 1m deep x 2.4m high).

C2.10.5 **Verbal Presentation -** Refer to ARTICLE C8 of these regulations for details regarding presentation content and other requirements. For the…
Regional Finals: Teams will be required to submit a recording of a Verbal Presentation in relation to their project to the Judges **in a video format. The presentation must not last longer than 10 minutes.** Additionally:

- No editing is permitted – the presentation must be a "one-take" video and may not include any editing. **Any editing will result in a 20-point penalty.**
- The presentation may be screen recorded if members are remote and give the presentation via video teleconferencing.
- Videos must be uploaded to YouTube as an **unlisted** link.
- The link must be submitted before **Wednesday December 3rd at 11:00pm EST for the Regional Finals as part of the digital project element submission, C2.10.3.**

National Finals: Teams will be required to deliver a Verbal Presentation in relation to their project to the Judges. **The presentation must not last longer than 10 minutes.** Teams should bring their own laptop with any slide show or other multimedia files that need to be shown as part of their Verbal Presentation.

C2.10.6 **Engineering drawings (refer ARTICLE C1.10) and Renderings (refer ARTICLE C1.11) for specification judging –** Refer to APPENDIX 1 of these regulations for details regarding the engineering drawings and 3D renderings. For the…
Regional Finals: Teams must submit a digital copy of their engineering drawings and 3D renders. These drawings must be presented as a .pdf no larger than letter size (8.5" x 11") in size. A physical copy is not required.
National Finals: Teams must produce and submit one (1) 'hard copy' of their engineering drawings and 3D renders for scrutineering judging presented in a landscape letter (8.5" x 11") sized format. One (1) set will be submitted and kept (refer to C2.13). **Please note, Engineering Drawings and Renderings will be stored along with your car and spare parts after Check-In, so hard covers and/or large bindings are not advisable. A digital copy will also be submitted, per C2.10.3.**

C2.10.7 **Laptop for Design & Engineering judging -** A laptop with the CAD software used by the team and with all CAD parts and assembly data should be used during the Design & Engineering judging session so that the team can demonstrate their CAD work and better explain how they engineered their car design.

C2.10.9 Car Submission Checklist / Project Submission Checklist – Please see the appendix for a copy of this form. The team must print out and submit a copy at Team Registration at the National Finals along with the team's other project elements.
Regional Finals – The Car Submission Checklist must be submitted with the team's cars via mail. The official holographic sticker must be included on this form. The Project Submission checklist is not applicable for the Regional Finals.
National Finals – The Project Submission Checklist must be submitted at Check-in along with the team's other project elements. The Car Submission checklist is not applicable for the National Finals.

C2.10.9 Team Video Challenge Submission [Regional Finals Only] – For the Regional Finals, all teams must prepare a 45-60 second video that introduces their team. This video will be shared on social media and during the race broadcast. The team in each region with the highest engagement on social media and voted on by the judges (based on engaging content that meets all the qualifications below) will be awarded a 10-point bonus, see C3.5. The video…

- Should showcase all official team members and your journey to competition
- must be **no longer than 60 seconds** (editing is permitted)
- must be in **horizontal** format (16:9 aspect ratio).
- must be in .mp4 format and no greater than 100MB.

The file must be submitted before **December 3rd at 11:00pm EST as part of the digital project element submission, C2.10.3.**

C2.11 Team Check-In [National Finals ONLY]

C2.11.1 Teams will be required to check-in at competition during the specified times set in the event schedule and program. At this Check-In, teams will submit project elements (per C2.12) and may be distributed additional event information. At a minimum, the student Team Manager and supervising teacher of each team should attend. Please have all submission materials ready to turn in at this time. Teams that are missing any project elements will not be allowed to complete registration until all elements are present.

C2.12 Submission of project elements

C2.12.1 Teams will submit their project elements during Team Check-In (C2.11) and digitally prior to the Finals (C2.10.3). All elements must be submitted complete and ready for judging. The digital submission must exactly match the hard copy in content and format. Each team must submit the following:

FOR THE REGIONAL FINAL:

Digital Project Elements

- One (1) digital Design & Engineering Portfolio
- One (1) digital Project Management Portfolio
- One (1) digital Enterprise Portfolio
- One (1) digital set of engineering drawings and 3D renders
- A digital "Pit Display" Plan
- A recorded 10-minute Verbal Presentation (in the form of a YouTube unlisted Link)
- A 45-60 second Team Video Challenge submission (as a .mp4 file)

All elements must be digitally submitted complete, ready for judging via the provided submission links (see Team Portal) by **Wednesday December 3rd, 2025 at 11:00pm (23:00) EST (as mentioned in C2.10).**

Physical Project Elements (to be mailed to STEM Racing USA)

- 1x nominated Car A identified using a STEM Racing logo decal with the Car A
- Car Submission Checklist which must include the official STEM Racing Model Block holographic sticker

Car submission deadline – Car and the Car Submission Checklist are to be shipped to the designated address (SEE TEAM PORTAL) and **arrive no later than end of day on December 3rd, 2025**.

FOR THE NATIONAL FINALS:

Digital Submission (prior to Nationals):

- One (1) digital Design & Engineering Portfolio
- One (1) digital Project Management Portfolio
- One (1) digital Enterprise Portfolio
- One (1) digital set of engineering drawings and 3D renders

All elements must be digitally submitted complete, ready for judging via the provided submission links by the **Monday prior to the competition at 11:00pm (23:00) EST for the National Finals (as mentioned in C2.10).**

Physical Submission of Project Elements (at National Finals Team Check-In):

- 1x nominated Car A identified using a STEM Racing logo decal with the Car A
- 1x nominated Car B identified using a STEM Racing logo decal with the Car B
- One (1) fully machined, unfinished, unassembled STEM Racing model block car body identical to the car body used on car A & B.
- One (1) Halo and One (1) Helmet identical to the car body used on car A & B
- Optional Replacement Components
  - Nose cone & front wing assembly (max of 2)
  - Rear Wing Assembly (max of 2)
  - Front Wheels (max of 4)
  - Front Wheels Support Structure (max of 2)
  - Rear Wheels (max of 4)
  - Rear Wheels Support Structure (max of 2)
- 2x printed Design & Engineering Portfolio*
- 2x printed Enterprise Portfolio*
- 2x printed Project Management Portfolio*
- Letter-Sized (8.5”x11”) Engineering drawings and Car Renders
- Project Elements Submission Checklist which must include the official STEM Racing Model Block holographic sticker. Teams must bring this printed sheet to project check in – one will not be provided.

C2.12.2 During project submission at the National Finals, each team will be given the opportunity to check the weight of their cars on the official National Finals scales. If either car being submitted is under the minimum weight, the team will be given until the end of the registration period to fix any issue in order that both cars can be submitted at or above the minimum weight.
For the Regional Finals, teams will be asked to submit the weight of their cars prior to shipping. This weight will be considered by the judges during scrutineering.

C2.12.3 Once cars and replacement components have been submitted, they are considered as being in parc fermé.

C2.13 Project elements to be retained by STEM Racing

It is a condition of competition entry that all teams permit the retention of the electronic copies of all specified project data submitted. Teams also permit STEM Racing to use any of these project elements for marketing purposes and/or publication as exemplary projects for reference by others. The top three overall teams permit STEM Racing to retain the three physical portfolios (Design & Engineering, Project Management, and Enterprise). Additionally, the top three overall teams and the top three teams with the highest "Finish" score for Scrutineering, permit one of their official racecars to be retained by STEM Racing. All other cars and replacement components will be returned to teams after competition.

C2.14 Benefit of doubt

The chair of judges will, where appropriate, seek to use 'benefit of doubt' when the assessment of compliance is marginal or unclear. In this situation, teams will be given the benefit of doubt rather than a firm penalty if a penalty cannot be clearly measured or identified.

C2.15 Spirit of the competition

Teams are expected to act in the spirit of the competition, both before and during the STEM Racing US Competitions. Any team deemed by the chair of judges to be acting outside of the spirit of the competition, can be removed from certain or all aspects of the competition. For example, a team attempting to abuse the technical regulations to their advantage may, at the discretion of the chair of judges, be removed from racing and receive no points for this activity. A team deemed to be acting in an unsportsmanlike manner towards another team or other persons may be removed from some or all judging areas.

The spirit of the competition is simple: embrace and respect the rules and regulations, do your very best to compete legally and fairly, while contributing positively to the STEM Racing USA competitions. Make friends, create positive relationships, network professionally and enjoy yourselves.

C2.16 Plagiarism

STEM Racing welcomes and endorses innovation and does not consider that plagiarism should play any part in any of the disciplines that make up the competition. Competing teams at all levels of the competition that intentionally plagiarize any part of their assessed work, undermines the credibility and integrity of the STEM Racing challenge and the spirit of the competition.

Plagiarism within any project work submitted by teams is not permitted. All teams must sign the supplied Originality Declaration at project submission and check-in along with all other project elements. Where plagiarism has been detected, the Chair of Judges may choose to exclude the team from that element of the competition.

Originality & Plagiarism Statement:

The Team Manager, on behalf of the team, acknowledges and pledges that:

- **Original Work**: Our team has not directly copied text, images, unique elements, or otherwise plagiarized the work of any other current or past STEM Racing competitors.
- **Proper Citation**: Our team has properly cited any outside references used within the submitted portfolios.
- **Responsible AI Use**: Our team has not improperly used AI to generate elements in place of our own work. Any AI-generated content used has been credited appropriately and has not replaced the creativity, effort, and contributions of our team.
- **Team Ownership**: All project elements submitted are solely the creation of our team.

ARTICLE C3 – COMPETITION AND JUDGING FORMAT

C3.1 Competition program

C3.1.1 Each team will be judged as per the competition program. The competition program will be formulated by STEM Racing to best and fairly accommodate all judging and other competition activities. Teams will rotate around judging activities as per this program, with each rotation usually of 20-30 minutes in duration.

C3.1.2 Judging Streams – The competition program will normally be divided into two parallel judging streams (Stream A and Stream B), to help ensure quality judging time intervals within the event time constraints. Strategies are implemented within the judging process to ensure there is consistency across the judging streams.

C3.2 Judging categories

There are six (6) main judging categories, each with its own team of Judges and specified judging activities as detailed in further articles.

- Scrutineering Judging
- Design & Engineering Judging
- Project Management Judging
- Enterprise Judging
- Verbal Presentation Judging
- Racing Officials & Track Staff

C3.3 Judging score cards

The STEM Racing USA Competition judging score cards provide detailed information in relation to what the Judges will be looking for. They include key performance indicators which are referred to by the Judges in awarding points during judging activities. The judging score cards can be found in the appendix of this document.

READING THE SCORE CARDS CAREFULLY IS IMPORTANT. THEY PROVIDE CRITICAL INFORMATION FOR TEAMS AS TO WHAT NEEDS TO BE PRESENTED FOR EACH JUDGING CATEGORY.

C3.4 US National Champions

The STEM Racing US National Champions trophy and title will be awarded to the team with the highest sum total from all judging categories (ARTICLE C3.5). In the case of a tied points score, the team with the highest time trial score will be determined the winner.

THE CHAIR OF JUDGE'S DECISION IS FINAL.

C3.5 Point allocations

Points will be awarded to teams across six (6) categories with maximum possible scores as detailed in the following table:

United States Judging Categories and Point Allocations		
Specification & Scrutineering Judging		
Specifications	100 points	
Scrutineering Scoresheet	60 points	
Design & Engineering Judging		
Design & Engineering Portfolio	180 points	
Project Management Judging		
Project Management Portfolio	90 points	
Enterprise Judging		
Enterprise Portfolio Only Assessment	100 points	
Team Identity	20 points	
Pit Display	60 points	
Verbal Presentation Judging		
Verbal Presentation	140 points	
Racing	**Regionals**	**Nationals**
Time Trials	105 points	105 points
Reaction Racing	0 points	105 points
Knock-Out Racing	0 points	30 points
Fastest Car Bonus	10 points	10 points
Team Video Challenge [Regionals Only]	**Regionals**	**Nationals**
Best Team Video Challenge Bonus	10 points	0 points
TOTAL	**875 points**	**1000 points**

C3.6 Classification of technical regulations

C3.6.1 The technical regulations are classified as either: **GENERAL**, **SAFETY**, **PERFORMANCE**.

GENERAL	SAFETY	PERFORMANCE
Regulations that shape the way the car fundamentally looks and works, vital to the style of a STEM Racing car.	Mandatory rules that govern the safe running of the car. Cars must meet these rules to be considered 'safe to race'.	Rules that have a direct impact on the performance of the vehicle, these carry the heaviest penalties.

C3.6.2 If a race car is judged as being NON-COMPLIANT with any Performance regulation, they will be **INELIGIBLE** for the awards of: '**Fastest Car'** and '**Best Engineered Car'**.

For the Knock-out Competition, should there be any teams with Performance regulation failure(s) for both cars seeded in the top teams then they will only be permitted to race in round one of the knock-out competition and will be automatically knocked out during round one regardless of the race result.

For more information regarding Compliance with regulations please consult T2.4.2 and T2.5 of the Technical Regulations document.

ARTICLE C4 – SPECIFICATION & SCRUTINEERING JUDGING (160 points)

C4.1 What will be judged?

Specification & Scrutineering judging is a detailed inspection process where BOTH race cars plus the optional replacement components are assessed for compliance with the STEM Racing US Technical Regulations. The Engineering drawings, renderings and quality of finish & assembly will also be assessed. Refer to the scrutineering and specification judging score cards for details.

C4.1.1 **[National Finals Only]** Optional replacement components must be identical to those fitted to both cars (Car A & Car B) and must be submitted with the cars. Only the following components are permitted:

- Nose cone & front wing assembly (max of 2)
- Rear Wing Assembly (max of 2)
- Front Wheels (max of 4)
- Front Wheels Support Structure (max of 2)
- Rear Wheels (max of 4)
- Rear Wheels Support Structure (max of 2)

Submitted replacement components that are determined by the Judges to not be identical to that which are fitted to the car will not be allowed to be used. Submitted components will remain in parc fermé and only be handed back to the team if needed during racing and/or car servicing.

C4.2 Team preparation

Teams must ensure that their cars (Car A & Car B) and any optional replacement components are complete and ready for specification judging and racing before they are submitted. Notice is also drawn to the performance regulations, referred to ARTICLE C3.6. Teams must have also submitted an electronic copy of all specified project data such as scrutineering engineering drawings, which may all be referenced. Refer ARTICLE C2.10 and Appendix 1.

C4.3 Who needs to attend?

Specification & Scrutineering judging is a closed activity that no team member or supervising teacher may attend. During the National Finals ONLY, there will be a specification review session scheduled that must be attended by the team manager, team design and manufacturing engineers as a minimum.

C4.4 Judging process / procedure

Teams begin specification judging with a full allocation of 100 points. Any infringements of the Technical Regulation articles, on either car, will result in points being deducted as detailed in the Technical Regulations.

There are three (3) parts to the specification & scrutineering judging process.

A. **Specifications** – this is conducted within the confines of parc fermé, where the specification Judges will scrutineer both cars and optional replacement components for compliance to the Technical Regulations. A series of specially manufactured gauges will be used to broadly check compliance. Accurate measuring tools, such as Vernier calipers will then be used to closely inspect any dimensions found to be near to dimensional limits per the initial gauge inspection. Scrutineering commences as cars and optional

replacement components are submitted. During specification judging, **T3.6, T3.8, T5.2, T5.4, T5.6, T7.6, T7.11** (please refer to the USA Technical regulations) will be measured with a full 8g race cartridge inserted into the cartridge chamber.

B. **Scrutineering Judging (Engineering Drawings, Rendering and Quality of Finish & Assembly)** - this is conducted within the confines of parc fermé, where the specification Judges will assess both cars and the Engineering Drawings and 3D Renders and Quality of Finish & Assembly as per the Scrutineering score card.

C. **[Not Applicable for Regionals; Nationals ONLY] Specification Review Interview** – each team will be scheduled a period of time for a review of any specification infringements ruled. The Judges will highlight to the team any regulation infringements and provide necessary explanations. The team is then given opportunity to explain to the Judges why they feel any identified infringements should be considered as permissible. Following the team's explanation, the Judges may choose to reverse their original decision or uphold it. At the conclusion of the specification process, teams will have an opportunity to appeal any judge's decision.

D. Spot checks of the cars may take place at any point during the competition. STEM Racing reserves the right to review specification results if necessary.

C4.5 Safe/Fit to race fix

For the Regional Finals: Due to the virtual format of the Regional Finals, there will be no opportunity to fix cars after turn in. Teams are **highly encouraged** to ensure their cars are compliant, especially with safety regulations.

For the National Finals: Teams that have been judged during initial scrutineering to have incurred a regulation failure from the list below will be provided with a special 20-minute car service time, prior to the commencement of racing. Cars must meet these rules to be considered 'Safe/Fit to race. If during this service time the car can be modified so as to comply with the failed regulation(s), the team will then only incur HALF the point's penalty for that infringement, without being classified as having incurred a **SAFETY** infringement.

T3.2, T4.4.5, T5.1, T5.3, T5.4, T5.5.1, T5.6, T6.1, T6.2, T6.3, and T7.13

IMPORTANT: If after the special 20-minute car service time the team is unable to modify the car to comply with the technical regulations listed above the car(s) will be considered unsafe/unfit to race and may not participate in racing events.

C4.6 Specification judging decision appeals

[N/A for Regionals; Nationals ONLY] Teams may appeal the specification judge's decision if they still believe their justification for regulation compliance should be accepted. An appeal must be submitted in writing directly to the Chair of Judges within two (2) hours of the team completing their scrutineering review session. Refer ARTICLE C11. The Chair of Judges will discuss the appeal with the scrutineering Judges and may seek additional advice from STEM Racing regulation authorities. The Chair of Judges will then meet with the team, to discuss the appeal and explain the final decision.

ARTICLE C5 – DESIGN & ENGINEERING JUDGING (180 points)

C5.1 What will be judged?

The Design & Engineering Judges will examine each team's Design & Engineering portfolio so that they can assess the team's car design and use of CAD/CAM technologies along with the quality of manufacture of both race cars submitted. The specific areas to be assessed are:

- Design Concepts
- CAD 3D Modelling
- Application of Computer-Aided Analysis
- Use of CAM/CNC
- Other Manufacturing & Assembly
- Research & Development
- Testing
- Design Process Evaluation
- Document Presentation

Refer to the Design & Engineering judging score card for key performance indicator information.

C5.2 Team preparation

Each team must prepare one portfolio. A laptop needs to be ready and taken to the Design & Engineering interview along with any other items which may help the team explain any engineering or manufacturing concepts. The Design & Engineering Judges will only have access to the Design and Engineering portfolio. Teams may choose to, but do not need to take their display (3rd) car to the Design & Engineering judging. Preparation should include careful reading of the score card. The key performance indicators for the design process, application of CAD / CAM, analysis and associated data organization, describe what the Judges will be looking for.

C5.3 Who needs to attend?

For the Regional Finals: There will be no interview session; portfolio judging will be a closed judging session.

For the National Finals: This judging interview session must be attended by the team manager and team design and manufacturing engineers at a minimum.

C5.4 Judging process / procedure

Teams will be awarded points as per the key performance indicators shown on the Design & Engineering score card. Judges will review the Design & Engineering portfolio in a 'closed to teams' session scheduled before the commencement of judging interviews. The scheduled Design & Engineering judging interview session will focus on the overall engineering and design of the car. This is an informal interview where Judges will ask the team to demonstrate their CAD / CAM work and query teams on what they have done. The quality of car manufacture and car assembly will be judged during a separate 'closed to teams' session.

C5.5 Design & Engineering Portfolio requirements

The Design & Engineering portfolio must be a Tabloid (11"x17") size. The portfolio is limited to digital copy of 7-pages (one-page front cover + 6 pages of content) for the Regional Finals and physical 'hard copy' of 11 pages (1-page front cover + 10 pages of content) for the National Finals. This can be a single page front cover plus 6/10 single sided or 3/5 double sided sheets. If a portfolio comprises more than 7/11 pages, the Judges will only review the first 7/11 pages for assessment purposes. **Content related to the car, design ideas, design development, research, testing, evaluation, and CAM/CNC should be presented within the portfolio.**

ARTICLE C6 – PROJECT MANAGEMENT JUDGING (90 points)

C6.1 What will be judged?

The Project Management Judges will examine each team's Project Management Portfolio so that they can assess the following specific areas.

- Initiating
  - Initiation Process
  - Project schedule
- Planning
  - Budget & Resource management
  - Roles and Responsibilities
- Executing
  - Team & Stakeholder Communications
  - Risk Management
- Monitor and Controlling

Refer to the Project Management judging score card for detailed point scoring and key performance indicator information.

C6.2 Team preparation

Each team must prepare one Project Management portfolio. Most importantly, teams need to read the Project Management scorecard carefully to ensure that all areas to be assessed are included within the context of their Project Management portfolio.

C6.3 Who needs to attend?

For the Regional Finals: There will be no interview session; portfolio judging will be a closed judging session.
For the National Finals: All team members must be present during the Project Management judging interview session.

C6.4 Judging process / procedure

The Project Management interview judging session is a scheduled informal interview where team members may be asked questions by Judges to help them find certain content and/or seek further explanation. In addition to the scheduled judging session, the Judges will also be given time to conduct pre-judging and review of each team Project Management portfolio. This will be a 'closed to teams' session scheduled before the commencement of judging interviews.

C6.5 Project Management Portfolio requirements

The Project Management portfolio must be a Tabloid (11"x17") size. The portfolio is limited to digital copy of 5-pages (one-page front cover + 4 pages of content) for the Regional Finals and physical 'hard copy' of 7 pages (1-page front cover + 6 pages of content) for the National Finals. This can be a single page front cover plus 4/6 sided or 2/3 double sided sheets. If a portfolio comprises more than 5/7 pages, the Judges will only review the first 5/7 pages for assessment purposes. Content should detail the team's project management processes. Teams should use the STEM Racing Project Management Guide as a reference (see Team Portal).

ARTICLE C7 – ENTERPRISE JUDGING (180 points)

C7.1 What will be judged?

The Enterprise Judges will examine each team's Enterprise Portfolio and Pit Display so that they can assess the following specific areas.

- Enterprise Portfolio Only:
  - Marketing Strategy & Materials
  - Sponsorship & Return on Investment
  - Digital Media Proficiency
  - Sustainability
  - Documentation Presentation
- Team Identity
  - Overall Team Identity Across Project Elements
- Pit Display
  - Design Process (Documented in Enterprise Portfolio)
  - Content , Clarify, and Impact
  - Functionality & User Experience

Refer to the Enterprise scorecard for detailed point scoring and KPI information.

C7.2 Team preparation

Each team must prepare one Enterprise portfolio and Pit Display as per ARTICLE C2.10. Most importantly, teams need to read the Enterprise scorecard carefully to ensure that all areas to be assessed are included within the context of their Enterprise Portfolio and Pit Display.

C7.3 Who needs to attend?

For the Regional Finals: There will be no interview session; judging will be a closed session.
For the National Finals: All team members must be present during the Pit Display interview.

C7.4 Judging process / procedure

The Enterprise interview will take place at the team's Pit Display. Team members may be asked questions by Judges to help them find certain content and/or seek further explanation. In addition to the scheduled judging session, the Judges will also be given time to conduct pre-judging and review of each team's Enterprise Portfolio and Pit Display. This will be a 'closed to teams' session scheduled before the commencement of judging interview.

C7.5 Enterprise Portfolio requirements

The Enterprise portfolio must be a Tabloid (11"x17") size. The portfolio is limited to digital copy of 7-pages (one-page front cover + 6 pages of content) for the Regional Finals and physical 'hard copy' of 11 pages (1-page front cover + 10 pages of content) for the National Finals. This can be a single page front cover plus 6/10 single sided or 3/5 double sided sheets. If a portfolio comprises more than 7/11 pages, the Judges will only review the first 7/11 pages for assessment purposes. Content should include:

- **Marketing Strategy & Materials:** For the marketing element, teams are asked to summarize their approach and reasoning to gaining awareness via marketing activities.
- **Sponsorship & Return on Investment (ROI):** For this element, teams are asked to explain their engagement with sponsors, explaining the relationship and benefits. Teams should also explain their activities linked to return of investment.
- **Digital Media Proficiency:** For this element, teams are asked to outline their approach and reasoning for social media platforms, electronic mailings, website, and other online

communications. The Digital Media element within the document will be assessed in conjunction with a review of the team's Digital Media campaign executed.

- **Sustainability:** For this criterion, teams are to outline their sustainability strategy and activities which give consideration to economic, environmental, and social factors.

The number of pages allocated to each key performance indicators is at the discretion of each team.

C7.6 [REGIONALS ONLY] Pit Display Plan Parameters

Teams will develop their Pit Display content and display it virtually within a Pit Display Plan document in place of a physical display.

C7.6.1 Teams will display their content using the provided Pit Display Template. Display content should be modeled within a CAD rendering to provide an example display.

C7.6.2 The Pit Display plan may include images but may not link to outside files (including videos/websites). Judges will only review the content within the plan template itself.

C7.6.3 Each plan should include a Bill of Material (BOM) with estimated costs and considerations for sustainability.

C7.6.4 The submitted .pdf file may be no larger than 75MB, as defined in C2.10.3

C7.7 [NATIONALS ONLY] Pit Display setup and parameters

C7.7.1 Each team will be provided with a self-contained exhibition style display space including one power supply. Display spaces are normally 3m wide x 1m deep x 2.4m high. The precise space description and dimensions will be released in a supplementary document during Nationals registration.

C7.7.2 A time period will be scheduled for when all teams will set-up their pit displays. A time limit of two hours will be enforced; this will be confirmed in supplementary regulations. STEM Racing reserves the right to apply a penalty of **up to 20 points** at the discretion of the Chair of Judges for teams that do not complete their set-up within the time limit, do not leave their stand in a safe state and clear their pit and surrounding area of all rubbish.

C7.7.3 No part of the teams completed Pit Display is allowed to protrude beyond the physical dimensions of their allocated pit space. This includes anything that might protrude above the pit space highest point e.g. flags. This also includes projections on areas outside of team's allocated space. Teams are not permitted to remove any part of the exhibition booth provided to fit the pit display. A penalty of **up to 10 points** may be applied at the chair of judge's discretion.

C7.7.4 Only student team members are permitted to set-up their pit displays. There must be no supervising teacher/adult or other outside assistance, unless deemed by STEM Racing to be a health and safety issue. A penalty of up to 20 points may be applied at the Chair of Judge's discretion.

C7.7.5 STEM Racing and / or the Chair of Judges may instruct a team to take action to reduce noise or remove display inclusions deemed to be inappropriate. STEM Racing will instruct teams to remove or alter any display inclusions considered to be a safety hazard.

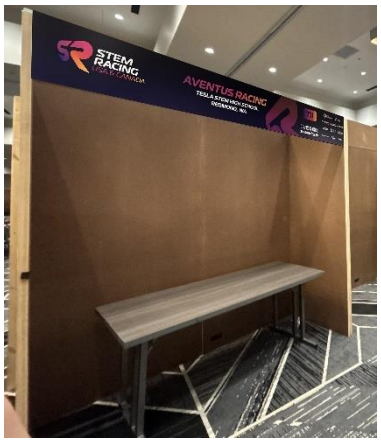
C7.7.6 Any electrical appliance connected to the power supply must be safe.

C7.7.7 All pit display materials must be "hand carried", by the team into the competition venue. Cases with wheels to be rolled in are allowed. We recommend that the dimensions be acceptable by an airline for checked baggage into the hold of an aircraft. All materials brought into the venue must be taken away at the end of the

event. Production companies will not be allowed to assist teams on the transportation or assembly of pit displays. If your team attempts to freight anything to the venue, **we will refuse delivery.**

STEM Racing recommends no item should weigh more than 70lbs and total length + height + depth of any item should not exceed 240cm.

C7.7.8 There will be no waste disposal options during pit build and breakdown. Your pit display area must be left as you found it.



Example Pit Display Setup – National Finals 2025 (table shown is not provided)

IMPORTANT HEALTH & SAFETY: Health and Safety measures must be considered when working on all aspects of your Pit Display. STEM Racing expects teams to produce a risk assessment and method statement to ensure all team members are aware of any risks in the construction of the pit display. This is to also ensure displays are safe for other participants and visitors to the event. STEM Racing reserves the right to apply a penalty of **up to 20 points** at the discretion of the Chair of Judges for unsafe activity and any unsafe elements of the pit display may be removed.

ARTICLE C8 – VERBAL PRESENTATION JUDGING (140 points)

C8.1 What will be judged?

The Verbal Presentation Judges will assess each teams' 10-minute verbal presentation across the areas of technique, composition, and subject matter:

- Technique
  - Engagement & Presentation Dynamics
  - Team Contribution
- Composition
  - Content Quality, Relevance & Subject Understanding
  - Time, Clarity and structure of content
- Subject Matter
  - Innovation
  - Collaboration
  - STEM Racing Learning Journey

Refer to the Verbal Presentation score card for detailed point scoring and KPI information.

C8.2 Team preparation

Each team is required to prepare a Verbal Presentation as per ARTICLE C2.10. Teams need to have all presentation resources tested and ready with them for Verbal Presentation judging. Most importantly, teams should read the Verbal Presentation judging scorecard carefully to ensure their Verbal Presentation features all elements and content that the Judges will be looking for.

C8.3 Who needs to attend?

All team members must be present during the Verbal Presentation judging session.

C8.4 Judging process / procedure

During the Regional Finals, teams will submit a single-take (**no edits**) pre-recorded video presentation, which the judges will review, refer to C2.10. There will be no interview or follow up Q&A. During the National Finals, teams will present a physical verbal presentation. Teams will be given two minutes at the start of their time to set-up and test their laptop and any other presentation technologies/resources. The team will inform the Judges when they are ready to begin. The Judges start timing the 10-minute duration and will provide a discreet time warning signal when one minute of presentation time remains. The team will be asked to cease presenting when the time limit has been reached. At the conclusion of the teams' presentation time, the Judges may ask any clarifying questions they feel necessary.

C8.5 Verbal presentation judging provisions

STEM Racing will provide a dedicated private space, such as a small meeting room, where each team will deliver their presentation to the Judges. This space will include a TV and multimedia sound system with a single standard HDMI(A) connection (teams should supply their own adaptor, if needed). These will be in fixed positions but usually with sufficient cable length to allow teams some freedom for choosing where they wish to locate their laptop. A single table will also be made available with its use and location in the presentation space being optional.

C8.6 Verbal presentation video recordings

The Verbal Presentations of all teams may be video recorded by STEM Racing for the purpose of judging review and/or post event publicity and promotional purposes by STEM Racing.

ARTICLE C9 – RACING (115 points Regionals / 250 Nationals)

C9.1 What races will be conducted?

The US Competition racing points will be awarded through the staging of various racing events:

For the Regional Finals:

- Time Trials Racing – automatic launch mode, 4 races in total, 2 races in each lane. Racing will be held during one session and will be streamed for team viewing. The average 'car race time' value from time trial races will determine the Fastest Car Award.

For the National Finals:

- Reaction Racing – manual/driver launch mode, the number of races will be determined closer to the event
- Knock-out Competition Races – manual/driver launch mode, one race in each lane per round of competition.

The average 'car race time' value from reaction races will determine the Fastest Car Award (refer C10.6). The knock-out competition is the last of the scheduled races. Refer to ARTICLE C3.5 and further information following for details on how points are calculated and awarded.

C9.2 Team preparation [N/A for Regionals; Nationals ONLY]

C9.2.1 Teams should be familiar with the operation of the STEM Racing Race System. Time may be offered for teams to practice race starts during free time prior to racing events.

C9.2.2 Manual / driver starts - One or more team members (driver/s) must be appointed for launching of the teams' car using the manual launch method. Each lane of the track has a dedicated starting area 1m x 1m which shall be clearly marked on the floor. The driver must only make contact with the floor within this dedicated area and must not touch or lean on the track.

C9.2.3 Finish line management - At least one member of the team must be appointed as responsible for managing the finish line Car Deceleration System or team's own system (refer C9.11) and return of car along the track to the start.

C9.2.4 Start line car staging – Race Judges will be responsible for staging the car at the start line. Team members are not permitted to adjust the car's alignment themselves but may request a single realignment by the judges. Under no circumstances may team members interfere with the Power Unit Cartridge or the vertical alignment of the start box. At the end of the staging process, all four wheels of the car must be in contact with the track surface.

C9.2.5 Teams must ensure that both cars are race ready, a car service session will be provided before the next race event (refer C10.2). If a teams' car is damaged beyond achievable repair, then teams will forfeit any races that the car would have been used for.

C9.3 Who needs to attend?

All team members must be present during their scheduled racing sessions.

C9.4 Reaction race procedure [N/A for Regionals; Nationals ONLY]

Cars are launched in manual/driver reaction mode during two racing sessions, comprising of four races per team, two races in each lane. The TOTAL RACE TIME displayed and the REACTION TIME displayed for each race is recorded. The reaction races will be conducted as follows:

1) Teams race in order as shown in the competition program. To begin, the lowest team number will start in lane 1. All cars will be loaded onto the track, Car A first then Car B
2) One team member to track finish for deceleration system control
3) Judge arms Start Box SAFETY ON
4) Race 1 (Car A) - Judge sets cars on track / tether line and inserts a compressed air cartridge – makes initial start box adjustments. **The deceleration system must also be set during this time.**
5) Adjustment request, if applicable, see C9.2.4 for more details.
6) Driver and team stands trackside with corresponding lane start trigger.
7) Judge checks deceleration system is ready, all team members to stand in designated safety zone as instructed by track judges, track is clear for racing, switches Start Box SAFETY OFF
8) Judge presses the start system reset button; cars are launched by driver pressing start trigger
9) Judge records TOTAL RACE TIME and REACTION TIME displayed on start gate
10) Team member at finish moves car into storage zone at the end of the track
11) Race 2 (Car B) conducted in same lane as above, driver can be inter-changed as nominated
12) Team member at finish control returns car and empty compressed air cartridge along track to the start with **minimum handling**. Please note: if breakage occurs, the race Judge at the end of the track will determine if the car and parts should be returned by a member of the judging staff instead of team members.
13) Judges remove cars from tether line and change lanes/team information on race system
14) Cars removed from track and returned to Parc Fermé

C9.5 Reaction race scoring *[N/A for Regionals; Nationals ONLY]*

All 'total race times' recorded from the reaction races are considered. The fastest of these times is used in the following formula to calculate the points awarded:

- Fastest 'total race time' = 105 pts
- 2nd fastest 'total race time' = 100 pts
- 3rd fastest 'total race time' = 95 pts
- Slowest 'total race time' = 5 pts
- Base Time = 120% of 3rd fastest 'total race time'
- 4th fastest and all other teams score points using the following formula:
  - Team Points = 5 + (95 / (Base Time – fastest 'total race time')) x (Base Time – teams fastest 'total race time')
- Any team with a best 'total race time' that is slower than the base time will score 5 points. To further discriminate between any teams scoring 5 points, a deduction of 1 point will be made for any did not finish (DNF) reaction race result.

C9.6 Time trial race scoring

The 'car race times' recorded during racing will be considered. From these races, the team's 1st, 2nd, and 3rd best **'car race times'** will be averaged. This average time is used in the following formula to calculate the points awarded:

- Fastest average (avg.) time = 105 pts
- Second fastest avg. time = 100 pts
- Third fastest avg. time = 95 pts.
- 'Base Time' = 115% of the third fastest avg. time of all teams avg. times.
- Fourth (4th) to slowest avg. time score points using the following formula:

- Team Points = 20 + (80/(Base Time – 3rd fastest avg.)) x (Base Time – teams avg.)
- Any team that has an average slower than the base time will score 20 points. To further discriminate between these teams, a deduction will be made of 5 points for any did not finish (DNF) time trial result.
- If after discarding a team's slowest time there remains less than 3 times from races finished, due to DNF's, the slowest time recorded is input to the average equation until there are a total of three times to average.

C9.7 Knock-out Competition

Teams will take part in a knock-out (single elimination) competition. Teams will be issued the knock-out competition seeding and competition bracket prior to the race event commencing. The number of participating teams will be confirmed closer to the event.

C9.7.1 Seeding - The seeding order for the first knock-out round is determined through seeding all teams using the average fastest 'total race time' they achieved from the reaction racing event.
Cars judged to have critical ("performance") regulation failures will have 0.5 seconds per performance regulation failure per car added on to their fastest 'total race time' for seeding purposes, see formula below:

$$Seeding\ Time = \frac{\begin{pmatrix} Car\ A\ fastest\ 'total\ race\ time' \\ +\ (0.5 \times Car\ A\ Performance\ Regulations) \\ +\ Car\ B\ fastest\ 'total\ race\ time' \\ +\ (0.5 \times Car\ B\ Performance\ Regulations) \end{pmatrix}}{2}$$

C9.7.2 Knock-out competition procedure - During the knock-out competition BOTH race cars will be used. Cars are launched in manual / driver reaction mode, with two (2) races total, one (1) race in each lane, for each round of the knock-out. The team with the fastest 'total race time', as displayed on the start gate, from the two races conducted, is the winner of that knock-out round. In case of a tied result, a further 'sudden death' race will be conducted, this will be a repeat of race 2. The knock-out competition will be conducted as follows:

1) Teams race in order of the competition draw. Top of draw in lane 1.
2) Prior to the cars being set on the track for each round, each team will be required to nominate which car (A or B) they will use for their first race. Each teams' other car will be used for the second race.
3) One team member to track finish for deceleration system control.
4) Judge arms start box - SAFETY ON – makes initial start box adjustments.
5) Race 1 - Judge sets all cars on track/tether line and inserts compressed air cartridge
6) Adjustment request, if applicable, see C9.2.4 for more details
7) Driver stands trackside with corresponding lane start trigger.
8) Judge checks deceleration system is ready, all team members to stand in designated safety zone as instructed by track judges, team information on race system is correct, track is clear for racing, switches start box - SAFETY OFF.
9) Judge presses the start system reset button – cars are launched by driver pressing start trigger.
10) Judge records TOTAL RACE TIME displayed on start gate.

11) Team member at finish moves car into storage zone at the end of the track Judges set cars for Race 2.
12) Check team information on race system is correct
13) Race 2, driver can be inter-changed.
14) Cars removed from track and returned to Parc Fermé.

C9.7.3 Knock-out competition scoring
Points are awarded based on the round of competition a team is eliminated as follows:

- Seeded outside top of bracket = 4 pts
- Eliminated in Round 1 = 6 pts
- Eliminated in Round 2 = 8 pts
- Eliminated in Quarter Final = 15 pts
- Eliminated in Semi Final = 22 pts
- Eliminated in Final = 26 pts
- Knock-out Winner = 30 pts

C9.8 DNF (Did not Finish) race results

Damage or part separation occurring during a race, before the car crosses the finish line, (e.g. wheel or any other part of the car separating), or a car not crossing the finish line at all, effects in a DNF race result. The Judges may refer to video evidence to verify a DNF result.

C9.9 False starts

C9.9.1 A false start (jump start) occurs when the driver depresses the trigger button before the 5 start gate lights have extinguished. The screen will display a false start message.

C9.9.2 All reaction false starts will incur a 2.5-point penalty and by default forfeit that race. This penalty does not apply to knock-out racing.

C9.9.3 During knock-out racing – If one team false starts (jump starts), the other team should continue to race as normal. The team who false started forfeits that race, scoring a DNF, and the other team's time is recorded. If both teams false start, the race counts as one of the two (2) runs.

C9.9.4 During any manual / driver starts, if a driver false starts and distracts the other driver the race will be re-run and the driver who caused the distraction will forfeit their race.

C9.9.5 Distractions outside of the race start area will be assessed by the lead track judge and track officials to determine if the race should be re-run. All competitors must, and other spectators will be instructed to, keep noise down to a minimum and to not use flash photography.

C9.9.6 If a false start occurs on race 1 or 3 of a racing session or the first race of a knock-out then the car(s) shall be walked to the end of the track and placed in the storage zone (refer C9.11.4).

C9.10 Track, tether line and timing system information

C9.10.1 The STEM Racing Elevated Racetrack, supplied by Denford Ltd will be used. The official length of the track, from start line to finish is 20 meters. A monofilament tether line of diameter 0.6mm, fixed at the finish end, passes down the center of each lane. At the start end the line passes through 90 degrees over a single pulley then attached to a 1.0kg mass suspended above the floor.

IMPORTANT: Teams are not permitted to add anything to the racetrack until 250mm after the finish line/gate. This includes the car staging area.

C9.10.2 Launch/Timing - The STEM Racing Launch/Timing System will be used for launching cars and timing races and driver reaction times to 1/1000th of a second.

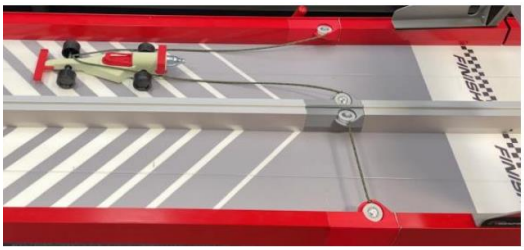
C9.11 Car Deceleration System

C9.11.1 Teams shall have two options for car deceleration systems. They are…

The Car Deceleration System acts to bring cars to rest once they cross the finish line. STEM Racing will provide a standard Car Deceleration System, consisting of tapered brushes positioned behind the finish line of each lane. Please see Appendix V of the USA Technical Regulations for dimensions of the STEM Racing Car Deceleration System.

The Halo Deceleration System acts to bring cars to rest once they cross the finish line. STEM Racing will provide a Halo Deceleration System which is integrated into the final track section after the finish line. This consists of an arresting cable which is aligned with the circular notch of the Halo. If a team is not using the Halo Deceleration System, then the arresting cable shall be raised to not interfere with the chosen system.

Car Deceleration System



Halo Deceleration System

For the Regional Finals, teams must select either A (Car Deceleration System) or B (Halo Deceleration System) when submitting their car and the same system will be used for all races. **For the National Finals**, Teams may choose either system and changing systems between races is permitted.

C9.12 Race Power Packs

Compressed air cartridges to be used for all US competition races will be supplied by STEM Racing. Each compressed air cartridge will be separately weighed before competition to ensure that all compressed air cartridges used for races are within a weight range of 0.5 grams. All race cartridges will be kept in a temperature-controlled environment of 21 degrees Celsius.

C9.13 Car weight checks

Cars will have their weight checked at the racetrack prior to commencing a race event. This is done to ensure each car remains at a legal weight during all races. If a car is judged to have gone under weight whilst stored in parc fermé, the Judges will add ballast to return the car weight to what it was when first submitted to parc fermé, without penalty.

C9.14 Judges handling cars

The race Judges will not be required to comply with any special car handling requests made of them by teams. This includes use of any special gloves or tools.

ARTICLE C10 – CAR REPAIRS AND CAR SERVICING

C10.1 Car repairs

C10.1.1 All damage issues and related repair work during racing is at the Judge's discretion and may be referred to the scrutineering Judges and/or Chair of Judges for a final decision.

C10.1.2 No items can be removed or added to a car during racing, other than compressed air cartridges, except in the case of a repair.

C10.1.3 **For the Regional Finals:** If a race car sustains damage during racing and this damage is ruled to be related to engineering deficiencies and a repair is achievable then repair will be allowed. A designated race official will attempt to make repairs that do not require adhesive (ex. Replacing a wheel that has fallen off but not regluing a broken wing).
For the National Finals: Repairs will only be allowed if a race car sustains damage during racing due to engineering deficiencies and will race again in that session. If this repair can be undertaken using any of the defined replacement components in under 30 seconds and be race ready, then no penalty will be applied. If the repair takes longer than 30 seconds, doesn't use the defined replacement components or the car is not race ready, then a 5-point penalty will be applied. If the car is not race ready at the end of this time, then any further repairs must take place in the service session.

C10.1.4 Engineering deficiencies may include but not limited to damage to car body, wings & wheels as part of racing including damage occurring within the deceleration area.

C10.1.5 Curing time for adhesives must be included in 30 second repairs.

C10.1.6 **[N/A for Regionals; Nationals ONLY]** Tool kits should be brought to each racing session. Teams must supply all of their own tools and other necessary resources. Judges will not be able to assist teams with any additional resource requirements.

C10.1.7 If the Judges rule that damaged sustained was not due to engineering deficiencies, immediate repairs will be permitted without penalty.

C10.1.8 No penalty is applied for damage incurred during knock-out racing or a car's final race of any race event.

C10.2 Car servicing *[N/A for Regionals; Nationals ONLY]*

C10.2.1 Teams will be scheduled time to carry out penalty free maintenance on their race cars in the designated car service area. The service session, lasting 15-20 minutes, will occur after each racing session as per the competition program.

C10.2.2 Only two team members and Judges are allowed to enter the car service area.

C10.2.3 Tool kits are allowed to be taken into car service. Teams must supply all of their own tools and other necessary resources. Judges will not be able to assist teams with any additional resource requirements.

C10.2.4 Maintenance and alterations can only be made to the front and rear wings, nose cone, tether line guides, wheels and wheel support systems. The car body MUST NOT be modified or substituted.

C10.2.5 Each team will be required to complete a car service log form, declaring any maintenance or repair work completed. This will be validated by the Judges.

C10.2.6 Teams must hand their race cars and completed car service log to the service area Judges BEFORE the conclusion of their scheduled service interval. A penalty will apply for exceeding the scheduled service time limit of 5 points for every minute late.

C10.2.7 Teams may not use power tools that require an electrical outlet (none will be supplied). Safe practices must be always maintained with all tools and Judges may stop any work they feel is unsafe at any time. **Teams using power tools must wear safety glasses.**

ARTICLE C11 – PROTESTS

C11.1 Scrutineering decision appeals

These must be submitted within two hours of the team completing their specification review judging. Other rules for submitting these will be the same as for protests.

C11.2 Submitting a protest

Any protest issues must be submitted by the team manager to an Event Director, who will register this and immediately lodge it with the Chair of Judges. This must occur by the date and time stated in the event supplementary regulations. Any protest or appeals submitted after this time may be disregarded. All protests must be lodged in writing via the official protest form available from the Event Directors. The Chair of Judges decision related to any protest is final.

C11.3 Unsuccessful protests

Teams should carefully consider their grounds for submitting a protest or appeal. Any protest or appeal that is unsuccessful, with the Judges initial decision remaining unchanged, will result in the team having a **15-point penalty** applied against their total score.

THE CHAIR OF JUDGE'S DECISION IS FINAL

ARTICLE C12 – JUDGES

C12.1 Overview

There will be six (6) teams of Judges plus officials that form the entire judging panel. Each judging team will have one judge appointed as the Lead Judge. Judges are nominees from STEM Racing and other education and industry experts invited by STEM Racing. All Judges sign a 'declaration' and code of conduct to ensure there are no conflicts of interest with respect to Judges and the teams they are judging.

C12.2 Chair of Judges

An independent authority appointed by STEM Racing to oversees all judging procedures. The Chair of Judges will determine the final judging decision where a protest has been submitted or other judging issue needs resolution. The Chair of Judges will also preside over a meeting of all Lead Judges to ratify the final results along with nominations and winners for relevant awards.

C12.3 The Judging teams

C12.3.1 Specification & Scrutineering Judges - will assess both race cars plus the rendered images and engineering drawings as per the Specification & Scrutineering score cards.

C12.3.2 Design & Engineering Judges - will assess each team as per the Design & Engineering score card.

C12.3.3 Verbal Presentation Judges – will assess each team as per the Verbal Presentation score card.

C12.3.4 Project Management Judges **–** will assess each team as per the Project Management score card.

C12.3.5 Enterprise Judges – will assess each team as per the Enterprise and Pit Display and Team identity scorecards.

C12.3.6 Race Officials Judges – will oversee and rule on all race events and any incidents. Judges will also oversee all car service activities and rule on any infringements that may occur.

C12.4 Judging Decisions

THE DECISION OF THE JUDGES AND OFFICIALS IS FINAL.

ARTICLE C13 – AWARDS

C13.1 Awards Celebration

The US Competition awards will be presented at an Awards Ceremony at the conclusion of the competition. Details of this event will be released closer to the event.

C13.2 Participation Recognition

All students will receive an official participation certificate.

C13.3 List of awards to be presented

All awards below will be presented to the team that achieves the highest score in each category taken from the score cards unless otherwise indicated (*) below (This list may be amended at the discretion of STEM Racing).

- 1st Place
- 2nd Place
- 3rd Place

Special Awards (this is the full list of *potential* awards; not all may be awarded at every competition)

- Best Newcomer Award
- Best Engineered Car Award
- Scrutineering Award
- Sponsorship & Marketing Award*
- Innovative Thinking Award*
- Chair of Judges Recognition of Achievement Award*
- Fastest Car Award
- Best Sportsmanship Award*
- Research and Development Award*
- Team Identity Award*
- Pit Display Award*
- Verbal Presentation Award*
- Project Management Award*
- Digital Media Award*
- Sustainability Award*
- Knockout Competition Winners
- Video Challenge Winner*

The highest-ranking teams from each state will be crowned the State Champion and advance to the National Finals. At the National Finals, the highest-ranking US team, will be crowned the US National Champions.

C13.4 Qualifying for the Regional Finals

All affiliated teams may participate in the Regional Finals. Affiliation is an annual process with STEM Racing USA and can be completed at www.STEMRacing.us/affiliate.

C13.5 Qualifying for the National Finals

United States Professional Class: A total of 40 Professional Class teams will be invited to compete at the US National Finals. The highest-ranking team from each state (i.e. State Champions) at the Regional Finals will automatically qualify. The remaining Regional Finals competitors will be ranked against each other and the next highest-ranking teams overall from all Regional Finals will be invited to the National Finals to compete.

Returning World Finals Representatives: Teams who represent the US at the prior year's World Finals are automatically invited to the National Finals and do not need to compete at the Regional Finals (at least one student must carryover on each team).

C13.6 Qualifying for the World Finals

Teams that place within the top three at the National Finals are eligible to represent the United States at the STEM Racing World Finals. *Subject to approval each year.*

APPENDIX...

1. Engineering Drawings and Renderings Table of Contents
2. Awards Matrix
3. 2025/26 USA Score Cards
4. Race Procedure & Troubleshooting Flowchart
5. Car Submission Checklist
6. Project Submission Checklist
7. Pit Display Plan Template (Regional Finals)

Mandatory table of contents for Engineering Drawings

Teams **MUST** include the following items and Engineering Drawing Table of Contents

1. Cover Page (including Team Name and "Engineering Drawings")
2. Table of Contents page (all items 3-14 below)
3. Orthographic drawing with detailed dimensions of fully assembled car indicating regulation compliance
4. Exploded isometric drawing with **Bill of Materials** key to main components
    a. Car body
    b. Virtual cargo
    c. Chamber
    d. Tether line guides
    e. Front wheels / wheel support system
    f. Rear wheels / Wheel support system
    g. Nose cone
    h. Front wing / support structure
    i. Rear wing / support structure
5. Orthographic drawing with detailed dimensions of virtual cargo including a sectioned view.
6. Location of official STEM Racing™ decals dimensioned from key structural parts (ex. wheel center).
7. Chamber details including wall thickness and depth.
8. Orthographic drawing with detailed dimensions of tether line guides.
9. Orthographic drawing of wheels with sectioned view and detailed dimensions.
10. Orthographic drawing with detailed dimensions of front wheels / wheel support system.
11. Orthographic drawing with detailed dimensions of rear wheels / wheel support system.
12. Orthographic drawing with detailed dimensions of nose cone.
13. Orthographic drawing with detailed dimensions of front wing and support structure highlighting wing surface/boundary.
14. Orthographic drawing with detailed dimensions of rear wing and support structure highlighting wing surface/boundary.

Teams should have 14 pages for their Engineering Drawings, matching the contents and order detailed above.

Awards Matrix

Please find below a matrix that shows which judging categories contribute towards each award:

Judges	Heading	Sub Heading	First Place	2nd Place	3rd Place	Best International Collaboration	Best Newcomer	Best Engineered Car	FIA Scrutineering Award	Sponsorship & Marketing Award	Innovative Thinking Award	Team Identity Award	Pit Display Award	Verbal Presentation Award	Sustainability Award	Research & Development Award	Digital Media Award	Project Management Award	Fastest Car Award
Scrutineering	Scrutineering	Specifications	•	•	•	•	•	•	•										
		Engineering Drawings	•	•	•	•	•	•											
		Rendering	•	•	•	•	•	•											
		Quality of Finish and Assembly	•	•	•	•	•	•											
Design & Engineering	Design & Engineering Portfolio	Design Concepts	•	•	•	•	•	•											
		3D Modelling	•	•	•	•	•	•											
		Application of CAA	•	•	•	•	•	•								•			
		Use of CAM/CNC	•	•	•	•	•	•											
		Other Manufacturing & Assembly	•	•	•	•	•	•											
		Research & Development	•	•	•	•	•	•								•			
		Testing	•	•	•	•	•	•								•			
		Design Process Evaluation	•	•	•	•	•	•											
		Document Presentation	•	•	•	•	•												
Project Management	Initiating	Initiation Process	•	•	•	•	•											•	
		Project Schedule	•	•	•	•	•											•	
	Planning	Budget and Resource Management	•	•	•	•	•											•	
		Roles and Responsibilities	•	•	•	•	•											•	
	Executing	Team & Stakeholder Comm.	•	•	•	•	•											•	
		Risk Management	•	•	•	•	•											•	
	Mon. and Cont.	Monitoring & Controlling	•	•	•	•	•											•	
Enterprise	Enterprise	Marketing Strategy & Materials	•	•	•	•	•			•								•	
		Sponsorship & return in Investment	•	•	•	•	•			•								•	
		Digital Media Proficiency	•	•	•	•	•			•							•		
		Sustainability	•	•	•	•	•								•				
		Document Presentation	•	•	•	•	•												
	Team Identity	Overall Team Identity	•	•	•	•	•			•		•							
	Pit Display	Pit Display Design Process	•	•	•	•	•						•						
		Pit Display Content Clarity and Impact	•	•	•	•	•						•						
		Functionality & User Experience	•	•	•	•	•						•						
Verbal Presentation	Technique	Engagement & Presentation	•	•	•	•	•							•					
		Team Contribution	•	•	•	•	•							•					
	Composition	Content Quality, Relevance & Subject	•	•	•	•	•							•					
		Time, Clarity and Structure of Content	•	•	•	•	•							•					
	Subject	Innovation	•	•	•	•	•				•			•					
		Collaboration	•	•	•	•	•							•					
		STEM Racing™ Learning Experiences	•	•	•	•	•							•					
Racing	Racing	Time Trials	•	•	•	•	•												•
		Reaction	•	•	•	•	•												•
		Damage During Racing	•	•	•	•	•	•											

Scrutineering Judging Score Card	Team Number: Team Name: School:				
Scrutineering					
Engineering Drawings	Little or no detail, Little or no annotation. No table of contents. No regulation compliance was shown.	Basic views included. Some dimensions are included but not sufficient annotations. Insufficient regulation compliance was shown. A basic table of contents.	Multiple views including First or Third-angle orthographic projection matching the final car. Some parts or materials are represented. Some Regulation compliance shown (eg T. 4.2 Virtual Cargo identification.) Good table of contents.	First or Third-angle orthographic projection matching the final car and unrendered isometric view or similar. Additional views to show sufficient detail. Parts list/bill of materials. Excellent regulation compliance shown (eg T.4.2 Virtual Cargo identification.) Complete and ordered table of contents.	
	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	
Rendering	Poor quality renders. Insufficient views	Multiple views. Some inconsistencies matching the final car.	Multiple views. Good match to the final car Good render technique.	Multiple views. Perfect match to the final car including branding. Realistic environment and lighting High-end render technique	
	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	
Quality of Finish and Assembly	Poor finish and assembly.	Reasonable finish with some inconsistencies. Reasonable assembly.	Good overall intended finish. Intended quality and assembly with attention to detail.	Intended quality, assembly and finish on all components is exceptional. The two cars are identical.	
	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	
				Scrutineering Total =	/60

Notes:

Design & Engineering Score Card **Page 1**	Team Number: Team Name: School:

Design & Engineering Portfolio Only Assessment					
Design Concepts	Single or minimal concepts for car components with no links to research. No relevance to final car	Basic concepts of car components with limited links to research. Limited relevance to final car.	Good technically inspired ideas that are relevant for different car components linked to research.	Excellent technically inspired ideas for multiple car components with research-detailed. Relevance of the concept strongly justified.	
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	
3D Modelling	Minimal application of 3D modelling techniques. Only final design 3D modelled.	Basic use of 3D modelling tools and techniques. More than 1 design included with different iterations.	Good use of advanced 3D modelling tools, showcasing skill and technique. Dimensional constraints of the STEM RACING model block considered. Design approach explained. Design for manufacture considerations noted. (ie fillets, tolerance of machining).	Expert use of a wide range of complex 3D modelling techniques, demonstrating exceptional skill and innovation. Design for manufacture directs process. (ie machining tool availability, fit clearances). Quality of CAD surfaces analyzed.	
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	
Application of Computer Aided Analysis	Poor choice and no justification of simulation parameters. Weak analysis with poorly presented/no results. No design choices made based on FEA/CFD study.	Limited choice and justification of simulation parameters. Limited analysis and results. Little to no design choices made based on FEA/CFD study.	Well-justified choice and understanding of simulation Good analysis with clear, well presented results. Some design choices made based on FEA/CFD study.	Excellent choice & understanding of simulation parameters. Detailed analysis with clear, well presented results. Proven design improvements made based on FEA/CFD study.	
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	
Use of CAM/CNC	No or minimal evidence of CAM/CNC understanding or manufacturing.	Basic evidence of CAM/CNC processes and manufacturing.	Good use and understanding of CAM/CNC processes to achieve manufacturing goals. Manufacturing issues noted with limited problem solving.	Evidence of excellent understanding of CAM/CNC technologies. Appropriate techniques and processes used to achieve manufacturing goals. Manufacturing issues discussed with innovative problem-solving solutions	
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	
Other Manufacturing & Assembly	No or minimal manufacturing presented. No or minimal consideration of quality assurance and workplace safety documented. No or minimal justification of outsourcing.	The manufacturing process is mentioned without detail. Basic consideration of quality assurance and workplace safety documented. Basic justification of outsourcing.	Good manufacturing process and stages described. Good consideration of quality assurance and workplace safety documented. Appropriate use of manufacturing resources documented (i.e. tools, finishes, jigs, fixtures). Outsourcing clearly explained and justified.	Details all manufacturing stages and processes. Quality assurance and workplace safety considerations evident. Appropriate outsourcing justified with make vs buy analysis.	
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	

Design & Engineering Score Card **Page 2**	Team Number: Team Name: School:

Research & Development	No or limited evidence of R&D.	Basic evidence of R&D with some principles considered.	Some scientific & mathematical theories and principles considered. Logical research based design developments explained and justified.	Relevant R&D throughout the entire product design & development cycle. Design concept developments refined and justified from research & test findings.	
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	
Testing	No or little evidence of testing on the fully assembled car and individual components.	Limited testing. Some evidence of method and outcomes on the fully assembled car and individual components.	Good testing. Different evidence of method and outcomes. Some evidence of virtual and physical testing on the fully assembled car and individual components.	Appropriate testing with excellent methods and outcomes documented. Comprehensive evidence of virtual and physical testing on the fully assembled car and individual components.	
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	
Design Process Evaluation	No or limited Ideas or process evaluations at different stages. No or limited documentation of evaluation-linked improvement actions	Basic Ideas or process evaluations at different stages. Basic documentation of evaluation-linked improvement actions.	Multiple Ideas or process evaluations at different stages. Good documentation of evaluation-linked improvement actions.	Excellent ongoing idea evaluations linked to improvement actions. Comprehensive documentation of evaluation-linked improvement actions.	
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	
Document Presentation	Difficult to follow with basic presentation standard.	Basic organization	Good and clear structure, well organized.	High impact and professional throughout. Consistent and clear organization.	
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	
				Design & Engineering Portfolio Only Assessment Total =	/180

Notes:

Enterprise Score Card

Page 1 – Enterprise Portfolio Only

Team Number:
Team Name:
School:

Enterprise Portfolio Only Assessment					
Marketing & Strategy Materials	Lack of coherent marketing strategy, poorly developed marketing materials, and minimal content relevance.	Partially coherent marketing strategy, average quality marketing materials, needs enhancement in content relevance.	Good marketing strategy, reasonably developed marketing materials, and satisfactory content relevance.	Well-defined marketing strategy, high-quality marketing materials, and highly relevant content.	
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	
Sponsorship & Return on Investment (ROI)	No or incomplete Sponsor/partner hierarchy. Limited understanding of sponsorship. No evidence of ROI	Basic Sponsor/partner hierarchy and benefits included. Partial understanding of sponsorship. Some evidence of return of investment (ROI) to relevant sponsors.	A range of sponsor/partner hierarchy and benefits identified. Good understanding of sponsorship, reasonable investment, and satisfactory ROI to relevant sponsors.	Sponsor/partner hierarchy and benefits detailed and justified. Range of relevant sponsors/partners showing mutually beneficial relationships. Creative activities linked to return of investment (ROI).	
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	
Digital Media Proficiency	Limited understanding and utilization of digital media platforms. Minimal engagement with audience, and ineffective content creation	Partial understanding and use of digital media platforms. Some evidence of strategy documented. Audience engagement needs improving.	Good understanding and utilization of digital media platforms. Good execution in line with documented strategy. Reasonable engagement, and content creation.	Strong understanding and effective utilization of digital media platforms in line with documented plans. High audience engagement, and impressive content creation.	
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	
Sustainability	No or limited understanding and implementation of sustainable practices. No or minimal awareness of environmental impact.	Partial understanding and inconsistent implementation of sustainable practices. Needs improvement in awareness of environmental impact. Some evidence of implementation.	Good understanding and moderate implementation of sustainable practices. Some awareness of environmental impact. Implementation documented considering different factors such as economic, environmental, and social.	Strong understanding and effective implementation of sustainable practices. High awareness of environmental impact and active involvement in sustainability initiatives considering economic, environmental, and social factors.	
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	
Document Presentation	Poor formatting, lack of structure. Minimal visual appeal in the document.	Average formatting with some structure. Needs improvement in the document visual appeal.	Good formatting, structured document. Satisfactory document visual appeal. Good organization.	Excellent formatting, well structured document, and highly appealing visually. High impact and professional throughout. Consistent and clear organization.	
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	
				Enterprise Portfolio Only Assessment Total	/100

Notes:

Enterprise Score Card

Page 2 – Team Identity & Pit Display

Team Number:
Team Name:
School:

Team Identity					
Overall Team Identity	Inconsistent, limited or obscure identity through project elements. Weak team cohesion, lack of shared identity.	Partial team cohesion, and inconsistent shared identity through project elements.	Good team identity is consistent through various project components e.g. car matches team uniform.	Excellent and highly effective team identity. Team 'brand' consistently applied through all project elements.	
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	
				Team Identity Total	/20

Pit Display					
Pit Display Design Process (Documented in Enterprise portfolio)	Limited planning and execution, lack of innovation, and minimal attention to detail in the design process.	Some planning and execution. Insufficient innovation. Needs improvement in attention to design details. Some ideas development documented.	Different ideas & justification of design. Good evidence of development considering factors including team identity, budget, sustainability and time constraints with consideration to functionality and user experience.	A range of ideas, clearly justified, creative final design. Comprehensive evidence of development considering factors including team identity, budget, sustainability and time constraints with consideration to functionality and user experience.	
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	
Pit Display Content Clarity and Impact	Repetition of Portfolio contents. Disorganized layout. Little or no evidence of marketing materials. Minimal information about the team's work	Partially informative content. The pit display is not enhanced by Multimedia or Marketing materials. The Pit display needs more clarity detailing the team's work	Good organization and impact. Multimedia is used to enhance the display, with some marketing material on display. Clear and effective presentation and messaging about the team's work.	Clean, well-organized with high impact. Highly professional with attention to detail. Excellent integration of technology, multimedia and marketing materials. Comprehensive information about the team's work.	
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	
Functionality & User Experience execution	Non-functional or poorly functional design, inconvenient user experience. Lacks impact, and minimal overall visitor impression.	Basic functionality, average user experience, needs improvement in functionality and overall visitor impression	Good functionality, and satisfactory user experience. Innovative Pit display and positive visitor impression	Excellent functionality, seamless user experience, and impressive innovation across the Pit Display. A very positive impression on visitors	
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	
				Pit Display Total	/60

Enterprise Portfolio Only Assessment + Team Identity Total + Pit Display Total = Enterprise Total = /180

Notes:

Project Management Score Card Page 1	Team Number: Team Name: School:

Project Management Assessment					
Initiating					
Initiating Process	No or limited evidence of an Initiation process.	Evidence of an Initiation process with goals and deliverables identified, leading to a basic scope statement.	Evidence of an Initiation process including Kick-off meeting. Project charter created with goals and deliverables identified. Good scope statement developed, identifying acceptance criteria for each deliverable.	Kick-off meeting evidenced. Detailed Project Charter created, clearly defining all deliverables. Comprehensive scope statement developed, identifying acceptance criteria for each deliverable	
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	
Project Schedule	No or limited evidence of tasks to be completed.	Evidence of a project schedule, showing a breakdown of time required to complete essential tasks.	Clear evidence of a project schedule and Work Breakdown Structure. Detailed Gantt chart created to identify all tasks, dependencies, and time estimations. Resource allocation is included for major project phases.	Comprehensive project schedule with detailed Work Breakdown Structure and Gantt chart. All tasks, dependencies, and time estimations are clearly identified. Key dependencies are identified, and critical path analysis is included	
	0 1 2 3	4 5 6 7	8 9 10 11	12 13 14 15	
Planning					
Budget and Resource Management	No or limited evidence of strategies to manage budget and/or resources.	Some evidence of resources required and how they are to be acquired and managed. Some evidence of budgeting.	Clear evidence of budgeting and use of basic accounting methods to track expenditure. Identification of where, when, and how resources are to be acquired and used. Initial cost estimates for major project components.	Comprehensive budgeting with detailed cost breakdown and methods for tracking expenditure. Thorough resource management plan, including procurement strategies, resource allocation, and utilization forecasts. Cost-benefit analysis for key project decisions.	
	0 1 2 3	4 5 6 7	8 9 10 11	12 13 14 15	
Roles and Responsibilities	No or limited evidence of clear roles and responsibilities within team.	Team roles and responsibilities identified, with some evidence of task and/or activity breakdown.	Team members identified and a structured team created with defined job functions and appropriate responsibilities. Evidence of a basic Responsibility Assignment ('RACI') Matrix.	Highly structured team with clearly defined job functions, skill requirements, and detailed responsibilities. Comprehensive RACI Matrix covering all project activities. Evidence of a team development plan and strategies for managing team dynamics.	
	0 1 2	3 4	5 6 7	8 9 10	

Page 1 Notes:

Project Management Score Card Page 2

Team Number:
Team Name:
School:

Executing					
Team & Stakeholder Communication	No or limited evidence of engagement between team members and stakeholders.	Evidence of a communication plan and engagements between team members and with stakeholders.	Clear communication plan implemented between team members and stakeholders. Key stakeholders registered and reported to regularly. Multiple communication tools used effectively.	Comprehensive communication strategy with tailored approaches for different stakeholder groups. Regular, documented communication with all stakeholders using diverse, appropriate channels. Evidence of feedback loops and continuous improvement in communication processes. Stakeholder engagement matrix utilized to manage relationships.	
	0 1 2	3 4	5 6 7	8 9 10	
Risk Management	No or limited evidence of risk identification and management.	Evidence of risk identification and response management plans in place.	Clear evidence identifying all relevant risks, area(s) of impact and response planning. Assessment of impact on resources, timing, scope and quality.	Comprehensive risk management strategy including detailed risk register, risk analysis, and prioritization. Proactive risk strategies implemented with contingency plans. Regular risk reviews and updates throughout the project lifecycle. Evidence of opportunity management alongside risk management.	
	0 1 2	3 4	5 6 7	8 9 10	
Monitoring and Control					
Monitoring / control and Closing Process	No or limited or isolated project evaluation.	Ongoing evaluation of most areas. Documented evidence of problems identified and suggested solutions.	Regular 'Status Reports', documenting tasks signed off and highlighting areas of concern. Scope creep identified with a clear action plan for tasks that overrun. Key performance indicators (KPIs) tracked and reported.	Regular and detailed project tracking processes consistently applied. Comprehensive 'Status Reports' include: Analysis of work completed versus resources used, Comparison of planned versus actual progress, Predictions of future project performance, Clear procedures for managing project changes, with all modifications documented.	
	0 1 2	3 4	5 6 7	8 9 10	
				Project Management Total	/90

Notes:

Pit Display Build Assessment Score Card [N/A for Regionals; Nationals ONLY]	Team Number: Team Name: School:

Pit Display Build Assessment
Points may be deducted as per the criteria below

Heading	Penalty	Assessment Details	Notes	Points
Freight C7.7.2	-20	All pit display materials must be "hand carried", by the team, into the National Finals event venue. Freights are not allowed. A penalty of up to 20 points may be applied at the chair of judge's discretion.		
Set-up Time C7.7.3	-5 points per 5 minutes over time rounded up to the nearest 5 minutes	A time period will be scheduled for when all teams will set-up their pit displays. A time limit of two hours will be enforced; this will be confirmed in supplementary regulations. STEM Racing reserves the right to apply a penalty of up to 20 points at the discretion of the Chair of Judges for teams that do not complete their set-up within the time limit, do not leave their stand in a safe state and clear their pit and surrounding area of all rubbish.		
Pit Display Size C7.7.1 & C7.7.4	-10	No part of the teams completed Pit Display is allowed to protrude beyond the physical dimensions of their allocated pit space. This includes anything that might protrude above the pit space highest point e.g. flags. Teams may be instructed by the chair of judges to rectify and infringements. Time taken to rectify outside of the outside of the set-up time limit will incur penalty points as per C 6.6.3. Teams are not permitted to remove any part of the provided exhibition booth to fit the pit display. A penalty of up to 10 points may be applied at the chair of judge's discretion.		
Only student team members C7.7.5	Up to -20	**ONLY** student team members are permitted to setup their pit displays. There must be no supervising teacher / adult or other outside assistance, unless deemed by STEM Racing to be a health and safety issue. A penalty of up to 20 points may be applied at the chair of judge's discretion.		
Health & Safety C7.7.5	Up to -20	Health & Safety measures must be considered when working on all aspects of your Pit Display. A penalty of up to 20 points may be applied at the discretion of the Chair of Judges		
			Pit Display Build Assessment =	
			Completed by (initials):	
			Checked by (initials):	

Notes:

Verbal Presentation Score Card	Team Number: Team Name: School:			
Technique				
Engagement & Presentation Dynamics	Monotonous presentation, lack of visual aids, and minimal interaction with audience. Poor delivery technique.	Limited team dynamics, some visual aids. Limited delivery technique and interaction with the audience.	Good team dynamics, effective visual aids, Good delivery and interaction with the audience.	Excellent engagement, captivating and highly interactive delivery, and strong audience connection. Exceptional team dynamics, and impactful visual aids
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20
Team Contribution	Single team member taking the lead in presentation.	Minimal team participation during the presentation.	Good contributions from most team members.	Excellent teamwork with all members participating effectively
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20
Composition				
Content Quality, Relevance & Subject Understanding	Irrelevant or outdated content, lack of depth, and poor relevance. Unclear explanations.	Partially relevant content, some depth, needs improvement in quality and explanations.	Relevant content, good depth, and reasonably high quality information. Clear explanations.	Highly relevant content, profound depth, and exceptional quality information with articulate explanations
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20
Time, Clarity and structure of content	Severe time management issues, with significant rushing or excessive time taken. Less than 8 mins or more than 12 mins. Incoherent structure, unclear message, and disorganized content.	Time management issues are evident, with noticeable rushing or excessive time taken. Less than 9 mins or more than 11 mins. Partially clear structure, some coherence, needs better content organization.	Good flow and time management of each topic with minimal rushing or excessive time taken. Clear structure, coherent flow, and organized content.	Excellent time management and balance of each topic without exceeding the time limit. Excellent structure, crystal clear message (concept), and highly organized content. Excellent attention to detail.
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20
Subject				
Innovation	Little project innovation presented with no justifications.	Average project innovations are described but with no justification.	Good project innovations are described and justified and connected to competition elements.	Excellent innovations related to competition elements, or other aspects with high positive project impact
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20
Collaboration	None or Little collaboration with industry or higher education mentioned.	Some collaboration with industry or higher education is mentioned.	Good description of collaboration with industry and higher education.	Excellent justification of collaborations with industry and higher education. Links to learning and project outcomes
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20
STEM Racing™ learning journey	No or limited real reflections discussed.	Basic explanation of some learning outcomes for some team members.	Good explanation of some learning outcomes for all team members.	A range of personal, lifelong learning and career skills acquired and identified as project outcomes for all team members
	0 1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20
Technique Total + Composition Total + Subject Total = Verbal Presentation Total =				/140

Notes:

Specifications Score Card

For clarification on individual regulations, refer to the Technical Regulations.

Team Number:
Team Name:

Page 1 Deductions:	Total Deductions:	**Total Score: /100**

Please enter **P** for a pass and **F** for a fail
(CO_2) – measured with full 8g CO_2 cartridge

Reg	Regulation Overview	Min/Max Quick Guide	Penalty per Car	Initial Scrutineering Car A	Initial Scrutineering Car B	Initial Scrutineering CoJ CS	Post Safety Fix Car A	Post Safety Fix Car B	Post Safety Fix CoJ CS	Post Review Interview Car A	Post Review Interview Car B	Post Review Interview CoJ CS	Remarks
ARTICLE T3 – FULLY ASSEMBLED CAR													
T3.1.1	Designed and engineered using CAD/ CAM		-5										
T3.1.2	Body manufactured using CNC only	Check unfinished body	-5										
T3.1.3	STEM Racing holographic sticker	Must be supplied	-5										
T3.1.4	Race cars identical geometry	Visual check	-5										
T3.2.1	Safe Construction – Specification judging	Check T3.2.1	-10										
T3.3	Undefined features	Check T1.1	-20										
T3.4	Total width PP+	Min: 65mm / Max: 85	-5	mm	mm								
T3.5	Total height (CO_2) PP+	Max: 65	-5	mm	mm								
T3.6	Total weight PP+	Min: 50.0g	-10	g	g								
T3.7	Track clearance (CO_2) PP+	Min: 1.5	-10	mm	mm								
T3.8	Status during racing	Nothing removed	-5										
T3.9.1	Replacement Components	Identical to fitted	Remove item if not identical										
ARTICLE T4 – BODY													
T4.1	Body construction	Model Block only	-20										
T4.2	Virtual cargo – See T4.2 for dims	Between axles, See T4.2 for Dims.	-25										
T4.3	Virtual cargo identification	Check Eng. drawing	-5										
		Assessed by: (Initials)											
		Checked by: (Initials)											

Page 1 Notes:

Specifications Score Card

For clarification on individual regulations, refer to the Technical Regulations.

Team Number:

Team Name:

Page 2 of 4

Page 2 Deductions:

Please enter **P** for a pass and **F** for a fail

(CO_2) – measured with full 8g CO_2 cartridge

Reg	Regulation Overview	Min/Max Quick Guide	Penalty per Car	Initial Scrutineering Car A	Initial Scrutineering Car B	Initial Scrutineering CoJ CS	Post Safety Fix Car A	Post Safety Fix Car B	Post Safety Fix CoJ CS	Post Review Interview Car A	Post Review Interview Car B	Post Review Interview CoJ CS	Remarks
ARTICLE T4 – BODY (cont.)													
T4.4.1	Halo	Refer to T1.21	-10										
T4.4.2	Halo visibility front and side	Red Box Visible	-10										
T4.4.3	Halo visibility top view	Red Box Visible	-10										
T4.4.4	Halo circular notch height	34.0 (±1.0)	-5										
T4.4.5	Halo safety test	1kg test, safe to race	-5										
T4.5	Helmet	Included, Dims Match	-5										
T4.6	STEM Racing logo decal location & size	Between Front & Rear wheels 100% Visible	-5										
T4.7	Team Number	Min: 8.0mm	-2										
T4.8	Decal Thickness	Max: 0.5	-5										
ARTICLE T5 – CO_2 CARTRIDGE CHAMBER													
T5.1	Diameter	Min: 17.8 Max: 18.5	-5										
T5.2	Distance from track surface (CO_2) PP+	Min: 30 Max: 40	-5	mm	mm								
T5.3	Depth	Min: 45 Max: 58	-5	mm	mm								
T5.4	Max angle of chamber (CO_2)	Min: -3° Max: 3°	-5	°	°								
T5.5.1	Chamber safety zone (CO_2)	Min: 3.0mm	-10										
T5.5.2	Chamber safety zone finish	No paint in chamber	-5										
T5.6	CO_2 cartridge visibility (CO_2) PP+	Min: 5mm top view	-10	mm	mm								
ARTICLE T7 – TETHER LINE GUIDES													
T6.1	Location	10mm in front/front axle 10mm behind/rear axle	-10										
T6.2	Internal diameter	Min: 3.0 Max: 6	-5										
T6.3	Tether line guide safety	200g test, safe to race	-10										
		Assessed by: (Initials)											
		Checked by: (Initials)											

Page 2 Notes:

Specifications Score Card

For clarification on individual regulations, refer to the Technical Regulations.

Team Number:

Team Name:

Page 3 of 4

Page 3 Deductions:

Please enter **P** for a pass and **F** for a fail **(CO_2) – measured with full 8g CO_2 cartridge**

Reg	Regulation Overview	Min/Max Quick Guide	Penalty per Car	Initial Scrutineering Car A	Initial Scrutineering Car B	Initial Scrutineering CoJ CS	Post Safety Fix Car A	Post Safety Fix Car B	Post Safety Fix CoJ CS	Post Review Interview Car A	Post Review Interview Car B	Post Review Interview CoJ CS	Remarks
ARTICLE T7 – WHEELS													
T7.1	Number and location	4, 2 x 2	-25										
T7.2	Distance between opposing wheels PP+	Front Min: 38 Rear Min: 30	-2.5	F: mm R: mm	F: mm R: mm								
T7.3	Wheelbase PP+	Min: 120 Max: 140	-5	mm	mm								
T7.4	Track contact width* PP+	Front Min: 13 Rear Min: 17 exc. chamfer/fillet	-2.5 per wheel	FL: FR: RL: RR:	FL: FR: RL: RR:								*If wheel fails, record measurement in mm
T7.5	Diameter PP+	Min: 28 Max: 34	-2.5 per wheel	FL: FR: RL: RR:	FL: FR: RL: RR:								
T7.6	Racetrack Contact (CO_2)	All 4 in contact	-2.5 per wheel	FL: FR: RL: RR:	FL: FR: RL: RR:								
T7.7	Rolling Surface	Consistent, no tread	-2.5 per wheel	FL: FR: RL: RR:	FL: FR: RL: RR:								
T7.8	Rotation	Must rotate freely on 3 deg incline	-5 per wheel	FL: FR: RL: RR:	FL: FR: RL: RR:								
T7.9.1	Visibility In Front of Front Wheels	Min: 5mm	-2.5										
T7.9.2	Visibility Behind Front Wheels	See Diagram	-5										
T7.9.3	Visibility in Front of Rear Wheels	See Diagram	-5										
T7.9.4	Visibility Behind Rear Wheels	Min: 5mm	-2.5										
T7.10	Visibility in Side View	No obstruction	-10 per wheel										
T7.11	Visibility in Front View (CO_2) PP+	Max: 20mm	-10										
T7.12.1	Wheel support systems	Cylindrical volume	-5										
T7.12.2	Wheel support systems identification	Check Eng. Dwg.	-5										
T7.13	Wheel Safety Test	100g test per wheel	-2.5										
		Assessed by: (Initials)											
		Checked by: (Initials)											

Specifications Score Card

For clarification on individual regulations, refer to the Technical Regulations.

Team Number:

Team Name:

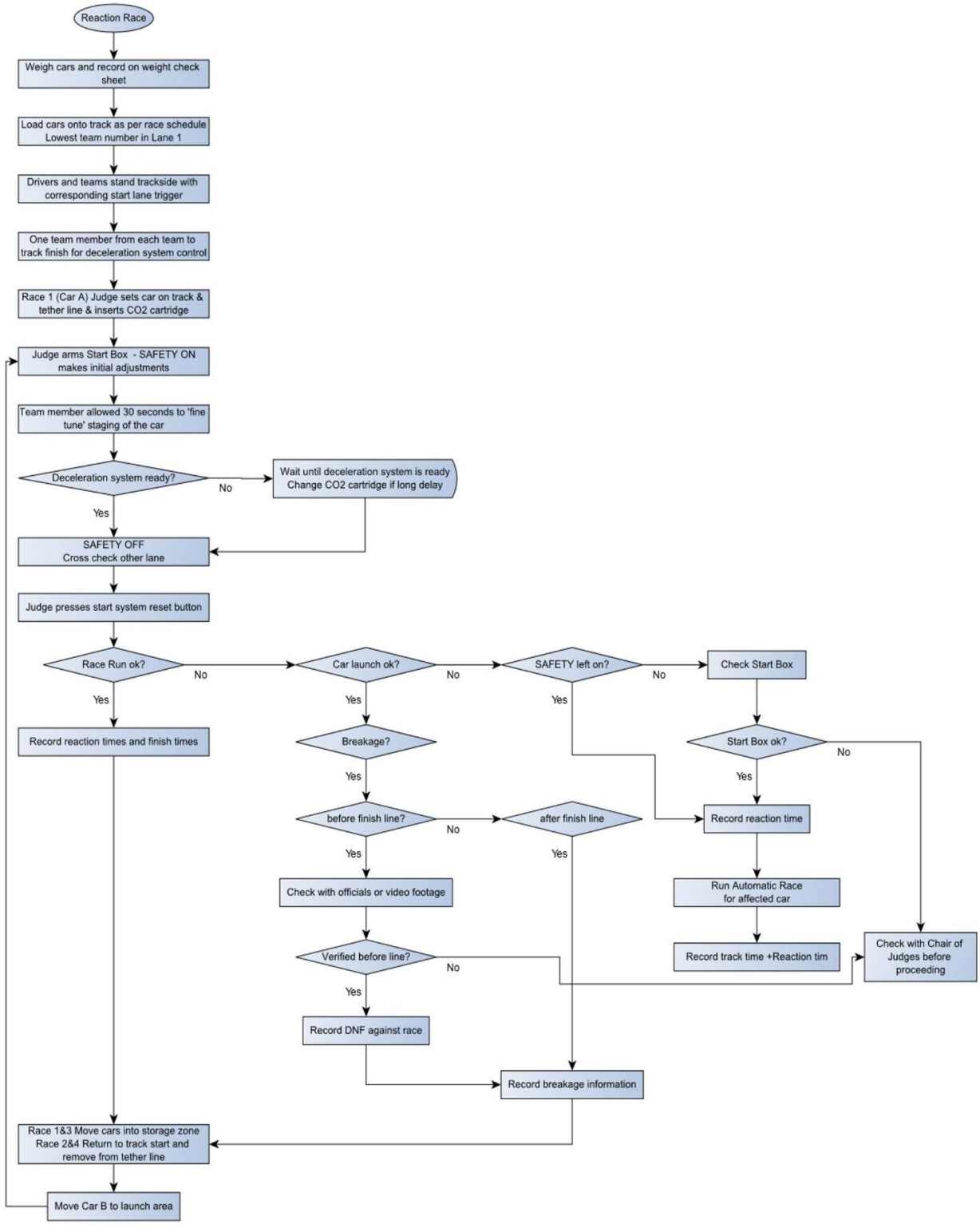
Page 4 of 4

Page 4 Deductions:

Please enter **P** for a pass and **F** for a fail **(CO_2) – measured with full 8g CO_2 cartridge**

Reg	Regulation Overview	Min/Max Quick Guide	Penalty per Car	Initial Scrutineering			Post Safety Fix			Post Review Interview			Remarks
				Car A	Car B	CoJ CS	Car A	Car B	CoJ CS	Car A	Car B	CoJ CS	
ARTICLE T8 – NOSE, FRONT WING AND WING SUPPORT STRUCTURES													
T8.1	Nose, front wing & wing support structure identification	Check Eng. drawing	-5										
T8.2	Nose cone assembly dimension	Max: 40	-5	mm	mm								
T8.3	Front wing(s) description and placement	See T1.5	-5										
T8.4	Front wing(s) construction and rigidity	Span constant during racing + rigid	-5										
T8.5.1	Front wing and wing support location	In front of Ref. Plane A & below 25mm	-10										
T8.5.2	Front Wing End Plate Location	Max: 20mm	-10										
T8.6.1	Front wing span PP+	Min: 50 or 2x25	-2	mm	mm								
T8.6.2	Front wing chord PP+	Min: 15 Max: 25	-1	mm	mm								
T8.6.3	Front wing thickness PP+	Min: 2 Max: 6	-1	mm	mm								
T8.7	Front wing clear airflow	5mm clear 'air' space	-5	mm	mm								
T8.8	Front wing visibility	Visible and not obstructed in front view	-10										
ARTICLE T9 – REAR WING AND WING SUPPORT STRUCTURES													
T9.1	Rear wing and wing support structure identification	Check Eng drawing	-5										
T9.2	Rear wing(s) description and placement	See T1.5	-5										
T9.3	Rear wing(s) construction and rigidity	Span constant during racing + rigid	-5										
T9.4.1	Rear wing and wing support location	Rear of Ref. Plane B	-10										
T9.4.2	Rear Overhang Length	Max: 40mm	-5										
T9.4.3	Rear Overhang Height	Max: 65mm	-5										
T9.5.1	Rear wing span PP+	Min: 50	-2	mm	mm								
T9.5.2	Rear wing chord PP+	Min: 15 Max: 25	-1	mm	mm								
T9.5.3	Rear wing thickness PP+	Min: 2 Max: 6	-1	mm	mm								
T9.5.4	Rear wing height deviation PP+	Max: 15 deviation	-1										
T9.6	Rear wing clear airflow	Min: 5	-5	mm	mm								
T9.7	Rear wing visibility	Visible and not obstructed in front view	-10										
			Assessed by: (Initials)										
			Checked by: (Initials)										

Race Procedure & Troubleshooting Flowchart



Car Submission Checklist *(Regional Finals)*

Print form and complete all light yellow boxes. Mail this form (with holographic sticker) with your Regional Finals car submission.

Team ID:		**Team Name:**	

Car Weight:	grams

Please provide car weight to at least tenths of a gram (ex 50.0g, not 50g)

Selected Deceleration Device (check **ONLY** one):	**Car Deceleration System**	**Halo Deceleration System**

Teams must select one device to be used for racing deceleration. The same device will be used for all races. If a team does not select a system, the Car Deceleration system will be used.

STEM Racing Holographic Stickers (From the Official STEM Racing Model Block):	Car A sticker here

Team Manager Name (Print):	
Team Manager Signature:	
Date:	

Project Element Submission Checklist (National Finals)

Team ID:		Team Name:	

Project Element	Checked by Team	Received by STEM Racing	Comments: (Completed by STEM Racing Officials only)
2 x Identical 11-Page Design & Engineering Portfolio (11"x17")	Checkmark by Team	Checkmark by SR Official	
2 x Identical 7-Page Project Management Portfolio (11"x17")	Checkmark by Team	Checkmark by SR Official	
2 x Identical 11-Page Enterprise Portfolio (11"x17")	Checkmark by Team	Checkmark by SR Official	
Engineering drawings & Renderings (8.5"x11")	Checkmark by Team	Checkmark by SR Official	
1 x Car A	Checkmark by Team	Checkmark by SR Official	**Weight:** g
1 x Car B	Checkmark by Team	Checkmark by SR Official	**Weight:** g
1x Fully machined, unfinished, unassembled model block car body	Checkmark by Team	Checkmark by SR Official	
1x Unaltered, manufactured Halo & Helmut	Checkmark by Team	Checkmark by SR Official	
3 x Official STEM Racing Model Block Holographic Stickers	Checkmark by Team	Checkmark by SR Official	Car A sticker here; Car B sticker here; Car Body sticker here

Replacement Components				
Nose Cone & Front Wing Assembly	Checkmark by Team	Checkmark by SR Official	Maximum of two (2) – Sets Submitted:	
Rear Wing Assembly	Checkmark by Team	Checkmark by SR Official	Maximum of two (2) – Sets Submitted:	
Front Wheels	Checkmark by Team	Checkmark by SR Official	Maximum of four (4) – Sets Submitted:	
Front Wheels Support Structure	Checkmark by Team	Checkmark by SR Official	Maximum of two (2) – Sets Submitted:	
Rear Wheels	Checkmark by Team	Checkmark by SR Official	Maximum of four (4) – Sets Submitted:	
Rear Wheel Support Structure	Checkmark by Team	Checkmark by SR Official	Maximum of two (2) – Sets Submitted:	

Sign-off by:	Team Manager	STEM Racing Official
Signature		

Pit Display Plan Template

A downloadable, editable copy of this form is available for download in the Team Portal. Total document may not exceed three pages.

Team ID:		Team Name:	

Pit Display Renderings

Front View			Top View
Isometric View (Left)			Isometric View (Right)

Annotated Additional View

Bill of Materials				
Item	**Location in Display**	**Description**	**Material**	**Cost**

*Teams may add more rows to the BOM as needed, not to exceed three pages. Download document in Team Portal to Edit.