

LOCAL ADDENDUM TO FORMULA SAE 2016 RULES

Revisions & Clarifications versus the US 2016 Formula SAE Rules follow:

Except where otherwise noted, the following Addendum applies to both Internal Combustion Engine Powered Vehicles and Electric Vehicles.

Teams should particularly note the local requirements relating to On-site Registration, Technical Inspection and Driver Requirements in the early sections below.

Note; Wherever a radically new concept is proposed for a vehicle, the team should submit the concept to the Rules Committee in advance and not rely only on the team interpretation of the rules, as they may not have been drafted with this proposed new concept in mind.

Where significant changes have been made in the Local Rules Addendum for 2016 from the 2015 Addendum, these are highlighted in blue text. **Read all the Rules carefully!**

Some 2015 items have now been included in the 2016 US rules and thus deleted.

The following additional general clarifications which are not specific clauses in the published 2016 Rules, will apply at the 2016 FSAE-A Event.

SCORING: At the Australian event, the general approach will be that Electric and IC Vehicles will compete in the same events, with a separate Overall EV winner award. The approach may vary dependent on the number of Electric Vehicles. The final decision on scoring methods and an award for EV's will be advised prior to the start of the event when the final number of vehicles competing at the event is known.

COST - MATERIALS TABLE: The following clarifications are being made to the Materials Table and will apply for the 2016 SAE-A Event.

Battery Costs: EVs must use the following cost for Motor Batteries. Note that **Battery, Advanced Chemistry, (\$65/kg) only applies for IC vehicle batteries.**

Battery, Tractive Lithium; \$600/kWh.

2.7 Motor, Tractive AC & 2.8 Motor, Tractive DC.

"Cost per kW continuous power rating by manufacturer. Use manufacturer peak power * 0.5 if this figure is not available."

2.5.10 Chassis Control Module + Motor Controller AC

"Inverter for one DC drive motor. Use one for each individually-controllable motor. Include the cost for low capacity HV capacitors. The cost is per kW continuous power of the inverter, as rated by manufacturer. If this figure is not available, use (peak power*0.5)."

2.5.11 Chassis Control Module + Motor Controller AC

"Controller for one AC drive motor. You will need one for every motor. Include the cost for low capacity HV capacitors. The cost is per kW continuous power of the controller, as rated by manufacturer. If this figure is not available, use (peak power*0.5)."

Cost Report:

For consistency of costing by all teams, the material multipliers for machining must be applied for all process involving the removal of material by powered equipment, whether this be by turning, grinding, milling, laser or water jet cutting, etc..

Likewise, Chain costs are (\$0.05 per cm per row x Length of chain), so a double row chain will be \$0.10 per cm.

- 1) Material sizes, masses and densities are to be provided in a standard unit. For example, in terms of length dimensions, teams need to stipulate the unit being used for each size

Formula SAE-Australasia 2016

- listed, whether it is mm, cm, m, in., ft., etc. (in short, a number on its own is not good enough).
- 2) Composite layups must be made clear; listing the final weight is insufficient, especially if different areas vary in layup. It should be possible for judges to readily identify the number and type of layers and processes used.
 - 3) In addition to an Excel version of the eBOM, teams **MUST** supply an Excel version **and** a PDF version of their cost report (as opposed to just PDF as has been stipulated in the past); this will greatly facilitate judges to search and compare different components, check formulae and quickly find common mistakes/discrepancies. Failure to submit an Excel version will result in reduced points for submission quality and clarity.

Engine cost includes transmission (whether integral or not by design), components used to transfer power between engine and transmission and all components necessary to run including spark plugs, coils, wires, oil filter, etc. with the exception of the air induction and fuel system components. Any driveline component downstream of the transmission output gear/shaft is not included. Cost includes engine as received by manufacturer, but not custom parts such as dry sump pans, PCV changes, etc.. Fully internal engine changes are free. If covers or other parts are removed, disassembly labour must be included in labour cost.

DESIGN JUDGING:

Prior to the 2013 event, teams had the opportunity to share a 2-5 minute overview of the vehicle engineering design goals and achievements with the design judges prior to breaking off to system level discussions. Since 2013, the format is that four separate judging teams assess the engineering design, resulting in the former overview/introduction becoming incompatible.

Therefore, in lieu, a video overview of the vehicle goals, concept, execution and achievements can be submitted. As with the written design report, contents are intentionally not specified. Use this opportunity to create emphasis for, and interest in, the details provided in the design report and specifications sheet. This will, in turn, prompt meaningful discussions at the event. The audience will be engineers, motivated and experienced in their field(s) of expertise, wanting to explore vehicle design concepts at a peer level.

The video may be up to five minutes in length, with no editing/cuts mid-sentence. Speakers shall be introduced before presenting. Only physical parts/material may be used as visual aids (i.e. no CAE or computer graphics).

The video must be H.264 in .mp4 file format, up to 30 frames per second and a maximum of 30 MB in file size. Hint: HandBrake or Apple iTunes for video transcoding. The video should be submitted in accordance with the **Appendix PDA-1 Event Action Deadlines**.

PARC FERME

At the 2016 Australasian Event, following completion of some of the dynamic events, or after refuelling, some or all of the vehicles will be impounded in a "parc ferme", where further inspection may be carried out on the vehicles so impounded.

No team members will be allowed to access their vehicle while it is impounded or located in the "parc ferme", except under the direction of the officials.

Electric Vehicles

To facilitate the extended scrutineering of Electric Vehicles, EV teams should have their vehicle on site at the time of their team registration (12:30 PM).

Formula SAE-Australasia 2016

US Rule	Page	Variation																																													
A1.4.1	5	<p>Event Scoring The scoring for individual events is common with the Formula Student Germany scoring, which is different in certain areas to the US scoring. Delete US Article words and add;</p> <p>The dynamic events are scored to determine how well the car performs. Each dynamic event has specified minimum acceptable performance levels that are reflected in the scoring equations. The following points are possible:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">Static Events:</td> <td style="width: 40%;">Presentation</td> <td style="width: 10%; text-align: right;">75</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td></td> <td>Engineering Design</td> <td style="text-align: right;">150</td> <td></td> <td></td> </tr> <tr> <td></td> <td>Cost Analysis</td> <td style="text-align: right;"><u>100</u></td> <td style="text-align: right;">325</td> <td></td> </tr> <tr> <td>Dynamic Events:</td> <td>Acceleration</td> <td style="text-align: right;">75</td> <td></td> <td></td> </tr> <tr> <td></td> <td>Skid-Pad</td> <td style="text-align: right;">75</td> <td></td> <td></td> </tr> <tr> <td></td> <td>Autocross</td> <td style="text-align: right;">100</td> <td></td> <td></td> </tr> <tr> <td></td> <td>Fuel Efficiency</td> <td style="text-align: right;">100</td> <td></td> <td></td> </tr> <tr> <td></td> <td>Endurance</td> <td style="text-align: right;"><u>325</u></td> <td></td> <td style="text-align: right;"><u>675</u></td> </tr> <tr> <td>Total Points:</td> <td></td> <td></td> <td></td> <td style="text-align: right;">1,000</td> </tr> </table>	Static Events:	Presentation	75				Engineering Design	150				Cost Analysis	<u>100</u>	325		Dynamic Events:	Acceleration	75				Skid-Pad	75				Autocross	100				Fuel Efficiency	100				Endurance	<u>325</u>		<u>675</u>	Total Points:				1,000
Static Events:	Presentation	75																																													
	Engineering Design	150																																													
	Cost Analysis	<u>100</u>	325																																												
Dynamic Events:	Acceleration	75																																													
	Skid-Pad	75																																													
	Autocross	100																																													
	Fuel Efficiency	100																																													
	Endurance	<u>325</u>		<u>675</u>																																											
Total Points:				1,000																																											
A2	5/6	<p>ORGANISATION & STATUS of the SAE-A Event Add; Article A2.7</p> <p>a) The SAE-A event will be held under the International Sporting Code of the FIA, the National Competition Rules of CAMS, and the Speed Event Standing Regulations, any relevant Championship Sporting Regulations as approved by CAMS, these Supplementary Regulations and any Further Regulations and instructions to competitors that may be issued.</p> <p>b) The event shall be a Formula SAE Inc Club Meeting run under 2016 F-SAE Rules plus F-SAE-A 2016 Rules Addendum.</p> <p>c) This Event will be conducted under and in accordance with CAMS OH&S and Risk Management Policies, which can be found on the CAMS website at www.cams.com.au</p>																																													
A3.8	7	<p>Restrictions on Vehicle Use Add;</p> <p>The following further clarification to the US Rules should be noted: These vehicles are not assumed to be capable of performing in other environments, nor other types of competition, where the speed limitations and tightly constrained operating confines of the competition's evaluation courses, are removed.</p>																																													
A4.3	8	<p>Society Membership - Delete US words and Add;</p> <p>Formula SAE-A is open to teams from Australia/NZ universities, TAFE colleges and some overseas teams.</p> <p>All members of Australia/NZ teams must be members of SAE-A. Team members of international teams must be members of their local SAE Society, ATA or IMechE. If no local society membership is available, they may register to become members of SAE-A in order to compete at the event. Proof of membership, such as membership card, is required at the competition. Students can join SAE-A online at: www.saea.com.au.</p>																																													
A4.5	9	<p>Driver's Licence and Competition Licence Add;</p> <p>All Drivers of each team must present a valid, government issued, highway driver's licence, containing a photograph.</p>																																													

Formula SAE-Australasia 2016

A4.5 Cont'd.	9	They must also hold the minimum of a CAMS L2S Licence; see NCR 47 or the equivalent authority issued by CAMS. International drivers must apply for a CAMS Level 2S licence and obtain an 'Authority to Compete' from CAMS. All drivers should obtain their CAMS licences well in advance of the commencement of the event
A4.7	9	Medical Insurance - Add: Individual medical insurance coverage per the US wording is obviously desirable but government versus private coverage varies significantly around the world. Accordingly, foreign and local teams must ensure that they are adequately covered by their domestic insurance and carry adequate travel medical and accident insurance to cover their time in Australia and at the competition.
A4.8	9	Delete US Rule
A4.9	9/10	.Add; Onsite Registration of Individual Team members– Document Copies Required All participating team members must , at the time of onsite registration, provide photo copies of the following documents and emergency contact data to be filed with registration officials: 1) Photographic Identification: Drivers must present a valid, government issued, highway, driver's licence containing a photograph. Non-drivers may provide alternative photographic ID. (e.g. University ID or passport). 2) Emergency Contact Information: Each student must include the name and phone number of a designated contact on their emergency details. 3) Proof of Society Membership: Team drivers at the competition must also present proof of their CAMS accreditation at registration.
A5.1	10	Faculty Advisor Add; Article 5.1.4. To avoid duplication, ensure proper identification of teams and requests, all contact between teams and SAE-A officials prior to the event, should, in the first instance, be via the faculty adviser or reviewed by the advisor prior to submission. The adviser can often help with prior knowledge and interpretations and ensure maximum efficiency in contacts; they may also liaise with other faculty advisers. All teams must have a designated OH&S advisor responsible in line with each university's OH&S practices and to ensure the FSAE-A event requirements are also met. The faculty advisor shall be the designated OH&S advisor unless another person is designated by the university to fill this role and SAE-A is notified in writing of their appointment and the designated person must attend all days of the event.
A7.5	13	Registration Requirements for SAE-A Event Add; Formula SAE-A is open to teams from Australia/NZ Universities and TAFE Colleges and some overseas teams. Registration is via electronic or hard copy application, not via online web site. There will be a limit of 30 teams for the event. If the number of entries exceeds the maximum available event number, then a ballot or other method will be used to reduce the number of overseas entries within the available number of entrants. If a reduction is required to the number of entries, this decision will be announced to the affected overseas teams as soon as possible after the entry closure date.

Formula SAE-Australasia 2016

A7.7.1	14	<p>Withdrawals.</p> <p>Delete US Words and Add; Any team registered for the Australasian competition must notify the organisers via telephone or via formulasae@sae-a.com.au as soon as any decision is made to withdraw in order to allow other teams the opportunity to compete. Likewise, any team which has indicated potential entry, but not yet registered, is requested to advise that they will not be registering at the earliest possible date (as soon as such decision is reached).</p>
A7.11	15	<p>Formula SAE Australia Registration. Clarification of On-Site Team Registration</p> <p>Add; When teams arrive at the FSAE-A venue and register, both the Team Captain and the Faculty Advisor (& OH&S representative if not the FA) must be present and be able to identify themselves as being those nominated in those roles at the initial online registration.</p> <p style="color: red;">At the On-Site Registration, All teams must submit a completed copy of the Technical Inspection Check List and EV teams must also submit a completed copy of the Electrical Inspection check list as primary self-evaluation by the Team. These must be signed by both the Team Captain & the Faculty Advisor. The team must then present this completed Check List at Technical/Electrical Inspection.</p> <p style="color: blue;">On Site Team Vehicle Registration must be completed by 4:30 PM for IC Vehicles and 12:30 PM for Electric Vehicles on the Thursday of the event. Teams failing to register by the designated time on the Thursday will receive a penalty of 40 points, deducted from their overall score.</p>
A8.4	16	<p>Late Submission Penalties (Revised penalties for Formula SAE-A)</p> <p>Delete; US words Add; Documents received/uploaded after the deadline will be penalized five (-5) points per day, or partial day, late with the following penalty caps and exclusions:</p> <p>A5 “Electrical Systems Officer and Electrical Systems Advisor Form” The penalty for late ESO/ESA forms is capped at negative twenty (-20) points.</p> <p>T3.9.5 “Structural Equivalency Spreadsheet (SES)” or AF2 “Structural Requirements Certification Form (SRCF)” The penalty for late SES submission is capped at negative twenty (-20) points.</p> <p>T3.22.7 “Impact Attenuator Report Penalties” The penalty for late impact attenuator report submissions is capped at negative twenty (-20) points.</p> <p>Rules S3 “Business Logic Plan” The penalty for late BLP submissions is capped at negative twenty (-20) points.</p> <p>Rule S4.16 “Late Submission of Cost Report” A penalty of 10 points per week or part thereof will apply. This will be capped at -40 points. Any submission not received within 30 days of the due date will be regarded as a non-submission and the team may not participate in the cost event. Partial penalties will be applied at the judges' discretion for incomplete reports or late submissions of parts of the report.</p>

Formula SAE-Australasia 2016

		<p>Rule S6.8 “Penalty for Late Submission or Non-submission” The design report, design spec sheet and design video collectively constitute the “Design Documents”. Late submission or failure to submit all, or any one, of the design documents will be penalized at the standard negative five (-5) points per day, capped at (-20) points each item. If your design documents are received more than four (4) weeks late they will be classified as “Not Submitted” and your team will not participate in the design event and will receive zero (0) points for design.</p> <p>EV9.1 “Electrical System Form” The penalty for late ESF submissions is capped at negative twenty (-20) points. If the ESF is received more than ten (10) days late it will be classified as “Not Submitted” and your vehicle will not be inspected and will not be permitted to compete.</p> <p>EV9.2 “Failure Modes and Effects Analysis” The penalty for late FMEA submissions is capped at negative twenty (-20) points. If the FMEA is received more than ten (10) days late it will be classified as “Not Submitted” and your vehicle will not be inspected and will not be permitted to compete.</p>
T1.1	23	<p>Technical Inspection Add; The team must have a signed, completed copy of the technical inspection check list when their car is presented at technical inspection. Refer A.7.11.</p> <p>To clarify the procedure for Electrical Vehicles, the following procedure will apply to complement the requirements identified in S2.7. Add Clause T.1.1 Electric Vehicles Only Technical Inspection will be a sequential step process as follows: 1. A visual inspection of all electrical systems and will involve internal inspection of battery packs and all HV system enclosures. This will done on the Thursday. 2. Mechanical Inspection as per the relevant parts of S2.7.1. 3. Tilt test may be completed after completing part 2. 4. Functional testing where teams will be required to demonstrate correct function of safety systems within the car and final electrical inspection. 5. Teams will be required to complete the above steps before proceeding to brake test, dynamics events, or test pad (see ‘Note 1’).</p> <p>Note 1: Teams are not to engage the HVD or power up their cars until their vehicle has advanced with sufficient level of sign-off and the team has been given specific approval to do so by the EV officials.</p>
T3.1	25	<p>Vehicle Structure – Alternative Frame Rules Formula SAE-Australasia will not offer the Alternative Frame Rules for local submission in 2016.</p> <p>Teams that have had their alternative frame approved for competition at another Formula SAE event in 2015 will be allowed to compete with that frame at the Australasian event, following submission of proof of acceptance for the prior event.</p>
T3.9.1	30	<p>Structural Equivalency – SES or SRCF Submission</p> <p>As all teams must submit an SES (even to confirm “no variance”), in addition to revisions from the base case to the tube material, size or section, they must also consider the position and layout of tubing in accordance with applicable areas of the rules (in particular, for front bulkhead support and side impact protection, as various questionable configurations have been observed at the events).</p> <p>Teams must confirm adequate bulkhead support in accordance with one of the “OK” configurations shown on the US Formula SAE FAQs website.</p>

Formula SAE-Australasia 2016

T3.9.1 (cont'd)	30	The SES/SRCF must demonstrate equivalent crush strength for the configuration of the team's vehicle. See further under US Clause 3.20 . A sketch should be included with the structural documentation submitted to show the basic structure and configurations of the various tubes in a steel space frame vehicle, even if the team believes equivalency calculations are not required.
T3.9.5 (c)	31	Acknowledgement SES's submitted for vehicles entered into the Australasian event will be acknowledged in accordance with Appendix PDA-1.
T3.10.5	33	95th percentile male template Delete; US wording. Add; To ensure adequate driver protection for varying driving positions, and to ensure a common approach to driver packaging, if the requirements of 3.10.4 are not met with the 95th percentile male template, 35 points will be deducted from the team's design event score and the car will not be allowed to compete in any dynamic events until modified to ensure compliance . The 915mm minimum dimension of T3.10.4 must be maintained.
T3.21.9	40	Impact Attenuator Report Penalties Delete US wording. Add; Teams that submit their impact attenuator data report after the due date will be penalised five (5) points per day which will be taken off the team's total score. The penalty for late impact attenuator report submissions is capped at negative twenty (-20) points.
T4.3.2	51	Heat Protection Add; In addition to when seated in normal driving position, the heat protection requirements also apply to areas where contact may be made on entry to, or exit from, the cockpit.
T4.8	52	Driver Egress Add; A list of the names of all drivers and times they achieved in the test must be provided by each team with the Technical Inspection List at Registration. The drivers to be required to complete the test for verification at Technical Inspection will be identified at the event. This may or may not include all drivers.
T7.1	60	Brake System - General Add; The brakes/pads presented on the vehicle at technical inspection must be identical, and to the same material specification, as is to be used for the brake test and all dynamic events (i.e. only one pad material for all events.)
T7.4 7.4.3	62	Brake Light Add; Article 7.4.3 To assist track safety/fair play in the endurance event, any vehicle with a brake light illuminated continuously, or under non-braking conditions, will be black flagged. <i>The brake light illumination will be checked during the brake test and the officials will deem the illumination as either satisfactory or unsatisfactory for external observation. This will be a subjective judgement. If judged unsatisfactory, it must be corrected before the vehicle is permitted to compete in the dynamic events.</i>

Formula SAE-Australasia 2016

Article 9	64	The following additional words will be included in the FSAE Rules for 2017 (as clarification only) and are applicable for the FSAE-A 2016 event.
T9.1	64	<p>T9.1 Aero Dynamics and Ground Effects - General All aerodynamic devices must satisfy the following requirements which must be met in conjunction with the vehicle configuration requirements defined in T2.1. The keep out zones shown in the drawings below clarify the intention of the written requirements.</p>
T9.2.2	64	<p>T9.2 Location – Front Mounted Devices T9.2.2 When viewed from the front of the vehicle, the part of the front wheels/tires that are more than 250 mm (9.8 inches) above ground level must be unobstructed by any part of the aerodynamic device, with the exception of a single vertical surface per side (e.g. end plates) which must not obscure the frontal view of the tire by more than 25 mm, measured laterally.</p>
T12.2	68	<p>Transponders Add; Transponders will be used for timing at Formula SAE-A. These will be supplied at the event by the organisers.</p>
T13	69	<p>Logos/Decals</p> <p>T13.1.2 Delete existing words.</p> <p>Add: T13.1.2 Car numbers must appear on the vehicle as follows: Locations: In three (3) locations: the front and both sides;</p> <ul style="list-style-type: none"> (a). Height: 150 mm (6 inch) high; (b). Font: Helvetica Bold (d). Color: Day Glo Yellow on a black background. (e). Background shape: The number background must be one of the following: round, oval, square or rectangular. There must be at least 25.4 mm (1 inch) between the edge of the numbers and the edge of the background. (f). Clear: The numbers must not be obscured by parts of the car, including but not restricted to wheels, side pods and exhaust system. <p>Add; T13.5 The decals of the four committee companies (Ford, Holden, Bosch and Toyota) and SAE-A must be displayed on the top front of the vehicle, symmetric about the centreline of the vehicle and in a clear space of 210mm wide by 500mm long. The logo files are available at http://www.saea.com.au/rules-and-downloads, including advice for relative positioning.</p>
T14.1	70	<p>Driver's Equipment Add; Driver's equipment must be worn that is in accordance with the higher of the level required by the Formula SAE International Rules or the CAMS level defined in this Addendum. The standard relevant to the item (Level A, B or C) is defined in the CAMS Regulations.</p> <ul style="list-style-type: none"> Helmets: Level B Overalls: Level C Underwear: Level B Balaclava: Level C Socks: Level B Shoes: Level B. Gloves: Level B. <p>Refer to the CAMS website and click on Schedule D Apparel for the latest update:- http://www.cams.com.au/motor-sport/regulations/cams-manual/general-requirements</p>

Formula SAE-Australasia 2016

T14.1 Cont'd.	70	While a Head Restraint is not mandatory, an FIA standard device level is also recommended. Some items listed as "Recommended" by CAMS are mandatory from the Formula SAE Rules to the standard defined as a minimum.
T14.2	70	Helmet Add; In addition to the US or British Standards listed, helmets conforming to Australian Standard AS 1698 or CAMS Schedule D are allowed.
T14.6	71	Underclothing Must be worn at the Australasian Competition; Delete; US wording "It is strongly recommended that all competitors wear -- " Add; "All competitors must wear ----"
Part AF	76	Alternate Frame Rules This section is not applicable for the Australasian event.
IC2.1	93	Fuel Delete; US words Add; The primary fuel supplied for the event will be unleaded petrol with a Research Octane Number (RON) of 98. Ethanol E85 will also be provided as an alternative fuel. Teams wishing to compete using E85 must advise their intention when they submit their entry registration. Note: E85 formulation and characteristics may vary between locations and between the fuel obtained by teams during development and that supplied at the event. All US rules relating to ethanol (restrictors, etc.) will apply.
IC2.7.1	97	Tank Filling Requirements: Tanks which by design or accident incorporate air pockets will be penalised for any additional fuel that can be added after vehicle movement/shaking/tilting following fuel fill at the end of Endurance. Refer to D8.9 later in this Addendum.
EV3.3.3 EV 3.4.11	106 109	Clauses EV 3.3.3 and 3.4.11. Cell segment maximum stored energy. The note relating to calculation of stored energy is amended to bring it in line with industry practice and is as follows: NOTE: The contained energy of a stack is calculated by multiplying the nominal stack voltage with the nominal capacity of the used cell(s). Documentation of segment separation must be provided in the ESF.
EV8.3.3	125	Charger Connector Add; Additional definition as below. The charger connector must be an AS/NZS 3123 5-pin; 20A; 3 Phase; 415V connector.
S4.9.1.a	135	Cost Report Add; The electronic copy of the BOM must use MS Excel on a CD-ROM or USB "Memory Stick". It should NOT include copies of receipts or any back-up material. The cost report must also be submitted in both PDF and Excel formats.
S4.9.1.b	135	Add; For the Australasian event, a hard copy is mandatory and timely submission of the hard copy is a key element of the judging process.
S4.9.3	136	Add; The binder containing the cost report should be logically presented with consistency of format and such that it is easy for the judges to trace cost build up from component to system level. Tabs should be clearly labelled for each system

Formula SAE-Australasia 2016

S4.9.3 Cont'd.	136	and section. The information should be readily located and flow from component to sub-system to system level. Teams should check accuracy and consistency of the information and cost summaries in the report prior to its submission, preferably by team members who have not worked on the report. Clarity is important. Adequate font size and colours should ensure good contrast between font colour and background. Light shades for background colours is best.
S4.13	137 138	Make versus Buy Add; S4.13.6: Wheels: Within the cost tables there is no entry for team-made wheel rims (shells) fabricated from metal. Accordingly, to ensure rational cost data, if wheel rims are team made (Al; Mg; Steel) the reported cost must be at least equal to or greater than the lowest cost "bought" rims (or total wheel if single piece) of equivalent type/design to the team made pieces. This clause does not apply to student made wheel centres.
S4.16	139	Late Submission of Cost Report Delete; US wording Add: It is imperative that the cost judges have the cost reports in enough time for proper evaluation. Teams that submit reports late will be penalized 10 points per week or part thereof, with a maximum penalty of -40 points. Any submission not received within 30 days of the due date will be regarded as a non-submission and the team may not compete in the cost event. Partial penalties will be applied at the judges' discretion for incomplete reports or late submissions of parts of the report.
S6.2.4	141	Design Report Add; For the Australasian event, teams will not be assigned to specific judging groups and the overall judging schedule & format will be advised prior to the event.
S6.8	146	Design Event. Penalty for Late Submission or Non-Submission Delete; US wording Add; Non-Submission; Teams that fail to submit all of the design report and the design spec sheet will not compete in the design event, and will receive zero (0) points for design.
S6.8	146	Late Submission: Teams that do not submit a design report, or a design spec sheet, by the specified deadlines will receive a 5 point per day penalty, capped at 20 point penalty, for each document, and will not be eligible to compete in the design final. Any submission more than 4 weeks late will be treated as a Non-Submission and your team will not participate in the design event and will receive zero (0) points for design. Note: Confirmation of receipt will be given by email.
S6.9	146	Penalty for Unsatisfactory Submissions Delete; US wording Add; At the discretion of the judges, teams that submit a design report or a design spec sheet, which is deemed to be unsatisfactory, will have their points score reduced.
S6.11.4	147	Design judging Delete; The Design Judging Score Sheet is available at www.fsaonline.com/go/downloads . Add; The Design Event Score Sheet is available on line at http://www.saea.com.au/rules-and-downloads

Formula SAE-Australasia 2016

Appendix S-7	158	Design Judging Delete; US Wording Add; The Design Event Score Sheet is posted on line at http://www.saea.com.au/rules-and-downloads
Article 1	159	Dynamic Events and Maximum Scores The scoring is common with Formula Student Germany. Delete; US wording. Add: Events: Acceleration 75 Skid-Pad 75 Autocross 100 Fuel Efficiency 100 Endurance <u>325</u> <u>675</u>
D3.8.2	160	Tyre Changing during the Endurance Event Add; D.3.8.2.(f) Teams that have incurred a puncture during the endurance event due to external factors (e.g. debris on track) may change the tyre within the driver change area, with no time penalty for the tyre change time. The wheel/tyre removed will be impounded and if, on inspection by the judges, it is subsequently assessed that the deflation/puncture was not caused by external factors, the vehicle will then be disqualified from that heat. Deflation or punctures caused by running off course or impacting barriers or other objects due to driver error will not be regarded as external factors.
Article 4	162	Driver Limitations A minimum of 5 drivers must be used. The Australasian Event will consist of two heats for the Endurance and Fuel Efficiency event.
D6.8.3	165	Skid-Pad Scoring Delete; US wording Add; The following equation is used to determine the scores for the skid-pad event: $\text{SKID PAD SCORE} = 71.5 \times \frac{\{(6.184/T_{\text{your}})^2 - 1\}}{\{(6.184/T_{\text{min}})^2 - 1\}} + 3.5$ Where: T_{your} is the average of left & right timed laps on your best run including penalties. T_{min} is the elapsed time of the fastest car
D7.2.1	166	Autocross Course Specifications and Speeds Add; The track will generally be similar to the US rules but teams will be advised of the final layout and direction of travel following registration. Teams will have the opportunity to walk the track with the Clerk of Course on the Friday of the event. Min. track width will be 3.5m
D7.3.3	167	Autocross Procedure Delete; US wording. Add; The two Heats will be run sequentially. A driver has the option to take a second run immediately after the first run

Formula SAE-Australasia 2016

D7.8.1	168	<p>Autocross Scoring Formula</p> <p>Delete; US wording Add; AUTOCROSS SCORE = $95 \times \{(T_{max}/T_{your})-1\} / \{(T_{max}/T_{min})-1\} + 5.0$ Where: T_{min} is the lowest corrected elapsed time recorded for any competitor in either heat T_{max} is 145% of T_{min} T_{your} is the lowest corrected elapsed time in either heat for the team being scored.</p>
D8.1	168	<p>Endurance & Efficiency</p> <p>Add: The Australasian Event will be run in two heats - one in the morning and one in the afternoon. No driver will be allowed to drive in both heats. The starting order for each heat will be advised at the event.</p>
D8.6.1 D8.6.2	169	<p>Endurance & Efficiency</p> <p>Add; The track will generally be similar to the US rules but teams will be advised of the final layout and direction of travel following registration. Teams will have the opportunity to walk the track with the Clerk of Course on the Friday of the event. Min. track width will be 3.5m</p>
D8.7.1	169	<p>Endurance General Procedure</p> <p>Delete; US words. Add; The Event will be run in two heats - one in the morning and one in the afternoon. No driver will be allowed to drive in both heats. The starting order for each heat will be advised at the event</p>
D8.7	169	<p>Endurance general Procedure</p> <p>Add; D8.7.8 The number of vehicles on the track simultaneously will be at the discretion of the clerk of the course but generally will not exceed 4.</p>
D8.9	170	<p>Endurance Fuel Fill – IC Cars</p> <p>Add The officials may selectively shake/vibrate/tilt a vehicle at refuelling following endurance, or in the 'Parc Ferme'. In the event of any change in level, Clause D8.16.1 penalties will be applied.</p>
D8.18.2	172	<p>Endurance Penalties.</p> <p>Add; Penalties will not be assessed for accident avoidance or other reason deemed sufficient by the track officials. Adjustments to elapsed time may be made for cases where teams may be halted or disrupted by another team, or by track officials; such adjustments will be entirely at the discretion of the judges/track officials.</p>

Formula SAE-Australasia 2016

D8.20.2	173	<p>Endurance Score</p> <p>Delete; US wording Add; If T_{your} is < or = to T_{max}: $\text{ENDURANCE SCORE} = 275 \times \frac{(T_{\text{max}}/T_{\text{your}})-1}{(T_{\text{max}}/T_{\text{min}})-1} + 50$ Where: T_{min} will be the lowest corrected time of the fastest team of the event. T_{your} is the combined corrected times of both of your team's drivers in the heat. T_{max} will be 1.45 times T_{min}.</p> <p>If T_{your} > T_{max}: ENDURANCE SCORE = 0 (ZERO) except If ENDURANCE SCORE < Laps Comp, then ENDURANCE SCORE = LapsComp LapsComp is the number of full laps completed by the team.</p>
D8.22.1	174	<p>Fuel Efficiency Scoring Formula</p> <p>To equate with Australian rather than European electricity grid production emissions the following changes are made:</p> <p>Delete; Electric – 0.65 kg of CO₂ per kWh Add; Electric – 0.85 kg of CO₂ per kWh</p>
D9.3 D9.4	177 177	<p>Information and Command Flags.</p> <p>The specific flags to be used at the Australasian event will be clarified at the event's team and driver briefings. Green and red "lollypop" signals may also be used for signalling entry to the track.</p>
D10.7	178	<p>Trash Clean Up</p> <p>Add Clause 10.7.3: Any cost incurred to SAE-A due to removal of rubbish, additional cleaning or damage caused to site or pit will be the responsibility of the offending team for payment.</p>
Article 11	179	<p>General Rules</p> <p>Add; The following general clarification given to cover all events regarding External Equipment and Work on Vehicles</p> <p>All vehicles must be capable of start, stop, restart and idle in all dynamic events, without external assistance, once the vehicle is on the starting line. This reinforces the requirement that any item essential to satisfactory vehicle operation are included in the cost and design reports for the event.</p> <p>Accordingly, for all dynamic events, from the time that the vehicle is deemed "ready to run" and has moved forward to the starting line under the starter's control, it cannot be worked on and no auxiliary batteries or cooling fans are allowed, until the event is completed (including all heats required to be run consecutively or with some delay under officials' direction). If the vehicle subsequently cannot run it may be removed from the line and repaired but will be deemed to have run "out of order".</p> <p>Additionally, to avoid disruption to the start line, ensure safe operation and not impair clear movement of other vehicles, the above requirements will also apply for vehicles entering the holding queue for an event, unless specific clearance for any work or use of auxiliary equipment has been obtained from the officials controlling that event.</p>

Formula SAE-Australasia 2016

Article 12	180	General Pit Rules Add Clause D12.6 - Draining of Fluids No fluids are to be drained within the pit area except into approved receptacles and no fuels/oil are to be drained in the pit area without prior approval from the organisers and with appropriate fire protection present. Add Clause D12.7 – Fluid Containers No open vehicle fluid containers are allowed in the pit area.
-------------------	------------	---

APPENDIX PDA - 1

Action Deadlines for 2016 Formula SAE Australasia

See <http://www.saea.com.au/formula-sae-a> for rules specific to FSAE-A

All submissions must be received at the SAE-A Office by 5:00 PM on the defined date. Note that due to time zone differences, teams may need to submit ahead of this time. Early submission of all items is highly recommended. The US Rules for late receipt apply, except where otherwise noted earlier in this Addendum.

All online submissions are to be uploaded into the shared Formula SAE-A Dropbox folder with a confirmation of submission email sent to formulasae@sae-a.com.au. Contact SAE-A (formulasae@sae-a.com.au) to request Dropbox access. Your team's drop box will only be accessible by SAE-A judges and nominated persons. Please provide email details of persons requiring access. Email confirmation will be given within two business days of receipt for all submissions.

Rules Enquiries concerning **Formula SAE Australasia only** Send via email to: SAE-A Rules Committee. Email: formulasae@sae-a.com.au

Cost Enquiries concerning **Formula SAE Australasia only** Send via email to: SAE-A Cost Committee. Email: formulasae@sae-a.com.au

Due/Key Date	Action Required	IC and Electric Vehicles
April 29, 2016	Business Logic Plan Received Use required form located at www.fsaonline.com Dropbox submission in Adobe Acrobat® PDF format	
June 27, 2016	Registration - Opens Registration Form available at: http://www.saea.com.au/rules-and-downloads Email submission to the SAE-A office: formulasae@sae-a.com.au	
July 22, 2016	Registration – Closes	
September 23, 2016	Structural Equivalency Form SES Received Form per Appendix T-1 of US Rules. Form available; www.fsaonline.com Dropbox submission in Microsoft Excel format.	
September 23, 2016	Impact Attenuator Data Requirements Received Form per Appendix T-2 of US Rules. Form available; www.fsaonline.com Dropbox submission in Adobe Acrobat PDF format.	
October 7, 2015	Design Report, Design Spec. Sheet and Design Video Received Spec. Sheet per S6.3 of US Rules. Form available at www.fsaonline.com Dropbox Submission in Adobe Acrobat® PDF format, Microsoft Excel® and mp4 video (maximum 30 MB) formats respectively.	
October 14, 2015	Cost Report Received - Electronic Copy Dropbox submission in Microsoft Excel and Adobe Acrobat PDF format. FSAE Cost eBOM 2016 Form available at www.fsaonline.com Any other supporting materials should be in Adobe Acrobat PDF & Excel Cost Report format.	
October 21, 2015	Cost Report Received - Hard Copy Version Post to: Formula SAE-A Cost Committee SAE-Australasia Unit 30/3 Westside Avenue Port Melbourne Victoria Australia. 3207	

Continued on Page 16

Formula SAE-Australasia 2016

Due/Key Date	Action Required Electric Vehicles Only
September 30, 2016	Electrical Systems Officer and Electrical Systems Advisor Form Received Form per A5 of US Rules. Form available at www.fsaonline.com Dropbox submission in Adobe Acrobat® PDF format.
September 30, 2016	ESF & FMEA - Electronic Copy Received ESF form per EV9.1 of US Rules. Form available at www.fsaonline.com FMEA form per EV9.2 of US Rules. Form available at www.fsaonline.com Dropbox submission in Adobe Acrobat® PDF and Microsoft Excel® formats
October 7, 2016	ESF & FMEA - Hard Copy Version Received Post to: Formula SAE-A Technical Committee SAE-Australasia Unit 30/3 Westside Avenue Port Melbourne Victoria Australia. 3207