



MONASH MOTORSPORT **Brand Management in**
FINAL YEAR THESIS COLLECTION **Formula Student**
Vincent Chu - 2018

The Final Year Thesis is a technical engineering assignment undertaken by students of Monash University. Monash Motorsport team members often choose to conduct this assignment in conjunction with the team.

The theses shared in the Monash Motorsport Final Year Thesis Collection are just some examples of those completed.

These theses have been the cornerstone for much of the team's success. We would like to thank those students that were not only part of the team while at university but also contributed to the team through their Final Year Thesis.

The purpose of the team releasing the Monash Motorsport Final Year Thesis Collection is to share knowledge and foster progress in the Formula Student and Formula-SAE community.

We ask that you please do not contact the authors or supervisors directly, instead for any related questions please email info@monashmotorsport.com



BRAND MANAGEMENT GUIDELINES





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M17-C, preparing for Autocross training at the Haunted Hills hillclimb track, Yallourn, Australia, 2018.

WHY DOES BRANDING MATTER?

Competing in the Formula Student competition around the world, Monash Motorsport relies equally on successful project, business and resource management as much as it does on technical expertise and engineering prowess to deliver competition success.

Management of the Monash Motorsport brand plays a vital part in the our interactions with our team's stakeholders, ensuring consistent and quality communications, leading to an improved ability for resource procurement and ultimately, team (and vehicle) performance.

Simply put, with high quality brand management, our team is more professional. We connect better with our friends, families, university supporters, industry partners, fellow competition teams, competition officials and our own team members. We become more recognisable, relatable and trustworthy. It is even easier to acquire sponsorship for the technical team to help produce a faster car.

These Brand Management Guidelines clearly define all aspects of the Monash Motorsport brand, serving as a referential resource for all team members, and particularly those responsible for brand deployment.

Covering our team history, vision and values, tone of voice, logo, colour palette, graphic device, typefaces, photography and videography styles, vehicle livery designs and uniform designs, these guidelines aim to provide enough information and references to support those responsible for Monash Motorsport's brand management to maintain consistency and quality.

OUR HISTORY

Established in 2000, the same year as the competition's inception in Australia, the Monash Motorsport team was one of the early Formula Student/SAE teams outside of the United States, where the competition was first founded.

2002 saw the first time Monash concepts ran with high downforce aerodynamic devices, and we were one of the few in the competition to do so for a number of years, making high quality aerodynamic engineering and high downforce devices a strong part of our DNA.

From humble beginnings, failed Endurances, workshop fires and vehicle crashes, the team has built up its reputation, project scope and competition performance over its 20 year history on an international stage.

Having competed with Internal Combustion concepts since 2000, the team designed and competed with its first ever Electric vehicle in 2017, and began developing its first Driverless vehicle in 2018.

We first raced overseas in 2004, having been invited to the inaugural Formula Student UK competition at Silverstone. We attend Formula Student Germany of the first time in 2006, and have competed internationally every second year since 2010, attending the Formula Student Austria event since 2016.

As of mid-2018, we've won 9 Australasian competitions, have achieved 40 awards on an international podium, are the highest ranking Australian team on the World Rankings Leaderboard and have ranked as high as 2nd.

We've come a long way. We've got a long way to go.



'01, on the start line for Endurance, Lang Lang (Holden Proving Grounds), Australia, 2001 - the last year before Monash wings.

OUR VISION AND VALUES

In order to support the cultivation of a strong team culture and high performance, as well as to support decision-making processes, we established a guiding team vision and values to align to.

These guide the actions of our team as a whole, and those of all team members when representing the team, from our behaviour at competition, our communications with stakeholders and even our technical design choices.

Our vision and values are a key part of our identity, and should be represented in all facets of the Monash Motorsport brand, both internally and externally.

In order to represent our vision and values through our brand, we should strive to communicate certain qualities in our associated team media.

What we are:

- Passionate
- Positive
- Fresh
- Open
- Inspiring
- Contemporary
- Enthusiastic
- Professional
- Competent

What we are not:

- Complicated
- Stereotypical
- Boring
- Closed
- Conservative
- Cold

OUR TEAM VISION

TO BE THE MOST RESPECTED FORMULA SAE TEAM IN THE WORLD.

OUR TEAM VALUES

PERFORMANCE

We finish every event.

We maximise points.

We want to be the benchmark.

We perform on and off the track.

CAMARADERIE

We succeed and fail as a team.

We value and help each other.

We respect differences.

PROFESSIONALISM

We hold each other accountable.

We communicate openly.

We take pride in our presentation.

We invest in our relationships.

LEARNING

We share knowledge.

We learn from our experiences.

We build on the team's knowledge.

OUR VOICE

When creating team communications, it is important to consider the channels through which stakeholders interact with our team - usually the only communications they receive are those from our media channels, and as such, the tone of voice employed represents the entire Monash Motorsport team.

All team communications should be professional, inoffensive and not politically loaded. It is important to consider the current team aims, both as a whole and from the leadership

External language employed varies greatly across media platforms, which cover Facebook, Instagram, Vimeo, email newsletters, articles and the Monash Motorsport home website.

Facebook language is professional while maintaining a friendly and open demeanor, with the team referred to in first-person perspective. Given the platform holds the widest range of audience demographics, a balance

must be found for the level of technical engineering language employed, with content usually beginning with language assuming minimal background knowledge, occasionally increasing in assumed technical knowledge where relevant and necessary.

Instagram language on the other hand, is kept short, simple, and largely casual as a result of the fast-paced, short attention span nature of the platform, with humour, hashtags and emoticons employed to appeal to the younger and more tech-savvy audience demographic.

The team website, email newsletter and articles all employ more informative, journalistic and professional approach to content, given their use as official and professional faces of the team, usually presented first and foremost to an audience of industry professionals, university staff and potential new team members.

FACEBOOK EXAMPLES

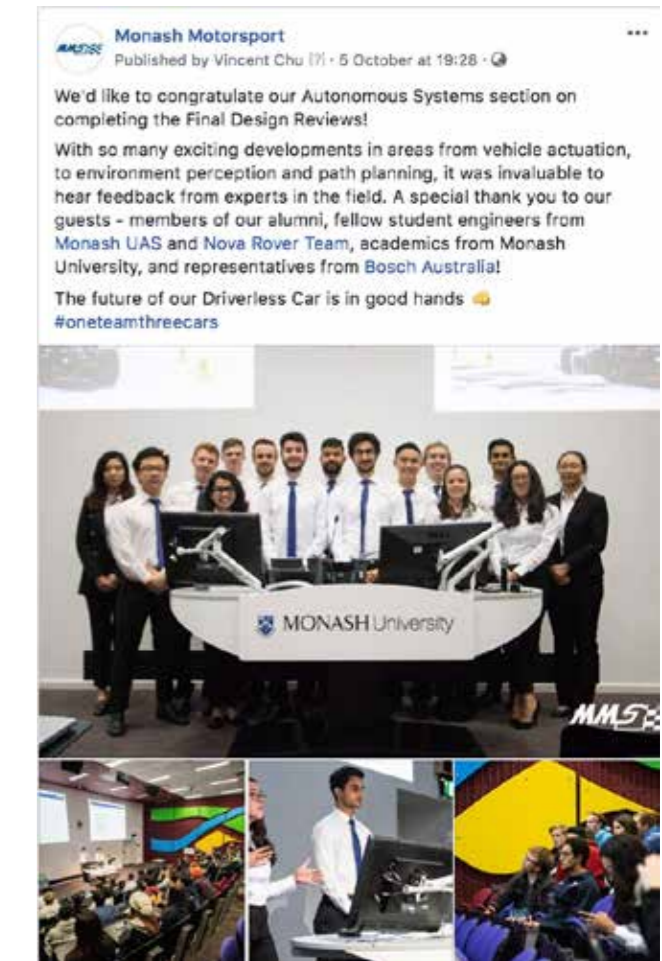
Sponsor promotion



External event coverage



Internal event coverage



FACEBOOK EXAMPLES

Team announcement

Monash Motorsport
Published by Vincent Chu [?] · 8 July 2017 · [?]

Meet M17-C and M17-E!
These are our two 2017 vehicle concepts that we unveiled at Design Launch Night. They are the culmination of over 6 months of planning and design work, and we're well on our way to bringing them to life in the workshop.

Of course, these phenomenal computer renders wouldn't be possible without LEAP Australia and KeyShot, as well as PhoenixPLM's NX10.0 CAD package.

We'd love to hear your thoughts - what do you think?
#oneteamtwocars

Team milestone

Monash Motorsport
Published by Vincent Chu [?] · 28 July 2017 · [?]

As promised, here are the highlights from M17-C and M17-E's First Drive!

This is the first time Monash Motorsport has ever had two cars out on track together - and also our first ever Electric car!

Our Chief Engineers also had a chat about how the session went, and the milestones we hit on our first drive. With a combined total of over 100km driven to date already, we're thoroughly excited for what's planned over our next 5 months before the 2017 Formula SAE - Australasia competition in December.

#oneteamtwocars #drivinginjuly

VIMEO.COM
M17-C & M17-E First Drive
July 21st marks the earliest any team has driven their new car in...

Technical coverage

Monash Motorsport
Published by Vincent Chu [?] · 20 September 2017 · [?]

A big thanks to Semikron for supporting the advanced development of our Electric vehicle concept!

Using their Full Silicon Carbide (SiC) power modules and drivers, we have been able to put developmental efforts towards a highly efficient custom inverter and associated control system! Their leading edge SiC switching technology is the key to improving the overall efficiency of our system.

As an international leading manufacturer in power electronics, we're sure they'll be able to find you the right technology for the job: www.semikron.com

FACEBOOK EXAMPLES

Formula Student community

Monash Motorsport
Published by Andrew Tran [?] · 25 September at 20:43 · [?]

Our European Campaign just wouldn't have been the same without all of the friends we made along the way!

Thank you to Rennteam Uni Stuttgart e.V., GreenTeam Uni Stuttgart, Oxford Brookes Racing and DHBW Engineering Stuttgart e.V. who all opened up their workshops to give us a place to work. Thank you to Global Formula Racing, KA-Raceing, TUfast Racing Team, Cardiff Racing for giving us access to your testing grounds and AMZ Akademischer Motorsportverein Zürich for giving us a great workshop tour.

This is what Formula Student is about - making friends. We certainly won't forget everyone we met in Europe!

Competition coverage

Monash Motorsport
Published by Andrew Tran [?] · 9 August · [?]

To start Day 4 of Formula Student Germany, M17-C has passed Mechanical Inspection!

Both cars are now looking to finish all of their required scrutineering before the Dynamic events start tomorrow.

Also on the schedule for today are the Combustion Static events. Keep updated by following our Instagram page!

Competition results

Monash Motorsport is at Silverstone.
Published by Vincent Chu [?] · 16 July · Towcester, United Kingdom · [?]

What an absolutely unbelievable weekend at Silverstone!

We are ecstatic to announce an Overall 1st place for the Combustion car, and an Overall 3rd for the Electric car for the IMechE Formula Student 2018 competition!

This marks Monash Motorsport's highest international competition result ever.

Here's the breakdown of the event results:

M17-C:	M17-E:
Overall: 1st	Overall: 3rd
Engineering Design: 3rd	Engineering Design: =8th
Business Presentation: 10th	Business Presentation: =7th
Cost: 9th	Cost: =28th
Skidpad: 4th	Skidpad: 7th
Acceleration: 7th	Acceleration: =10th
Autocross: 2nd	Autocross: 3rd
Endurance: 1st	Endurance: 2nd
Efficiency: 9th	Efficiency: 3rd
Overall Dynamics: 1st	Overall Dynamics: 2nd
Total points: 863.6	Total points: 767.0

Congratulations must go to Oxford Brookes Racing for a well deserved Overall 2nd, as well as to TUfast Racing Team for such an amazing performance.

This has been the dream start to our European campaign. Next stop: Formula Student Austria!

FACEBOOK EXAMPLES

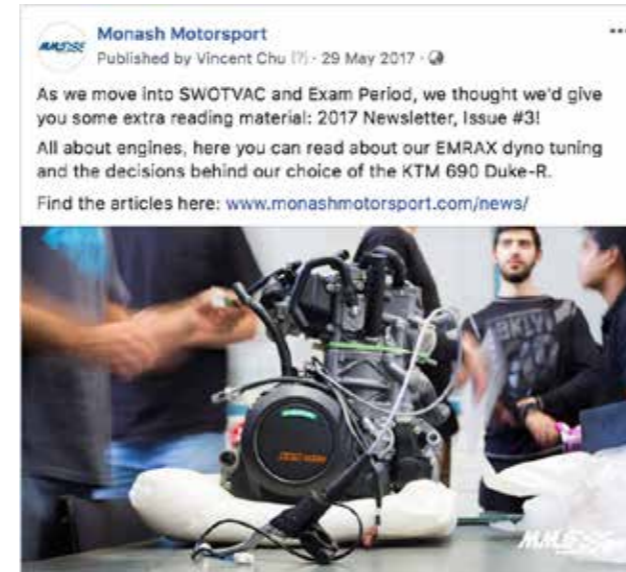
Fellow team achievements



Alumni achievements



Newsletter promotion

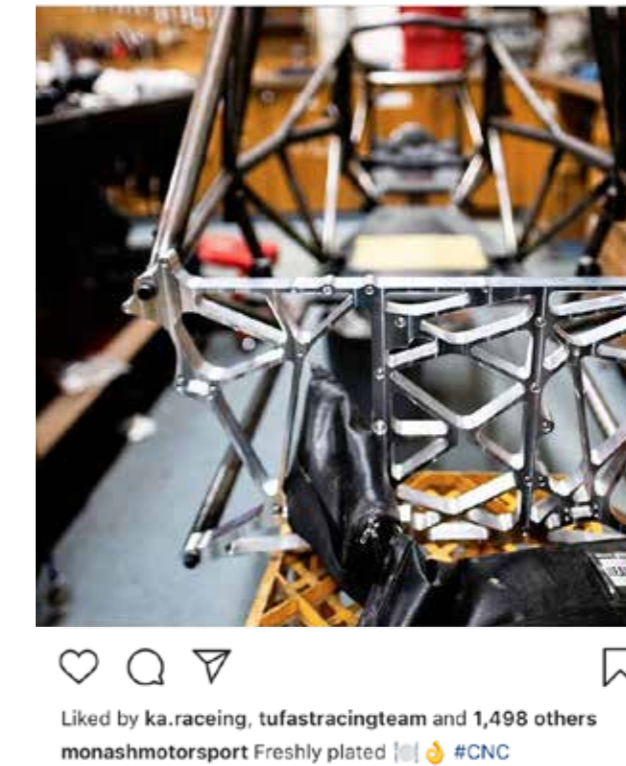


INSTAGRAM EXAMPLES

Vehicle photography



Part highlights



Manufacturing & assembly processes



INSTAGRAM EXAMPLES

Competition coverage



Liked by [formulastudentgermany](#), [fasttube_tuberlin](#) and 522 others

monashmotorsport For the first time, our team has completed all stages of Scrutineering with an Electric car at @formulastudentgermany! 🏎️🔥 Bring on Dynamics! #FSG2018

Team milestones



Liked by [chalmersformula](#), [racetech_racingteam](#) and 780 others

monashmotorsport That's a wrap! 📦 #packed for #Europe2018

Event coverage



Liked by [murmotorsports](#), [rmit_electric_racing](#) and 583 others

monashmotorsport What a pleasure to be amongst such incredible company @motorclassica this weekend 🏎️🔥 #vintage #carsofinstagram

INSTAGRAM EXAMPLES

Aesthetic or technical details



Liked by [etseibmotorsport](#), [fasttube_tuberlin](#) and 703 others

monashmotorsport We've been testing on these tyres for a while. It's almost time for a new set... 🏎️🔥 #hoosiers #durabilitytesting #1500km #soon #fsae

Team members



Liked by [etseibmotorsport](#), [brsmotorsport](#) and 673 others

monashmotorsport Fresh welds but man's still not hot 🔥 #bulk #bulkheads

Artistic shots



Liked by [chalmersformula](#), [ka.racing](#) and 523 others

monashmotorsport Raw power 🏎️🔥 #bigsingle #ktm690 #becausecar #fsae #formulastudent

NEWSLETTER ARTICLE EXAMPLES

Technical details

M17-C AND M17-E TAKE OFF!

The 2017 Aerodynamics packages have been completed and both cars are flying as of last weekend. The Aerodynamics Section worked extremely hard to meet an incredibly tough deadline with not one, but two packages in record time. M17-C will feature a full package with both front and rear wings, an undertray, a nosecone, bodywork, and a Drag Reduction System (DRS), while M17-E will compete with a nosecone and both front and rear wings at the Australasian competition in December. Thanks to the wonderful support we have at Monash University, the Aerodynamics team spent a week in the Monash University Wind Tunnel, collecting data to validate the design of the parts, and observing how each part dynamically impacts the vehicle's interaction with incoming airflow.

The wind tunnel simulates driving at speed by generating airflow, providing valuable data regarding the aerodynamic efficiency of our parts. It also enables us to create the optimal setup for the design of the parts, and the value of any alterations that we can add to the existing package, maximising the number of points we score at competition.

Using ANSYS CFX, provided by our long-term partners at LEAP Australia, the Aerodynamics Section spends a large chunk of the design period performing Computational Fluid Dynamic (CFD) analysis. After each CFD run, the software produces data which is then analysed before applying design changes to try and improve results on the next run. The team attempts to perform as many quality runs as possible to experiment with different design variables. These design changes are made in NX 10.0, Monash Motorsport's primary CAD software generously sponsored by Platinum partner PhoenixPLM. Whilst maximising downforce is our primary goal, some other factors that contribute to the design of the parts are the rules set by FSAE (the governing body of the Formula Student competition), structure and failure modes, performance targets such as lift and drag coefficients, manufacturability of the part, cost, and how the individual parts integrate together. All of these factors are taken into careful consideration to produce the best performing and most reliable package possible.

Integration of the package is one of the most important aspects for the Aerodynamics Section. The front wing is not only important in generating downforce due to its proximity to the ground, but for redirecting airflow around the tires and into the bodywork. Aerodynamics is also responsible for cooling, meaning that manipulating the air is required to cool the engine via the radiator which sits inside the bodywork. Airflow inboard of the front tires is redirected through the undertray tunnels, which restricts the air to the centre section, decreasing the local air pressure, hence maximising downforce. The air being pulled from the side diffusers flows inside of the endplates beneath the rear wing mainplane. As the velocity of the stream is increased, the high pressure air above the rear wing mainplane will produce downforce. The aerodynamic parts work together as one long chain to ensure airflow remains attached and guided so each part can perform as intended.

Now that M17-C and M17-E have spread their wings, on-track validation will be the next big step for the Aerodynamics Section. Check out the video of M17's first flight here.

Sponsor promotion

3D SYSTEMS — GOING WITH THE FLOW

Despite a fantastic 2017 with one of the most complex aerodynamics packages to date, Monash Motorsport continues to innovate and improve the car in preparation for our European campaign in the middle of the year. As such, a select few parts were chosen to be redesigned in order for M17-C and M17-E to reach its full potential; among those redesigned parts is the front wing.

The front wing is crucial to developing a proper air flow structure throughout the car. It provides downforce, directs flow to the rest of the aerodynamic parts, and helps establish the aero balance. The design period involves designing the front wing using CAD, running simulations using computational fluid dynamics (CFD) and structural design. Once the ideal results have been achieved, the Aerodynamics section then moves on to manufacture the front wing.

In order to achieve similar results to our CFD simulations, it is important that the manufacturing is meticulous. A big part of the design process involves mould design. Much like in 2017, this year's front wing involves a 3D flap design to generate vortex structures which help direct the flow to the undertray and bodywork. Thanks to our sponsor, 3D Systems, we are able to obtain a mould that provides a fantastic finish with significantly reduced manufacturing and post-working time.

The moulds were made using a technique called stereolithography (SLA), which is an additive manufacturing process which uses an ultraviolet laser focusing on a vat of photopolymer resin. The resin solidifies and forms a layer of the desired object, in this case our front wing flap moulds. Once the moulds have been printed and delivered to the team, the moulds are then spray painted with a coat of primer and sanded down to provide an almost glass-like finish. Having a smooth finish helps lessen the skin friction drag generated through air flow as it is directly proportional to surface roughness. Thankfully, the finish that 3D Systems On Demand Manufacturing delivers us is so smooth that we required minimal postworking to get the moulds lay-up ready.

After prepping the moulds, it's then time to lay-up the carbon fibre over the mould. We use a technique called wet-layup – wetting the carbon with resin and vacuum-forming it in a bag to allow the carbon fibre to conform to the mould. The carbon part is then trimmed and glued together, forming M17's new flaps.

Previously, we utilised foam to construct our flap moulds and the manufacturing process of the flaps would have taken a couple of months. Given the intricate design of our front wing flaps and the challenge of manufacturing two sets of front wings for M17-C and M17-E, it would not have been possible to achieve our strict deadlines using previous methods.

3D printing was chosen as an alternative method to minimise the time needed to construct the moulds and would also allow us to retain the complexity of the design. Rather than using inhouse 3D printing machines, we decided to outsource the printing to 3D Systems – On Demand Manufacturing as they would also be able to offer a variety of material options as well as technical expertise. The printed flap moulds we received from them have exceeded our expectations in terms of turnaround time and quality of finish.

Thanks to the invaluable support of our sponsor 3D Systems – On Demand Manufacturing, and their premium quality printing, we are able to manufacture multiple flaps, helping us to achieve our quickest manufacturing period to date.

NEWSLETTER ARTICLE EXAMPLES

Competition coverage

FSAE-AUSTRALASIA 2017: ONE TEAM, TWO CARS.

Preparation for the 2017 Formula Student Australasia competition was much more thorough and rigorous than previous years. With the goal of racing both the electric and combustion cars on track, we began testing much earlier and more frequently than we had in the past. After months of hard work put in by our day time 'testing crew' and evening 'maintenance crew', the countless hours spent practicing for the Static events, and with over 1800km of testing under our belts, the competition was finally upon us. We warmly welcomed our friends from University of Auckland and Griffith University back to our workshop and together we packed our trailers in preparation for the big weekend.

On the 7th of December, our team left the workshop in the early hours of the morning to arrive at Calder Park Raceway by 7am. We immediately set up the pits and had both cars side by side, first in line for Technical Inspection. The combustion car passed scrutineering and driver egress with flying colours. The electric car also had to jump through a few hoops to pass electrical scrut and mechanical scrut, once it passed as well, the team had time to run the required checks on the cars and practice for static events.

Friday began with Brake Test, followed by the Tilt and Noise Tests. Meanwhile, the combustion car Business Presentation marked the first static event of the day, followed by the Engineering Design Event for both cars at 10am and the electric car Business Presentation beginning at 2pm. Having passed scrutineering as early as possible with both cars, our team members were given enough time to change and gather relevant materials for each event with minimal hassle. We seized the opportunity to take the cars out onto the practice track for a couple of laps, and were fortunate enough to have our cars featured in a news segment on Channel 9. The combustion car Cost Event was set to begin at 3pm and the electric car Cost Event concluded the day at 5pm. With static events done and the cars ready to race, the team went back to camp to rest up for a much anticipated weekend of dynamic events.

Day 3 of the competition ran a different schedule compared to previous years. Instead of running both events concurrently, Skidpad was the first event of the day, followed by the Acceleration event commencing in the early afternoon. M17-C and M17-E quickly presented themselves as strong contenders, with both cars setting the fastest Skidpad times of their respective classes at 5.216 seconds for the combustion car and 5.306 seconds for the electric car. Following a quick break, the cars were back in action for Acceleration. The electric car set a time of 4.31 seconds early in the event, but our experienced Acceleration driver, Paul, was able to harness the full potential of the combustion car and surpassed the time set by the M17-E by a thousandth of a second. A little tweaking of our Launch Control system certainly didn't go astray either. These times were not beaten until the University of Queensland Racing team set a time of 4.20 seconds, placing them in first place in the electric car Acceleration event. A new statics feedback initiative took place afterward, allowing judges to give overall feedback on the events and giving teams the opportunity to ask more specific questions. Static result announcements finished off the day, leaving the team in high spirits before the biggest day of the year.

Monash Motorsport set a high standard across the board in the static events, placing first for both categories of the Engineering Design and Business Presentation Events, alongside a strong third and fourth for Combustion Cost Event and Electric Cost Event respectively.

Sunday marked the fourth and last day of the competition with everyone waking up full of nerves and excitement for a second day of dynamic events. The new schedule of dynamic events also brought about new rules. In 2017, Autocross and Endurance runs reverted to the European competition format, with Autocross limited to two drivers with two runs each, and Endurance now limited to a single heat – placing a much higher emphasis on a vehicle's reliability. Autocross started at 9:30am, but there was a delay due to an oil leak on the track. However, our M17-C driver, Will, and our M17-E driver, Joe, were both able to set the quickest times, with both cars being very well adjusted on the track. As the day progressed, it was encouraging to see a crowd forming from the viewing area, full of families, friends and other spectators that came to support and cheer the teams on. The running order for the Endurance event had Combustion cars first, followed by Electric cars, with the line up being based on the Autocross times, slowest to fastest. Having placed first in Autocross, both M17-C & M17-E were set to run last in their respective Endurance category line ups. Our cars were about to be put through the ultimate test – tensions were high. They say it's the most stressful 20 minutes of the Formula SAE-A year – they forget to mention that with two cars, you have to go through it twice. M17-C crossed the finish line first, after some blistering laps by one of our senior drivers, Andrew McCarthy, and the team was ecstatic. When M17-E finished off the Endurance heat, the feeling was indescribable. For the first time ever, having two cars present at the competition and successfully complete all dynamic events, the team was absolutely over the moon.

The team is proud to announce that Monash Motorsport placed first Overall in both the Combustion and Electric categories in the 2017 Formula SAE-A competition – making it one of the most successful competitions in Monash Motorsport history. We would also like to congratulate the University of Wollongong and Curtin University for placing 2nd and 3rd respectively in the Combustion category, as well as University of Technology Sydney and University of Queensland for placing 2nd and 3rd respectively in the Electric category.

A big thank you to SAE Australia for putting in the effort to ensure that this fantastic and rewarding Australasian competition would go ahead, despite the difficulties that arose earlier in the year. It was also encouraging to see teams pulling together during the time of uncertainty and we thank everyone who put in the effort to ensure the event went ahead. We enjoyed competing alongside everyone, and we cannot wait to see you all at the 2018 competition!

We would like to extend our gratitude towards Monash University, KTM Australia, Marand, Hare and Forbes, Wirawaji, Form-a-Sign, ZF Group, PhoenixPLM, Wago and Calm Aluminium; thank you for your generosity and invaluable support throughout the year. Without the help of our sponsors, we would not have been able to achieve what we did in 2017.

Finally, we would like to thank our academic advisors, valued sponsors and industry partners, family, friends and our supporters from around the world who have encouraged us to overcome the trials and tribulations of competing in Formula SAE, resulting in the achievement of the goal we set at the beginning of the year. 2017 has laid the foundation for a bigger and more ambitious 2018. This year we plan to embark on a Europe campaign, competing with both the electric car and combustion cars at the Formula Student UK, Austria and Germany competitions. Monash Motorsport looks to make its 2018 even bigger than its 2017, and we'd love to have you along for the journey.

Without further ado, here are the official results from the 2017 Formula SAE- Australasia competition:

M17-C in the Internal Combustion category:
 Overall: 1st
 Engineering Design: 1st
 Business Presentation: 1st
 Cost: 3rd
 Skidpad: 1st
 Acceleration: 1st
 Autocross: 1st
 Endurance: 1st
 Efficiency: 5th
 Total points: 959.4

M17-E in the Electric category:
 Overall: 1st
 Engineering Design: 1st
 Business Presentation: 1st
 Cost: 4th
 Skidpad: 1st
 Acceleration: 2nd
 Autocross: 1st
 Endurance: 1st
 Efficiency: 5th
 Total points: 919.4

OUR LOGO

The only logo to be used should be in its most recent form, last updated in 2016, and is used in three colours – navy blue (from the brand colour palette), black and white.

The blue logo variant is the primary variant and best represents the Monash Motorsport brand identity. It should only be used on white or near-white backgrounds.

The white logo variant is more versatile, with high contrast in a larger variety of examples – most notably in almost all team photos and videos, as seen in Figure 4 as a watermark.

Finally, the black logo variant should only be employed in black and white media when colour is not feasible, and when the use of the white logo variant does not provide sufficient contrast with the background, as pure black is not a part of the Monash Motorsport branding colour palette.

Colour variations



WHAT TO DO

Using our logo is pretty easy, just keep it as it is.

Leave some space



Be bold, be simple



WHAT NOT TO DO

Change the aspect ratio



Use a colour outside of our palette



Place it misaligned



Use multiple instances on one surface



OUR COLOURS

The Monash Motorsport colour palette consists a primary navy blue, a secondary white, a light blue as a highlight colour, and supporting dark grey.

The navy blue and white components of the palette should be used in mostly equal proportion. The primary navy blue draws upon the our established identity, representing professionalism and technological advancement. It is inspired by navy blue from the Monash University brand guidelines, lightened slightly for a fresher, younger and more technologically advanced look.

Use of white brightens up team visuals, representing the open and communicative qualities of the team, lifting the otherwise dark and heavy palette. It is also particularly useful for highlighting certain forms in three-dimensional space, as on the vehicle itself. The light blue provides more tools to create modern and sophisticated graphics - this hue is also a brightened version of the accent from the Monash University

brand guidelines. The dark grey complements this sophisticated and modern look, as opposed to pure black.

Note that no gradients are used, to keep a clean and modern look, while also being simpler to maintain brand consistency and ease of practical application (as in the case of vehicle livery).



Navy Blue

#006EB0
R: 000
G: 110
B: 176

C: 90.26%
M: 55.21%
Y: 04.04%
K: 00.11%

Pantone 307 C



White

#FFFFFF
R: 255
G: 255
B: 255

C: 0%
M: 0%
Y: 0%
K: 0%

-



Light Blue

#1D9EDA
R: 029
G: 158
B: 218

C: 73.73%
M: 21.96%
Y: 00.00%
K: 00.00%

Pantone 2925 C



Dark Grey

#48484A
R: 072
G: 072
B: 074

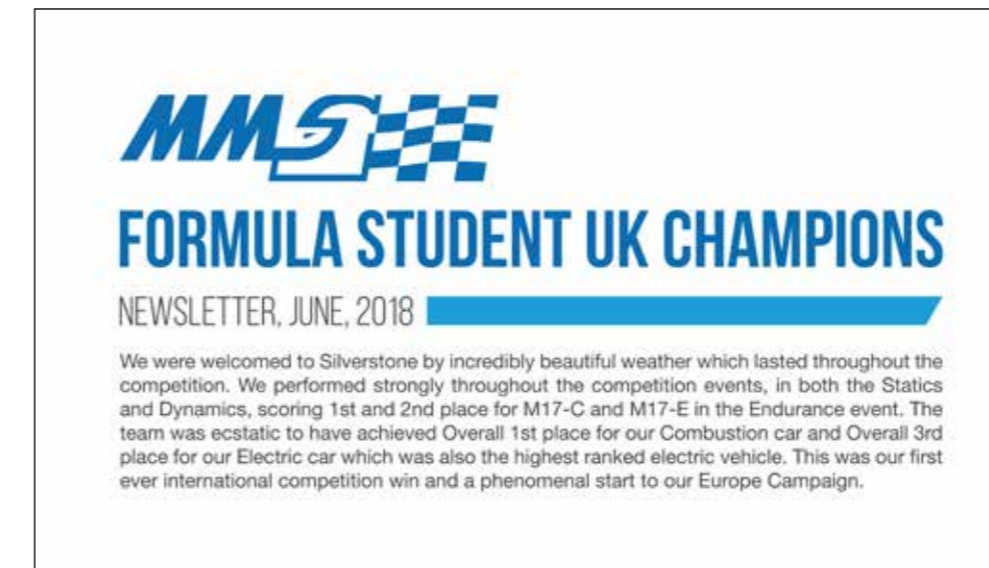
C: 67.06%
M: 60.00%
Y: 56.47%
K: 39.61%

Pantone 7540 C

OUR STRIPE

The angled stripe device is used to add a simple element which ties in the styling of various documents under the Monash Motorsport brand, without the need for repetitive logo use. The device should most commonly appear in the brand's light blue, given it will typically be supporting navy blue titles or other similarly hierarchically higher elements.

Usage examples



The device has an angled geometry on the far right, cut at 59.5° to follow the leftmost angle of the 'M' used in the 'MMS' logo. The height of this device should be maintained such that the angle is still visible, as opposed to reducing a perceived vertical line.

Device construction



OUR TYPEFACES

The title typeface employed within Monash Motorsport branding is Bebas Neue (Bold), and typically in the Monash Motorsport navy blue, or white when lacking contrast on dark backgrounds. Bebas Neue (Bold) can also be used for headings in order to maintain readability if text size is required to be reduced.

Bebas Neue (Book) is used for headings at the second level of visual hierarchy, in dark grey.

Helvetica Neue (Regular) is used as the typeface for body text, as it is widely accessible, particularly in Google Docs and Slides applications, which are commonly used by the team.

Note also that all typeface colours are taken directly from the colour palette, including dark grey body text.

Title
BEBAS NEUE (REGULAR)

Heading 1
 BEBAS NEUE (BOOK)

Heading 2
Helvetica Neue (Bold)

Body
 Helvetica Neue (Regular)

TYPEFACE USAGE EXAMPLE

*See also the Graphic Device examples, and also this Brand Management Guidelines document.



The Monash Motorsport Facebook cover image following the Formula Student UK 2018 competition.

OUR PHOTOGRAPHY

Photography is used as a storytelling device, providing content for social media in a photojournalistic manner. Styles will differ between content, platforms and the photographer's personal style, technical skill and available technology. The aim of team photography is to tell the Monash Motorsport story, as opposed to solely the final product, maintaining an open and interactive approach to our external stakeholders.

The quality of our photography is of particular importance, given its status as the most interactive and consistent face of the team to external stakeholders, reflecting our values of Professionalism and Performance.

It is important to include team members in team media - a factor missing from many professional yet clinical European teams. We show the human and student aspect of the project, emphasising the engineering design, learning and development focus, as opposed to the automotive and motorsport competition facets.

Typical applications of photography techniques hold within the Monash Motorsport style, including the use of the Rule of Thirds to generate tension, energy and interest in composition, the use of wide and telephoto angles to set a scene or capture emotion and detail respectively. Shallow depth of field is employed heavily with the use of both foreground and background elements together with the actual subject, in order to set the viewer in the scene.

A mix of styles is employed to cover the various types of content and emotions of the Monash Motorsport story, from capturing the vehicles on track with high shutter speed 'freeze' and low shutter speed 'motion blur', to wide scenes, team members or events and detailed product and processes shots.

Be creative!

The team vision, values and associated qualities can be translated in photography by employing:

- An uplifting, welcoming and optimistic mood
- Natural light
- Authentic poses
- Shallow depth of field
- The use of people to tell a story

For that Monash Motorsport touch, minor editing usually takes place in post-production, including:

- Warmth (temperature) increase
- Contrast increase
- Manipulating shadows and highlights for detail
- Slight saturation and vibrance increase
- Colour fringing/aberration removal
- Crop to 16:9 (for Facebook) or 1:1 (for Instagram)
- Add white logo watermark (for Facebook)

Watermark Settings:

Opacity: 100	Size: Proportional, 10
Inset: Horizontal 6, Vertical 5	Anchor: Bottom Right

Finally, while team photography is predominantly used for external communications, it is also used for internal documentation, usually in relation to technical designs, processes and outcomes, for knowledge transfer purposes. To meet these requirements, artistic and creative considerations are not required, and instead, the focus should be placed upon high quality, clear documentation of the subject at hand. Of course, these subjects are usually also of interest to our external stakeholders, and as such, content should also be created for these communications following our usual branding style.

This documentation often occurs during the phases of:

- Manufacturing, to record processes and issues
- Validation, to record results
- Testing, to record part failures for further investigation
- Competition, to document competitor solutions

PHOTOGRAPHY EXAMPLE

Vehicle on track - Telephoto



Camera Settings
 110.6mm (APS-C)
 f/2.8
 1/1500 sec
 ISO 200

Notes

Using a high shutter speed, it is possible to 'freeze' the car's motion, making it easier to produce in-focus subjects. The high shutter speed also affords a low aperture setting, and with the use of foreground and background elements, help to create depth in the scene. This is the safest and most consistent style - always start here to ensure you've got some usable keepers before experimenting further!

PHOTOGRAPHY EXAMPLE

Vehicle on track - Wide



Camera Settings
 50mm (APS-C)
 f/2.8
 1/3800 sec
 ISO 200

Notes

By using a wider focal length, you can capture more of the environment to set the scene or show scale. With cars on track, watch their typical racing line, then plan your composition in advance - with a high shutter speed, it is easier to freeze the car right where you want it in the frame. Just remember with a low aperture, you may lose some detail in the background. You could use a wider lens to further exaggerate scale and perspective.

PHOTOGRAPHY EXAMPLE

Motion blur - Side on



Global Formula Racing's GFR18e testing at in the rain, Ehingen, Germany, 2018.

Camera Settings
42mm (Mirco 4/3)
f/16
1/15 sec
ISO 100

Notes

By reducing the shutter speed and tracking the subject with your camera keeps the subject still relative to the camera sensor, creating the illusion of a moving background to create a dynamic sense of speed and motion. It works best if you track the car into your desired composition, hit the shutter button and follow through with your body, a bit like a golf swing. Side on shots of cars are the easiest place to start. Practice makes perfect!

PHOTOGRAPHY EXAMPLE

Motion blur - 3/4 view



M17-E in Skidpad for the Formula SAE-Australasia competition, Calder Park Raceway, Australia, 2017.

Camera Settings
77.3mm (APS-C)
f/10
1/100 sec
ISO 200

Notes

If you are not facing perpendicular to the car (as in the side on shot), you will only get a part of the subject in focus. For vehicle shots, usually nailing focus on the driver's helmet looks best. These shots can look much more dynamic, but can be more difficult to produce a usable image.

As with all motion blur style shots, start at a shutter speed of 1/250 and work your way down as you improve your hit rate.

PHOTOGRAPHY EXAMPLE

Wide environmental scene



Camera Settings
 17mm (Full Frame)
 f/8
 1/1600 sec
 ISO 400

Notes

With a wide angle lens, you can show the entire environment and also exaggerate your subject's proportions. These kinds of shots are great for adding that 'wow' factor. As a wide angle lens shows so much more, it can make composition a little more difficult, as you have less control over what makes it into your frame.

Try combining this with the motion blur technique for some interesting results!

M17-C at the Bosch Boxberg testing event, Boxberg, Germany, 2018.

PHOTOGRAPHY EXAMPLE

Wide environmental scene



Camera Settings
 16mm (APS-C)
 f/8
 0.5 sec
 ISO 200
 5 image composite

Notes

Here's your standard hero shot in the Monash Wind Tunnel! Use a tripod to keep your frame in the same position and increase your shutter speed to smooth out the smoke trails. Take photos at intervals, then overlay them in post-production; this image has five photos overlaid - one for each trail.

As with all wide angle shots, use perspective lines to your advantage to draw the viewer's eye across the image.

Flow visualisation over M17-C in the Monash Wind Tunnel, Australia, 2017.

PHOTOGRAPHY EXAMPLE

Behind the scenes



Miguel Arrieta sanding down the nosecone mould, Monash University, Australia, 2017.

Camera Settings

Unknown

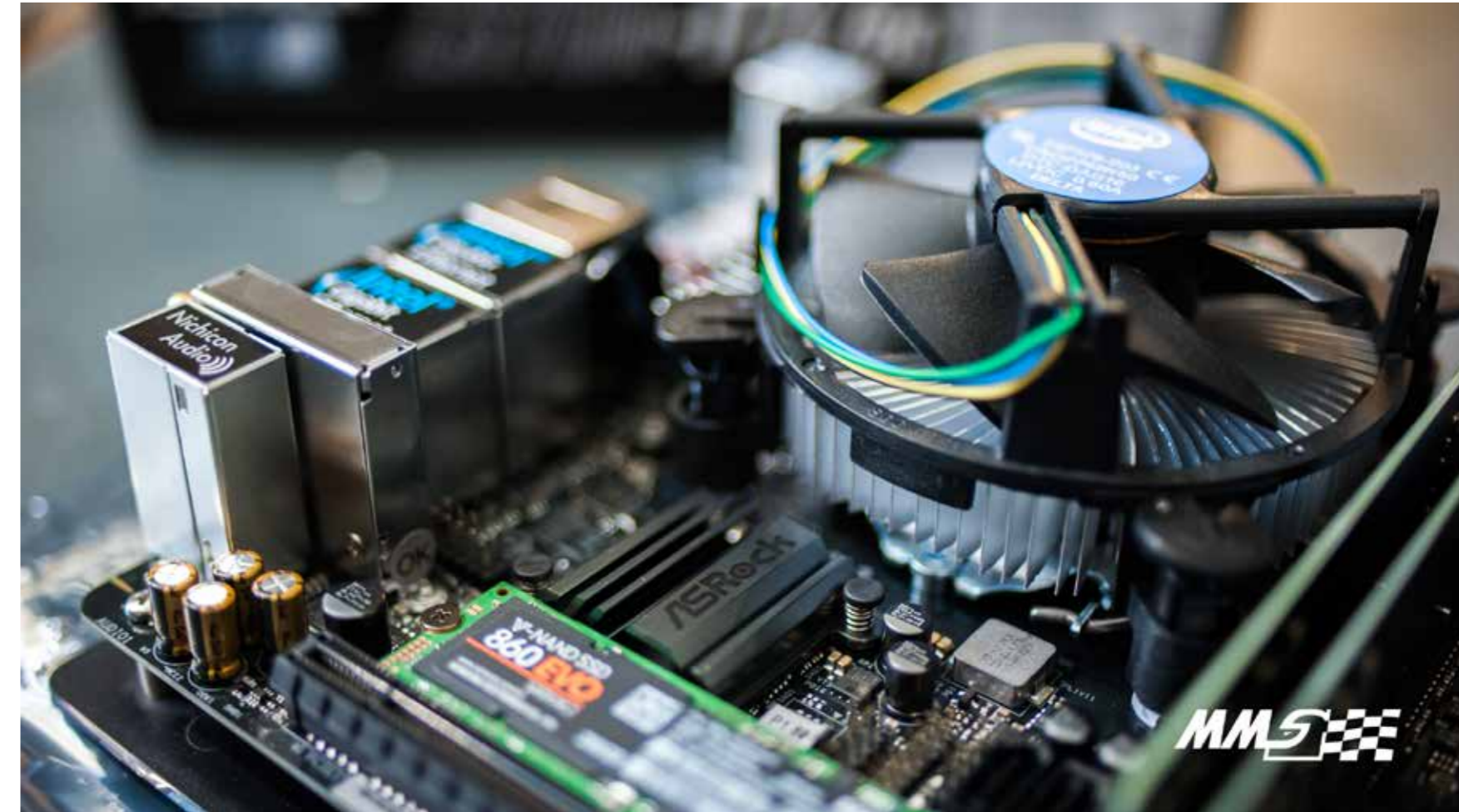
Notes

Competition is just the final chapter of the Monash Motorsport story - we always want to show what goes on behind the scenes to produce our cars, and capturing the design, manufacturing and testing processes is key. Work with the team to capture not only the finished products, but the people (and faces) behind them too.

Remember, our story is much more about the engineering design, learning and development than it is about the cars themselves.

PHOTOGRAPHY EXAMPLE

Technical details



Camera Settings

35mm (Full Frame)
f/2
1/60 sec
ISO 800

Notes

It is not just about the car! Show all the technical details of what makes our cars what they are. Create shallow depth of field by using a low aperture setting to isolate and show off interesting visual details. Figure out which areas are most technically interesting and unique, and include these engineering developments we make as a team in the story.

Make sure you chat to the team's technical leaders!

PHOTOGRAPHY EXAMPLE

Our team members



Camera Settings
 50mm (APS-C)
 f/2.8
 1/1700 sec
 ISO 200

Notes

Our team would not be what it is without its team members. Show the human side of Monash Motorsport by capturing not only the cars and engineering, but also those behind it all. Candid, natural shots are best, as opposed to those that are set up and posed. Try to capture the emotion in those special moments - be there for the car's First Drive, as the new engine fires up for the first time on the dynamometer, and as we finish that final Endurance.

Giancarlo Moca before the Formula Student UK Endurance, Silverstone Circuit, United Kingdom, 2018.

PHOTOGRAPHY EXAMPLE

Team portraits



50mm (APS-C), f/1.8, 1/80 sec, ISO 800



50mm (APS-C), f/3.3, 1/2000 sec, ISO 800

PHOTOGRAPHY EXAMPLE

Hero photoshoot



Camera Settings
 16mm (Full Frame)
 f/13
 1/250 sec
 ISO 320

Notes

These shots show off the cars in all their glory - usually taken after a Launch Night or competition. With high visual impact, they are useful for promotional media. Using a wide angle lens helps to exaggerate the car proportions, as does getting low to the ground to create a strong stance.

For light flares, remove the lens hood and face the light source, while sunstars are produced at higher aperture settings.

M16 after the Formula SAE-Australasia competition, Calder Park Raceway, Australia, 2016.

PHOTOGRAPHY EXAMPLE

Vehicle hero photoshoot



Camera Settings
 16mm (APS-C)
 f/5.6
 1/180 sec
 ISO 200

Notes

It can be tricky to find the balance between using a high aperture setting to get the whole car in focus, and a usable shutter speed or ISO setting.

You will also find that backgrounds are not always perfect, and may require some post-production editing. This example had the main straight lights in the top right corner, which have been replaced with some sky and clouds in Adobe Photoshop.

Digitally alter photos if you need to!

M17-E and M17-C after the Formula Student UK competition, Silverstone Circuit, United Kingdom 2018.

PHOTOGRAPHY EXAMPLE

Whole team portrait



Camera Settings
 135mm (Full Frame)
 f/8
 1/320 sec
 ISO 125

Notes
 A standard shot for many official media uses, these show the scale of the team.

The team can be impatient, especially after a week of Launch Night preparation or competition, but feel free to work with them - remove sunglasses, and pose uniforms to show sponsors.

A high aperture setting will get everyone's face in focus, with a decent shutter speed freezing movement.

The 2017 team after the Formula SAE-Australasia competition, Calder Park Raceway, Australia, 2017.

PHOTOGRAPHY EXAMPLE

Artistic - Extreme tracking blur



Camera Settings
 50mm (APS-C)
 f/22
 1/8 sec
 ISO 200

Notes
 By significantly reducing the shutter speed, you can add an almost paint-like quality to the image. It is important to consider the composition as a whole.

This follows the same technique as the motion blur examples previously mentioned - remember, the slower the shutter speed, the harder it will be to nail focus on your subject. Your shutter speed will often be limited by the maximum aperture of your lens.

M17-C Endurance testing, Haunted Hills hillclimb track, Australia, 2018.

PHOTOGRAPHY EXAMPLE

Artistic - Static blur



Camera Settings
102.2mm (APS-C)
f/8
1/8 sec
ISO 200

Notes
A similar principle to the motion blur examples, by keeping the camera still as the car drives by with a slow shutter speed, the car will leave a trail of colour across the frame. Use static points of reference to emphasise the movement.

The same technique can be used in the workshop to create motion blur as team members move around, creating a sense of productivity and a flurry of work.

Global Formula Racing's GFR18e, Ehingen, Germany, 2018.

PHOTOGRAPHY EXAMPLE

Artistic - Long exposure



Camera Settings
50mm (APS-C)
f/13
5 sec
ISO 200

Notes
Long exposure photos work best with a strong light source - brake lights and electric car TSALs work well. By using a tripod or placing the camera on a static, stable surface, you can create a sharp image even with such a slow shutter speed

Working to ensure correct exposure levels can be difficult, and you will typically be limited by the level of natural light and maximum lens aperture. You could try using an ND filter.

M17-E coming to a halt on the Audi test track, Munich Airport, Germany, 2018.

OUR VIDEOGRAPHY

Videography is an integral part of the Monash Motorsport storytelling process, and should be carefully produced to maintain the team vision and values.

We use video to complement other communications, conveying larger team milestones or events, such as competitions, important testing sessions and major team announcements.

It is, however, also used to display more minor, yet interesting and engaging content, with onboard driving footage serving as a prime example. Video content often sees lower engagement numbers than traditional static content, however provides a far greater insight into the team and its activities, while also being seen as valuable particularly for team members, friends and family, as mementos and more accurate representations of past events. These videos are also useful as engagement tools, played during recruitment periods, promotional events and tours.

Our videography style consists predominantly of 'B-roll', or artistic supporting footage, usually without a main narrative clip. The Monash Motorsport video style is heavily music dependent, with editing almost always dictated by the video soundtrack.

Consideration should be given to the proportion of footage between vehicle, product and people, and given our heavily music-dependant editing style, also to the soundtrack choice, ensuring all team visions and values are represented. This makes soundtrack choice a difficult process, as it can rule out many otherwise ideal soundtracks for editing. Avoiding violent, offensive, politically loaded or expletive lyrics and messages is vital, and failing to do so could lead to serious repercussions to the entire project and even the university. This applies also to the content in both video and photo media.

Monash Motorsport videos are exported at 25 frames per second (for a cinematic look and to allow for higher instances of slow-motion footage) in 1080p high definition resolution.

Logo sequences are employed to bookmark clips to further emphasise the brand. The introduction sequence sees two overlaid navy blue logo images on a gradient background image - one is only the helmet element, and another is the complete logo. Both begin at 30% scale and scale up to 33%, with the whole logo image increasing from 0% to 100% opacity, over the sequence duration. The ending sequence features the same background image with a negative complete logo cut out. This gradually fades in from 0% to 100% opacity, creating a window through which the final clip plays through. Once at 100% opacity, a complete navy blue logo fades in over the top to 'close the window'.

See the following videos as examples of various video types, editing styles and techniques.

VIDEO EXAMPLES

Competition coverage: 2017 Formula SAE-Australasia
vimeo.com/monashmotorsport/auscomp2017
 A competition highlights video, showing all stages of the competition weekend.

Recruitment: Challenge Yourself
vimeo.com/monashmotorsport/challengeyourself
 A fast paced, exciting and short duration video for recruitment and promotion.

Interview: Monash Motorsport 2017 Launch Night Video
vimeo.com/monashmotorsport/2017launch
 Shown at Launch Night to show off our work over the year to our audience.

Alternate Editing Techniques: Ehingen with Global Formula Racing
vimeo.com/monashmotorsport/testingwithgfr
 A highlight video from an important testing session, with a mix of drone footage, 120p slow motion clips and footage transition techniques. Also check out the 2016 Formula Student Germany competition highlights video.

Onboard: Formula Student Germany Track Simulation at the AARC
vimeo.com/monashmotorsport/fsg-aarc2018
 Onboard footage from a particularly important testing session - chat to drivers to pick the best lap from GoPro footage.

Teaser/Announcement: One Team. Two Cars?
vimeo.com/monashmotorsport/oneteamthreecars
 Short and high impact to announce some exciting news from the team.

Technical Processes: 2017 Undertray Layup Timelapse
vimeo.com/monashmotorsport/undertraytimelapse
 An example of showing off the team's manufacturing processes behind the scenes.

OUR LIVERIES

Car liveries are one of the major players in our brand, as for many of our external stakeholders, the our cars make up almost the entirety of the team identity.

As such, the way the look is a vital part of our brand management, and while many factors are out of a brand manager's control (ie. technical design), there is scope for influence in the car's livery.

All brand elements should be consistent and applied to the livery design, including colour palette and colour proportions. The aim should not only be for every vehicle livery to make the car immediately recognisable as a Monash vehicle, even from a distance, but also for all cars to come visually from the same family when placed side by side. This is an issue evident when considering the various livery designs from 2009 to 2015. Since 2015, consistent use of a colour palette, proportions and similar visual flow across cars have aligned livery designs under our established brand, and kept vehicles under the same family.

Livery design is typically applied to aerodynamic devices, with potential for application to carbon monocoque chassis also. A balance should be found between displaying the team's carbon manufacturing prowess, and branding requirements. While a complete carbon car may look beautiful, it is not specifically recognisable as a Monash car.

White sections highlight three-dimensional forms and changes in surfaces well, and are also most effective in defining the vehicle shape when on track, against the dark tarmac background. It is also important to maintain a strong proportion of Monash blues - keep in mind it is not always possible to find vinyl that offer an exact match to the colour palette.

As with all of our branding elements, high contrast, simple shapes offer a professional yet bold aesthetic. Being easier to physically apply vinyl also serves as an added benefit of simple designs.

LIVERY DESIGN EXAMPLE

M16



LIVERY DESIGN EXAMPLE

M17-C & M17-E



LIVERY DESIGN EXAMPLE

M18-C & M18-E



OUR UNIFORM

Team uniform is one of the ways in which team members immediately come to represent the Monash Motorsport identity and brand. Worn at external events, competitions and also on a casual basis, the team has a range of uniform garments for different purposes, and it is important to ensure that garment designs fall under our design guidelines and fulfil their requirements.

All garments should feature the Monash Motorsport logo, and also follow our colour palette where possible, with navy blue being the primary garment colour.

Competition polos are used for official events and competition, with sponsor logos represented. The design should be kept professional, with logos laid out in an organised logical manner.

Hoodies and jackets are relatively expensive for students, and as such, do not feature sponsor logos to extend the garment's longevity and usability over multiple years, even if sponsors change.

All other casual garments are fairly simple in design for versatility, with non-logo text elements employing brand typefaces.

Text should always be professional and of course represent our team vision and values - including individual nicknames and shirt taglines.

Remember to consider how the team will look when dressed in uniform together, as well as individually. Also consider how our members will be identified as the Monash unified team when at competition, among the uniforms of other competitors.

UNIFORM DESIGN EXAMPLES

Competition polo



UNIFORM DESIGN EXAMPLES

T-Shirts



UNIFORM DESIGN EXAMPLES

Outerwear





FINAL WORDS

There is such a diverse range of people with hugely varied skill sets that contribute to Monash Motorsport and the Formula SAE project, all of whom are vital to our success.

Management of the Monash Motorsport brand plays a key part in our operation as a high performance team, and goes a long way towards achieving our vision of being **the most respected Formula SAE team in the world.**

Thanks to all who have contributed to Monash Motorsport's Business section and its development over the years.

Now it's your turn.
Go tell the Monash Motorsport story.

- Vincent Chu, 2018

MONASH MOTORSPORT 2018