MAGAZINE 2016

Formula Student Germany

AUGUST 9TH – 14TH 2016
HOCKENHEIM

AN INTERNATIONAL DESIGN COMPETITION OF SKILLS, SPEED AND SPIRIT

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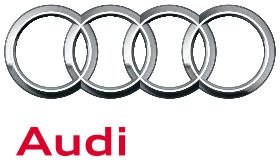

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A special thanks goes to the numerous volunteers who contributed significantly in the realisation of the eleventh Formula Student Germany.

Editorial

Dear guests, participants and friends of Formula Student Germany

2016 is the start to the second decade of Formula Student Germany and the motivation and passion is still as strong as ever:

This year, 75 combustion cars, 40 electric cars and new driverless concepts will be on show at the Hockenheim Ring in August, to compete in their various categories of the engineering design competition.

From interviewing / talking to our sponsors, as well as observing the latest media, it is clear that **digitalisation, electrification** and **mobility** are some key words coming from the engineering industries this year. The FSG team have once again listened and acted, by tailoring the rules for the event to meet these demands.

Not only this, but we are also excited to be showing off the first ideas for a Driverless Competition, at our 2016 **"Competition Before the Competition"**, where students have been asked to create a concept as to how a Formula Student car could be driven autonomously.

Though the established teams are reaching new levels, such as world records for fastest acceleration and partnerships with sponsors in developing state of the art technologies, FSG is still seeing the arrival of new teams from new corners of the world, as they become part of the cosmopolitan FSG community.

Every team will arrive at competition with their individual targets, there will be some who will excel in demonstrating their design skills, some in their concept skills, some in their driving performance, some in their marketing skills, some will show us how they can work together to solve the most unexpected problems in the shortest amount of time and of course, some teams will win!

This will be my ninth year involved in FSG and seventh year volunteering as part of the FSG organisation. It is a fun team to work in with lots of crazy ideas and crazier people to bring them to reality. I am still amazed by the progress that has been made by the teams since I started and love to see familiar faces returning every year to continue to support.

I wish all the competitors the best of luck and all those watching, a wonderful time.

Alia Pierce
FSG Communications/
FSG TV

Liebe Gäste, Teilnehmer und Freunde der Formula Student Germany,

2016 starten wir in das zweite Jahrzehnt Formula Student Germany – voller Motivation und Leidenschaft!

Dieses Jahr werden wir 75 Verbrenner- und 40 Elektroautos sowie, erstmals in diesem Jahr, „fahrerlose" Konzepte im August in Hockenheim sehen, wie sie in den unterschiedlichsten Disziplinen des Konstruktionswettbewerbs gegeneinander antreten.

Aus Gesprächen mit unseren Sponsoren haben wir die Themen **„Digitalisierung"**, **„Elektrifizierung"** sowie **„Mobilität"** als aktuell wichtige Trends der Automobilindustrie mitgenommen. Um diesen Anforderungen zu genügen, haben wir die Regeln entsprechend angepasst.

Aber nicht nur das: Wir freuen uns sehr, dieses Jahr die ersten Ideen für einen **„Wettbewerb vor dem Wettbewerb"** zum Thema „Autonomes Fahren" zu zeigen. Aufgabe der Studenten war es, ein Konzept zu entwickeln, wie ein Formula Student Auto autonom fahren könnte.

Neben den etablierten Teams, für die selbst der Himmel keine Grenze darstellt, siehe Weltrekorde für die schnellste Beschleunigung und fruchtbare Partnerschaften mit Sponsoren, um modernste Technologien zu entwickeln, freut sich die FSG ebenso auf die Teilnahme neuer Teams aus neuen Ecken der Welt, die ebenso Teil der kosmopoliten FSG-Familie werden.

Jedes Team steckt sich für den Wettbewerb ganz eigene Ziele. Einige werden ihre herausragenden Design-Fähigkeiten präsentieren, einige ihre Konzept-Stärke, einige werden auf der Strecke punkten, einige zeigen uns außergewöhnliche Marketingkonzepte und einige werden einfach beweisen wie gut sie im Team zusammen arbeiten, um die unerwartetsten Probleme in kürzester Zeit zu lösen.

2016 ist mein neuntes FSG-Jahr und mein siebtes Jahr, in dem ich im Orgateam mitarbeite. Es ist einfach ein super Team mit vielen verrückten Ideen und noch verrückteren Leuten, die diese Ideen tatsächlich umsetzen. Ich bin nach wie vor erstaunt darüber welchen Fortschritt die Teams in den letzten Jahren gemacht haben und ich freue mich schon jetzt auf die bekannten Gesichter, die auch in diesem Jahr wieder dabei sind, um die FSG möglich zu machen.

Allen Teams wünsche ich viel Erfolg und allen Zuschauern eine wunderbare Zeit.

brose
Technik für Automobile

Making a career at the family-owned company with commitment and passion

Marius Welk (28) is unswerving and resolute. While studying mechanical engineering, he was determined that he wanted to work as an intern at an automotive company in the U.S. He soon found the right job at the international automotive supplier Brose in Detroit. In an interview, Marius Welk talks about how he continued his career at the family-owned company:

Mr. Welk, after spending a year in Detroit, you moved to Brose Headquarters in Coburg in 2013. What made you want to come here?

My master's study and enthusiasm for Brose. I'd already built good contacts at the company and so found it easy getting started at the Seat Systems Business Division, which is based in Coburg. I wrote my master's thesis there. It analyzed cutting-edge plastics technologies and their use in optimizing weight and performance. My career as a project engineer in the customer team got off to a seamless start.

You are part of the "Modular 2nd-generation front seat structure" project. What does it deal with?

As a project engineer, I'm responsible for developing the backrest and so the technical contact person for our customer VW. My core task is to ensure compliance with the specifications, coordinate measures with the customer in terms of technology and schedules, and make sure we get things done on time internally.

What experience have you gathered in working with colleagues and in contacts with customers?

At Brose, we work very closely together, across all the relevant units. Our approach is pretty pragmatic, as evidenced by the short distances and flat hierarchies. By the way, those are the key points why I wanted to stay at Brose. I've learned a lot about self-management and setting priorities here, which helps me manage the challenging tasks and intensive contact with customers.

How do you see your career developing?

Projects involving seats are very extensive, so I'll still be dealing with my current topics for some time to come. In the medium term, I'd like to manage my own project or lead a team. Brose offers great options for careers as a project manager or in management.

You moved from Stuttgart to Coburg. What do you like where you now live?

Coburg has everything you need, albeit on a smaller scale. The city radiates a soothingly stress-free atmosphere. The thing I like most are the short distances. I live in the center and can reach everything on foot, even work. And I'm just a few minutes' bike ride away from truly wonderful countryside.

Brose is the world's fifth-largest family-owned automotive supplier. The group develops and produces innovative mechatronic systems for vehicle doors and seats, as well as electric drives. Over 24,000 employees at 60 locations in 23 countries generate revenue of more than 6 billion euros.

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Introduction
Einführung

The Challenge

Formula Student Germany (FSG) is an international design competition for students, based on the Formula SAE rules and guidelines. Teams from around the world have the task of designing a single-seater, formula car and then to manufacture a functional prototype. Along with these technical aspects, the teams must develop a viable business plan and a marketing concept for batch production of the vehicle. The target group is amateur weekend racers. Therefore, the race-car must not only have manageable handling and possess good acceleration and braking ability, but must also be inexpensive to buy and run. Thus, other important aspects of the vehicle that must be developed include aesthetics, ergonomics, and use of mass-produced components. The vehicle designs are judged by experts from the automobile, motorsport, and supply industries. The teams are then able to score points in various static and dynamic events, which will ultimately decide the overall ranking. The team with the best overall combination of design, financial planning, marketing strategy and performance on the track, will win Formula Student Germany.

Practical Experience

FSG enriches the teaching content of a course of study with challenging and practical experience in the fields of manufacturing and production, while not neglecting the practice-oriented requirements relating to profitability and market relevance. The aspects assessed by the competition correspond directly to the demands of the different branches of the industry for new product development, which is why they are not merely restricted to vehicle design.
By working as part of an interdisciplinary team of students from different fields of study and expertise, the competitors learn first-hand how to combine the economic and technical goals of product development and at the same time, how to defend the solutions they themselves have developed and assert these against competing developments.

Herausforderung

Die Formula Student Germany (FSG) ist ein internationaler Konstruktionswettbewerb für Studenten, der sich an den Formula Student Wettbewerb der amerikanischen Society of Automotive Engineers (SAE) anlehnt. Die Aufgabe für die Teams aus der ganzen Welt besteht darin, ein einsitziges Formel-Fahrzeug zu konstruieren und einen fahrfertigen Prototypen herzustellen. Parallel zu der technischen Entwicklung müssen die Teams einen tragfähigen Businessplan und ein Vermarktungskonzept für eine Kleinserienfertigung des Fahrzeugs entwickeln. Zielgruppe ist der nicht-professionelle Wochenendrennfahrer. Daher muss der Rennwagen nicht nur ein beherrschbares Handling, sowie gute Beschleunigungs- und Bremswerte haben, sondern auch günstig in der Anschaffung und im Unterhalt sein. Wichtige Nebenaspekte des entwickelten Fahrzeuges sind Ästhetik, Ergonomie und die Verwendung von Serienbauteilen. Bewertet werden die Fahrzeugkonzepte von Experten aus der Automobil-, Motorsport- und Zulieferindustrie. In verschiedenen statischen und dynamischen Disziplinen können die Teams wichtige Punkte sammeln, die letztlich über die Gesamtplatzierung entscheiden. Den Sieg der Formula Student Germany erringt das Team mit dem besten Gesamtpaket aus Konstruktion, Finanzplanung, Verkaufsargumentation und Rennperformance.

Praxisnahe Erfahrung

Die FSG bereichert die Lehrinhalte des Studiums um herausfordernde und praktische Erfahrungen in den Bereichen Konstruktion und Fertigung, ohne dabei die praxisrelevanten Voraussetzungen in Bezug auf Wirtschaftlichkeit und Marktrelevanz zu vernachlässigen. Die im Wettbewerb abgefragten Aspekte entsprechen den Anforderungen verschiedener Industriebereiche hinsichtlich Produktneuentwicklungen und sind sich daher nicht nur für den Fahrzeugbau anwendbar. Durch die Arbeit in einem interdisziplinären Team aus Studenten verschiedener Studien- und Fachrichtungen lernen die Teilnehmer, die wirtschaftlichen und technischen Ziele einer Produktentwicklung in Einklang zu bringen und dabei ihre selbst entwickelten Lösungen zu verteidigen und gegenüber konkurrierenden Entwicklungen durchzusetzen.

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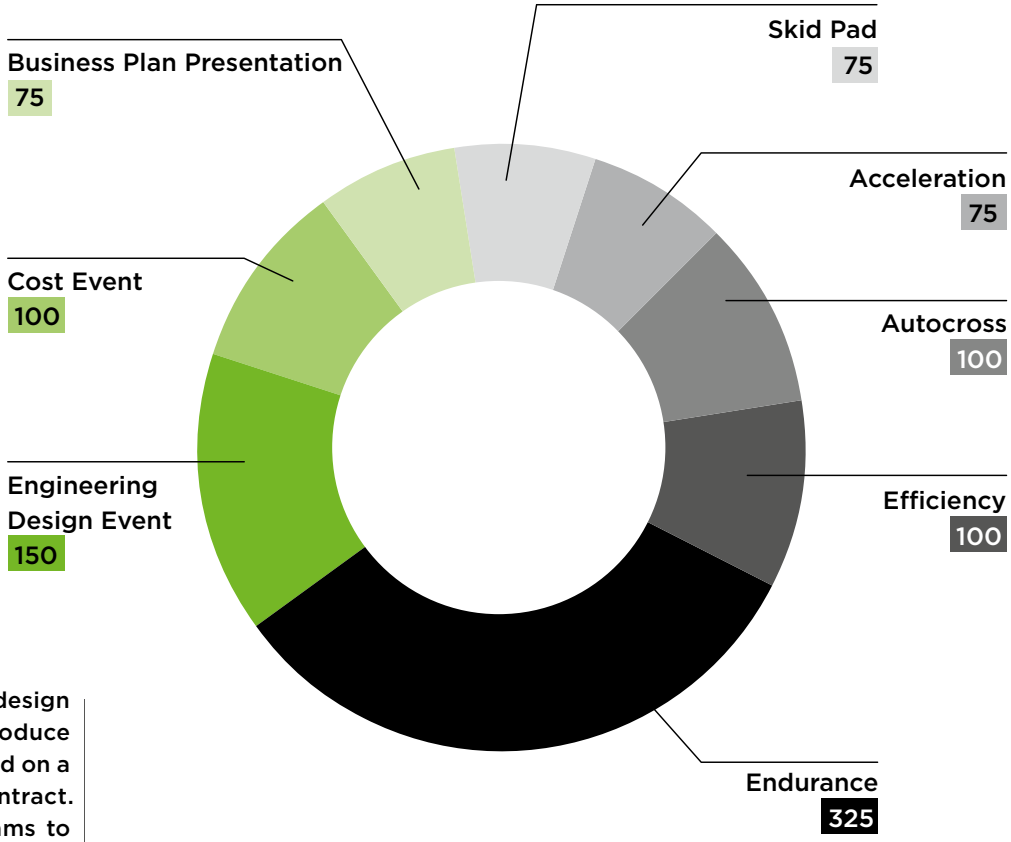
Keja Rowe
Electrical Engineer
Frankfurt, Germany

An International Design Competition

Ein internationaler Konstruktionswettbewerb

There are 1000 points to be gained in 3 static and 5 dynamic disciplines.

Insgesamt werden 1000 Punkte vergeben, die sich auf die drei statischen und fünf dynamischen Disziplinen verteilen.



Formula Student Germany is a design competition for students to produce the prototype of a racecar, based on a hypothetical manufacturing contract. In order for the competing teams to be compared, their designs, plans and cars are judged by experts. Each team has the chance to win in total a maximum of 1,000 points over the course of three static and five dynamic events. The team with the best overall combination of construction, track performance, financial planning, and marketing strategy will be the winner of FSG. In theory, a team which is not the best in (or is even eliminated from) one or more events, can still win the overall competition. Similarly, teams can win the top prize in one or more of the categories and still have no chance at an overall victory. However, before the winners of individual events can be celebrated, the teams have some hurdles to overcome.

Die Formula Student Germany ist ein Konstruktionswettbewerb für Studenten, bei dem unter der Annahme eines fiktiven Konstruktionsauftrags der Prototyp eines Rennwagens entstehen soll. Um einen Vergleich der startenden Teams zu ermöglichen, werden die Konzepte, Planungen und Fahrzeuge von Experten bewertet. Insgesamt kann jedes Team in drei statischen und fünf dynamischen Disziplinen maximal 1000 Punkte erhalten. Den Gesamtsieg über die FSG erringt das Team mit dem besten Gesamtpaket aus Konstruktion, Rennperformance, Finanzplanung und Verkaufsargumentation. Prinzipiell kann also auch ein Team den Gesamtwettbewerb gewinnen, das in einer oder mehreren Disziplinen nicht zu den Besten zählt oder sogar ausscheidet. Auf der anderen Seite können durch dieses Bewertungssystem auch Teams einen Titel in einer oder mehreren Disziplinen erringen, obwohl sie keine Chance auf den Gesamtsieg haben. Bevor es jedoch zur Siegerehrung in den einzelnen Disziplinen geht, haben die Teams einige Hürden zu überwinden, die im Folgenden näher erläutert werden.

Experienced judges from the world of motorsport, automotive engineering, and the supplier industries know exactly where to look in order to evaluate the technical solutions.

Die erfahrenen Juroren aus dem Motorsport, Automobilbau und der Zulieferindustrie wissen genau wo sie hinsehen müssen, um die technischen Lösungen bewerten zu können.

Static Events

The Formula Student competition is designed to introduce the participating students to the interdisciplinary approach of today's automotive industry. This not only includes technical understanding, but also economic and communication abilities such as presentation techniques or financial planning skills. This is why the three static events demand collaboration across the team in the areas of design and layout, construction, marketing and pricing of a product. They also require specialised expertise from different technical and financial courses of study. The teams can win up to 325 points of the possible 1000 in the three static events, and each individual event is weighted differently. A panel of experienced experts from the automobile, motorsport, and supply industries judge the performance of each team.

Engineering Design – 150 points

At the start of the engineering design competition, the students must hand in an eight-page technical description of their car. It must show both their design and how the design will be applied to their chosen construction. On the basis of this document, the members of the jury will evaluate the layout, technical design, construction and implementation of the production of the actual vehicle. Then, there will be a discussion where the teams are questioned by the judges. These discussions focus on clarifying technical details, exploring the thinking behind the chosen design, as well as the corresponding technical understanding of the students. The evaluation will not only assess the quality of the technical solution in question but also the reasons behind it.

Statische Disziplinen

Der Formula Student Wettbewerb soll die teilnehmenden Studenten an die interdisziplinäre Arbeitsweise in der Industrie heranführen. Dazu zählen nicht nur technisches Verständnis, sondern auch wirtschaftliche und kommunikative Fähigkeiten, wie z. B. Präsentationstechniken oder Kompetenzen in der Finanzplanung. Daher wird in drei statischen Disziplinen sowohl die teamübergreifende Zusammenarbeit bei Konzept, Auslegung, Konstruktion, Vermarktung und Preisung eines Produktes als auch spezielles Fachwissen aus verschiedenen technischen und wirtschaftlichen Studiengängen gefördert und abgefragt. In den drei statischen Disziplinen können die Teams maximal 325 Punkte erreichen, wobei die Einzeldisziplinen unterschiedliche Gewichtungen haben. Bewertet werden die Leistungen der Teams durch eine Jury aus erfahrenen Experten der Automobil- und Zulieferindustrie sowie dem Motorsport.

Engineering Design – 150 Punkte

Zu Beginn des Engineering Design Wettbewerbs reichen die Studenten eine achtseitige technische Beschreibung zu ihrem Fahrzeug ein, um das Konzept sowie die besondere Konstruktion darzustellen. Die Juroren begutachten auf Basis der Unterlagen das technische Konzept, die Auslegung, Konstruktionen sowie Umsetzung in der Fertigung am realen Fahrzeug. Die Teams müssen ihnen dabei zu allen Fragen in einer Diskussion Rede und Antwort stehen. In den Gesprächen geht es um die Abfrage der technischen Details, die Hintergründe für die Wahl eines Konzepts und das dazugehörige technische Verständnis. In die Bewertung fließen also nicht nur die Qualität der vorliegenden technischen Lösungen ein, sondern auch die Gründe für die gewählten Lösungen.

In the Business Plan Presentation, the team's performance counts for as much as the facts.

Bei der Business Plan Presentation zählen nicht nur die Fakten, sondern auch das Auftreten des Teams.

The solutions of the students are discussed in detail.

Die studentischen Lösungen werden intensiv diskutiert.

Cost Analysis – 100 points

Cost is a decisive factor in the design of any product. In the cost analysis event, the teams must grapple with the calculative size of the vehicle, its components, and the necessary manufacturing steps and record all of this in a written cost report. The students must then answer questions from the judges relating to the cost report on their prototype. In addition to considering the thoroughness of the written report, the students' understanding of the manufacturing process and the total cost calculation will be assessed. The teams will also have to handle a real case scenario where they must react to product requirements being altered at short notice. The quality of their response to these changing circumstances will also form part of the overall point score.

Business Plan Presentation – 75 points

Each team presents their business plan for the constructed prototype to a fictitious manufacturing company represented by judges. During a ten-minute presentation, the team must demonstrate why their design best fulfils the demands of their target group of amateur weekend racers and show how their design can be successfully marketed. The presentation will be followed by a five-minute discussion and question round with the judges. In this event the content, structure, and editing of the presentation, as well as the team's performance in delivering it, will be evaluated alongside their answers to the panel's questions.

Cost Analysis – 100 Punkte

Die Kosten sind für Auslegung eines Produktes ein entscheidender Faktor. Bei der Disziplin Cost Analysis müssen sich die Teams mit den kalkulatorischen Größen des Fahrzeugs, seiner Bauteile und der notwendigen Fertigungsschritte auseinandersetzen und diese schriftlich in einem Cost Report festhalten. Zu den eingereichten Unterlagen müssen sich die Studenten mit ihrem Prototypen einer Diskussion mit den Juroren stellen. Bewertet werden neben der Aufbereitung und Vollständigkeit des schriftlichen Reports auch das Verständnis der Fertigungsprozesse sowie der Gesamtpreis. Darüber hinaus müssen die Teams ein Real Case Szenario bearbeiten, in dem es darum geht, kurzfristig auf veränderte Anforderungen an das Produkt zu reagieren. Die Ergebnisse werden ebenfalls benotet und fließen in die Gesamtpunktzahl ein.

Business Plan Presentation – 75 Punkte

Mit ihrem Business Plan präsentieren die Teams einer fiktiven Herstellerfirma, vertreten durch die Juroren, ihren Geschäftsplan für den gebauten Prototypen. Die Teams stellen in einem zehnminütigen Vortrag dar, weshalb ihr Konzept die Anforderungen der Zielgruppe von nicht-professionellen Wochenendrennfahrern am besten erfüllt und gewinnbringend vermarktet werden kann. Der Präsentation folgt eine fünfminütige Diskussions- und Fragerunde mit den Juroren. Bei dieser Disziplin werden Inhalt, Aufbau und Aufbereitung des Vortrags sowie der Auftritt der Teams ebenso bewertet wie die Antworten auf die Fragen der Juroren.

Dynamic Events

Of course, the cars that the students construct will not only be assessed when stationary. Their performance on the racetrack will also be put to the test. Each dynamic event tests different features of the vehicles. In addition to the maximum longitudinal and lateral acceleration, race performance, efficiency and endurance of the formula cars will be examined and evaluated. For the Acceleration, Skid Pad and Autocross events, each car starts with two drivers, each of whom is allowed two attempts. The best attempt is the one on which the car will be scored. A maximum of 675 points can be scored over the course of the five dynamic events.

Acceleration – 75 points
The vehicle's acceleration from a standing start is measured over a 75 metre straight. In addition to traction, the correct engine design is especially important, either in terms of greater power or for the highest possible torque. The fastest cars cross the line in less than four seconds and can reach speeds of over 100 km/h by the end of the stretch.

Skid Pad/Wet Pad – 75 points
During the Skid Pad event, the cars must drive a figure-8 circuit lined with traffic cones, performing two laps of each circle. In each case, the second lap will be measured. The lap time gives a comparative value for the maximum possible lateral acceleration of the car. Most of the cars use aerodynamics to raise the contact pressure and thus, increase lateral acceleration. To ensure the conditions are the same for all teams, the track is continually watered, hence the name "Wet Pad". Knocking over any of the cones results in a time penalty.

Dynamische Diszplinen

Die von den Studenten konstruierten Fahrzeuge werden natürlich nicht nur im Stand bewertet. Sie müssen ihre Performance auch auf der Rennstrecke unter Beweis stellen. In jeder dynamischen Disziplin werden andere Eigenschaften des Fahrzeugs getestet. Neben der maximalen Längs- und Querbeschleunigung werden auch die Rennperformance, Effizienz und Haltbarkeit der Formel-Rennwägen ermittelt und bewertet. Bei den Disziplinen Acceleration, Skid Pad/Wet Pad und Autocross starten je Fahrzeug zwei Fahrer, die jeweils zwei Versuche haben. Gewertet wird das beste mit dem Fahrzeug erzielte Ergebnis. In den fünf dynamischen Disziplinen können maximal 675 Punkte erzielt werden.

Acceleration – 75 Punkte
Auf einer 75 Meter langen Geraden wird die Beschleunigung der Fahrzeuge aus dem Stand gemessen. Hier kommt es neben der Traktion vor allem auf eine richtige Auslegung des Getriebes und eine möglichst hohe Leistung, bzw. ein hohes Drehmoment an. Die schnellsten Fahrzeuge absolvieren diese Prüfung in einer Zeit unter vier Sekunden und erreichen am Ende der Messstrecke Geschwindigkeiten von mehr als 100 km/h.

Skid Pad/Wet Pad – 75 Punkte
Beim Skid Pad durchfahren die Rennwagen einen mit Pylonen begrenzten Parcours in Form einer Acht. Jeder Kreisring wird zweimal umrundet. Gemessen wird jeweils die zweite Runde. Die Rundenzeit gibt einen Vergleichswert für die maximal erzielbare Querbeschleunigung der Fahrzeuge. Bei den meisten Fahrzeugen werden durch den Einsatz aerodynamischer Hilfsmittel der Anpressdruck und damit die Querbeschleunigung erhöht. Damit die Bedingungen für alle Teams gleich sind, wird der Parcours kontinuierlich bewässert („Wet Pad"). Das Umstoßen von Pylonen wird mit einer Zeitstrafe belegt.

Autocross – 100 Punkte
Bei der Disziplin Autocross fahren die Rennwagen über einen etwa ein Kilometer langen Kurs mit Geraden, Kurven und Schikanen. Eine schnelle Rundenzeit ist ein Indikator für eine hohe Fahrdynamik, ein präzises Handling sowie gute Beschleunigungs- und Bremseigenschaften. Auch hier werden umgestoßene Pylonen mit einer Zeitstrafe geahndet. Die Platzierung im Autocross entscheidet auch über die Startreihenfolge im nachfolgenden Endurance-Wettbewerb.

So that teams with a later start don't have a grip advantage from the rubber marks left on the track by tire abrasion from teams ahead of them, the skid pad is continuously watered.

Damit später startenden Teams durch den Reifenabrieb der Vorausfahrenden keine Grip-Vorteile haben, wird beim Skid Pad die Strecke kontinuierlich gewässert.

Autocross – 100 points
In the autocross event, the cars traverse a kilometre-long track with straights, curves, and chicanes. A fast lap time is a sign of high driving dynamics, precise handling and good acceleration and braking ability.
Once again, time penalties occur for those who knock over any cones. The autocross rankings decide the starting positions for the endurance competition that follows.

Endurance – 325 points
The endurance race represents almost a third of all available points and is consequently the most important event of the Formula Student Competition. The cars must demonstrate their capacity for endurance over a gruelling track distance of 22km and all of the prototype's features are crucial for this event, from acceleration and handling to driving dynamics. The skill of the driver is also tested here, as they may only familiarise themselves with the track before the race by walking the length of the course (Course Walk). Each team gets just a single try and the drivers must be swapped at the halfway point. There can be up to four cars on the circuit at any given time and so overtaking manoeuvres must be performed frequently. Overtaking is signalled by a blue flag and is only permitted at specially marked sections of the track. A team will receive no points at the end if they are more than a third slower than the fastest team overall. And again, hitting cones results in time penalties.

Efficiency – 100 points
During the endurance race, fuel consumption (FSC cars) or energy consumption (FSE cars) is precisely recorded. However, the absolute fuel and energy consumption is not what is used to calculate the efficiency score, but rather the consumption relative to speed. This is to prevent teams from driving particularly slowly in the endurance competition in order to score as highly as possible in the efficiency category.

The Endurance, in which the cars have to drive through harsh racing conditions, is the highlight of the event.

Das Endurance-Rennen ist der Höhepunkt der Veranstaltung, bei dem die Fahrzeuge unter harten Rennbedingungen bestehen müssen.

Endurance – 325 Punkte
Das Endurance-Rennen stellt mit fast einem Drittel aller erreichbaren Punkte die Hauptdisziplin des Formula Student-Wettbewerbs dar. Über eine Renndistanz von 22 Kilometern müssen sich die konstruierten Rennfahrzeuge unter Dauerbelastung beweisen. Bei dieser Disziplin sind alle Eigenschaften der Prototypen wichtig, von der Beschleunigung bis zum Handling und der Fahrdynamik. Zusätzlich ist auch das Geschick der Fahrer gefragt, da die Strecke vor dem Rennen nur abgeschritten werden darf (Course Walk). Jedes Team hat einen einzigen Versuch, wobei nach der Hälfte der Distanz ein Fahrerwechsel erfolgen muss. Es sind bis zu vier Fahrzeuge gleichzeitig auf der Strecke, wodurch es oft auch zu Überholvorgängen kommt. Diese werden von der Rennleitung veranlasst und finden in eigens dafür eingerichteten Überholzonen statt, an denen die Strecke breiter ist. Das langsamere Fahrzeug bekommt dafür von den Streckenposten durch blaue Flaggen signalisiert, dass es einen schnelleren Teilnehmer überholen lassen muss. Die Teams erhalten nur dann Punkte, wenn sie höchstens ein Drittel langsamer waren als das schnellste Team. Auch hier werden Pylonenfehler durch Zeitstrafen geahndet.

Efficiency – 100 Punkte
Während des Endurance-Rennens wird der Kraftstoffverbrauch (FSC-Fahrzeuge), bzw. der Energieverbrauch (FSE-Fahrzeuge) gemessen. Bei der Berechnung der Effizienz und der Punkte wird allerdings nicht der absolute Kraftstoff-/ Energieverbrauch gemessen, sondern der Verbrauch in Relation zur Geschwindigkeit. Dadurch wird verhindert, dass Teams während des Endurance-Wettbewerbs besonders langsam fahren, um eine möglichst hohe Punktzahl in der Efficiency-Disziplin zu erreichen.

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Safety Regulations

Sicherheit und Regeln

Since all competing cars at Formula Student Germany are prototypes, their teams must observe a series of safety measures and regulations. This guaranties maximum safety and sets up a level playing field between the teams. This is important as all teams start the competition at different levels, whether it be different qualifications in terms of experience, personal ability, or financial resources.
Successfully passing the process of scrutineering is a requirement for a car to be allowed to participate in the dynamic categories. Scrutineering is the safety-related inspection of the prototypes and teams are awarded various stickers, which they must place on the front of their cars to show it has passed a particular test. For the FSC and FSE series, there are also system-specific differences in terms of operation safety that have to be considered during scrutineering.

Da bei der Formula Student Germany alle Fahrzeuge Prototypen sind, müssen die Teams eine Reihe von Sicherheitsmaßnahmen und Regeln einhalten. Zum einen wird dadurch eine maximale Sicherheit garantiert, zum anderen kann so der Rahmen für eine Chancengleichheit zwischen den Teams geschaffen werden, die mit unterschiedlichen Voraussetzungen in Bezug auf Erfahrung, personellen Kapazitäten und finanziellen Ressourcen an den Start gehen. Das erfolgreiche Absolvieren des sogenannten Scrutineering ist die Grundvoraussetzung für die Zulassung eines Fahrzeugs zu den dynamischen Disziplinen. Dabei handelt es sich um die sicherheitstechnische Abnahme der Prototypen, deren Bestehen mit verschiedenen Aufklebern auf der Fahrzeugnase belegt wird. Bei den beiden Rennserien FSC und FSE gibt es systembedingte Unterschiede bei der Betriebssicherheit, die beim Scrutineering berücksichtigt werden müssen.

Tech and Safety (FSC and FSE)

For this inspection, all the components and accessories of the racecar that are considered relevant to safety according to the regulations are checked. These include the framework, wheel suspension, steering, braking, rims, and tires. Other details, such as the layout of the fuel lines, the fixture of the air intake system, the observance of appropriate cockpit size and the correct functioning of the kill switch, are all checked. In addition to this, all drivers must show that when in a ready-to-race condition, i.e., strapped in to the driving seat wearing their full racing suit and helmet, they can exit their vehicle within five seconds.

Tech and Safety (FSC und FSE)

Bei dieser Abnahme werden alle sicherheitsrelevanten Bau- und Zubehörteile des Rennwagens, die durch das Regelwerk vorgeschrieben werden, geprüft. Dazu gehören die Rahmenstruktur, die Radaufhängung, Lenkung, Bremsen und Felgen sowie die Reifen. Auch Details wie die Verlegung der Kraftstoffleitungen, die Befestigung des Ansaugsystems, die Einhaltung der Cockpitgröße oder das korrekte Funktionieren der Notschalter werden geprüft. Zusätzlich müssen alle Fahrer zeigen, dass sie in „ready-to-race condition“, d.h. voll eingekleidet und angeschnallt das Auto innerhalb von fünf Sekunden verlassen können.

The technical inspection of the vehicle is carried out by qualified experts. The team must correct any faults and deficiencies in the pit before the car is checked again.

Die technische Abnahme der Fahrzeuge erfolgt durch erfahrene Prüfer. Fehler oder Mängel am Fahrzeug müssen die Teams in der Box beseitigen und das Fahrzeug erneut prüfen lassen.

Rollover safety is checked on the tilt table. The car will not pass if any fluids escape or the wheels lift off the table.

Auf dem Kipptisch wird die Überschlagssicherheit überprüft. Wenn Flüssigkeiten austreten oder sich Reifen vom Tisch abheben ist das Fahrzeug durchgefallen.

Tilt Table (FSC and FSE)

The tilt table test checks whether any operating fluids are leaking and rollover protection regulations are met. The car must be brought to the test ready to race, with all fluids and a full tank of petrol. The driver is strapped in, and the car is set at an angle of 45 degrees. No fuel or other fluids are allowed to leak out at this angle. After this, the angle I increased to 60 degrees, which corresponds to a lateral acceleration force of 1.7 g. The racecar only passes this test if the upper wheels remain on the floor.

Tilt Table (FSC und FSE)

Beim Tilt Table Test wird überprüft, ob keine Betriebsflüssigkeiten austreten und die Regeln zum Überrollschutz erfüllt werden. Die Fahrzeuge müssen startklar, mit allen Flüssigkeiten und vollgetankt, zum Test gebracht werden. Das Fahrzeug mit angeschnalltem Fahrer wird fixiert und bis zu einem Winkel von 45 Grad geneigt. Bei diesem Winkel dürfen kein Kraftstoff oder andere Flüssigkeiten austreten. Danach wird der Winkel auf 60 Grad erhöht, was einer Querbeschleunigung von 1,7 g entspricht. Nur wenn die oberen Räder auf dem Boden bleiben, besteht der Rennwagen den Tilt Table Test.

Noise Test (only FSC)

The noise test checks that the car complies with the provisions for the acceptable noise level. In order to measure the volume, the engine is run in neutral at a rotation speed depending on the type of engine. In neutral, the noise level must not exceed 100 dBC or be any greater than 110 dBC at a specified rotation speed.

Noise Test (nur FSC)

Der Noise Test überprüft, ob das Fahrzeug den Vorschriften für die Einhaltung des Lärmpegels entspricht. Dazu wird bei laufendem Motor im Leerlauf, bei einer durch die Bauart des Motors vorgeschriebenen Drehzahl, die Lautstärke gemessen. Der Lärmpegel darf dabei im Leerlauf nicht höher als 100 dBC, bei vorgeschriebener Drehzahl nicht höher als 110 dBC sein.

The noise test is important too, as it helps to protect the track marshals and the driver when they are out on the track.

Die Lärmpegelmessung ist ebenfalls wichtig. Sie schützt die Streckenposten und den Fahrer, wenn diese auf der Rennstrecke unterwegs sind.

Brake Test (FSC and FSE)

The brake test checks whether a braking system is able to lock all four wheels of the car simultaneously and bring the vehicle to a controlled stop. However, since the FSE cars can also use their electric motor braking system, if the driver is operating an electric vehicle, in addition they must deactivate the high voltage system after accelerating and then come to a complete stop with all four wheels locked in order to demonstrate that the mechanical braking system functions properly in the case of a fault in the high voltage system.

Brake Test (FSC und FSE)

Der Bremstest dient zur Überprüfung, ob das Bremssystem in der Lage ist, alle vier Räder des Fahrzeugs gleichzeitig zu blockieren und dadurch das Fahrzeug zu einem kontrollierten Stillstand zu bringen. Die FSE-Fahrzeuge können den elektrischen Antrieb auch zum Bremsen verwenden. Um eine einwandfreie Funktion des mechanischen Bremssystems bei einem Fehler im Hochspannungssystem zu beweisen, muss der Fahrer nach dem Beschleunigen das Hochvoltsystem deaktivieren und anschließend mit vier blockierenden Rädern zum Stehen kommen.

Electrical Scrutineering (only FSE)

During electrical scrutineering, the electrical safety of the electric car is tested. That means all systems required by the regulations are checked in regard to their functional capacity. For example, system checks include the insulation- monitoring device, correct operation of the signal light (the Tractive System Active Light, which displays the status of the high voltage system), and the sound that indicates that the vehicle is ready to race. In addition, general safety aspects are checked, such as whether the line mechanics are properly laid and the high voltage energy storage device is assembled according to regulation.

Electrical Scrutineering (nur FSE)

Während des Electrical Scrutineering wird die elektrische Sicherheit der Elektrofahrzeuge überprüft, d.h. alle durch das Regelwerk vorgeschriebenen Maßnahmen werden auf ihre Funktionsfähigkeit getestet. Zu den geprüften Systemen gehören u.a. die Isolationsüberwachung, die korrekte Funktionsweise des Signallichtes (Tractive System Active Light), das die Aktivität des Hochvoltsystems anzeigt, und das Geräusch, das die Fahrbereitschaft des Fahrzeugs signalisiert (Ready To Drive Sound). Es werden aber auch allgemeine Sicherheitsaspekte wie z B. mechanisch einwandfrei verlegte Leitungen oder der regelkonforme Einbau der Hochvolt-Energiespeicher überprüft.

Rain Test (only FSE)

Rain can lead to critical situations for electric cars. In order to be allowed to operate during rainfall with no reservations, the FSE cars must undergo an artificial rain shower. During the artificial rainfall, the car's high voltage system is activated and the appropriate components can be checked to see if they are sufficiently insulated and protected from water.

Rain Test (nur FSE)

Regen kann bei Elektrofahrzeugen zu kritischen Situationen führen. Damit die FSE-Fahrzeuge auch bei Niederschlägen vorbehaltlos fahren können, müssen sie sich einem künstlichen Regenschauer unterziehen. Während der künstlichen Beregnung des Fahrzeuges wird bei aktiviertem Hochvolt-System kontrolliert, ob die verwendeten Komponenten ausreichend isoliert und gegen Wasser geschützt sind.

In order to pass the brake test, all four wheels must lock when the brakes are applied.

Um den Bremsentest zu bestehen, müssen alle vier Räder blockieren, wenn die Bremsen betätigt werden.

The isolation monitoring device of a FSE car must not fail the rain test, otherwise the electrical safety of the race car cannot be guaranteed.

Die Isolationsüberwachung der FSE-Fahrzeuge darf beim Rain Test nicht anschlagen, da ansonsten die elektrische Sicherheit des Rennwagens nicht gewährleistet ist.

Adherence to the Rules

Vehicles must conform to regulations and, from a technical point of view, be safe at all times, even after passing scrutineering. The authorised technical experts or the race stewards can remove a car from the competition at any time in the case of a breach of regulation or safety requirements, for example, if a car is leaking fluids, is too loud, or if the insulation is not up to standard.

The car cannot return to the competition until the fault has been repaired. Cars are also inspected again following the endurance race in order to exclude the possibility of a violation during the race. This is why the cars are placed in a parc fermé after the endurance competition, and the team members are not permitted to touch them until all the inspections have been successfully performed.

Geltungsbereich

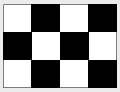
Die Fahrzeuge müssen auch nach bestandenem Scrutineering zu jeder Zeit regelkonform und sicherheitstechnisch unbedenklich sein. Die offiziellen technischen Sachverständigen oder die Rennleitung können Fahrzeuge bei einem Verstoß gegen das Reglement oder die Sicherheitsanforderungen jederzeit aus dem Wettbewerb nehmen bis der Mangel behoben ist, z.B. wenn Flüssigkeiten austreten, das Fahrzeug zu laut ist oder die elektrische Isolation nicht gewährleistet ist.

Nach dem Endurance-Rennen werden die Fahrzeuge zudem erneut geprüft, um Regelverstöße während des Rennens ausschließen zu können. Die Fahrzeuge werden nach dem Endurance-Wettbewerb in einem „Parc-Fermé“ abgestellt und dürfen von den Teammitgliedern nicht mehr berührt werden bis die letzte Abnahme erfolgt ist.

Flags

During the dynamic events, flags are used to communicate with the drivers. The various colours and patterns have different meanings, and all drivers must understand and obey any flag signal they receive during the competition. Infringements of flag signals can be penalised with various penalties, ranging from time penalties to disqualification.

Your session has started, enter the course!
Deine Fahrt beginnt. Fahr auf die Strecke!



Your session has been completed. Exit the course!
Deine Fahrt ist beendet. Verlass die Strecke!

Pull into the passing zone to be passed by a faster competitor! Fahr in die Überholzone, damit ein schnelleres Fahrzeug überholen kann!

Pull into the penalty box for a mechanical inspection of your car!
Fahr in die Kontrollzone für eine Untersuchung des Fahrzeugs!

Pull into the penalty box for discussion concerning an incident that may cause a time penalty!
Fahr in die Kontrollzone zur Diskussion eines Vorfalls! Ggf. Zeitstrafe!

Flaggen

Bei den dynamischen Prüfungen werden zur Kommunikation mit den Fahrern Flaggen eingesetzt. Die verschiedenen Farben und Muster haben unterschiedliche Bedeutungen. Alle Fahrer müssen die Flaggen kennen und beachten, wenn Sie diese während des Wettbewerbs gezeigt bekommen. Verstöße gegen geschwenkte Flaggen können mit verschiedenen Sanktionen geahndet werden, die von Zeitstrafen bis zur Disqualifikation reichen können.

Come to an immediate safe controlled stop on the course! Pull to the side of the course.
Komm sofort kontrolliert zum Stehen. Halte die Strecke frei.

Something is on the track that should not be there. Be prepared for evasive maneuvers to avoid debris or liquids!
Es ist etwas Unerwartetes auf der Strecke. Sei bereit Flüssigkeiten oder Bruchstücken auszuweichen!

Something has happened beyond the flag station. No passing unless directed by the track marshals. Stationary: Danger! Slow down, be prepared to take evasive action. Waved: Great Danger! Slow down, evasive action is most likely required, be prepared to stop.
Etwas ist jenseits der Flagge passiert. Fahr nicht vorbei ohne Anweisung der Streckenposten. Flagge gehalten: Gefahr! Fahr langsam, sei bereit zum Ausweichen. Flagge geschwenkt: Große Gefahr! Fahr langsam, Ausweichen wird erforderlich sein. Sei bereit anzuhalten.

There is a slow moving vehicle on the course. Be prepared to approach it at a cautious rate.
Es ist ein langsames Fahrzeug auf der Strecke. Nähere dich vorsichtig an.

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Awards 2016

Formula Student Germany	
Audi Vorsprung Award “Best Lightweight Concept”	II
BASF Best Use Of Fiber Reinforced Plastics	I
FSG Sportsmanship Award presented by FSG Executive Committee	II
Opel Style Award	I
Porsche Performance Innovation Award	I
Schaeffler Best Systems Engineering Award	I

Formula Student Combustion	
Formula Student Combustion Champion	II
Formula Student Combustion — 2nd	II
Formula Student Combustion — 3rd	II
FSC Acceleration Winner	II
FSC Autocross Winner	II
FSC Best Prepared Car For Scrutineering	I
FSC Business Plan Presentation Winner	I
FSC Cost Analysis Winner	II
FSC Endurance Winner	II
FSC Engineering Design Winner	II
FSC Most Fuel Efficient Car presented by Kautex	II
FSC Skid Pad Winner	I
MTU "Most Innovative Powertrain System"	I

Formula Student Electric	
Formula Student Electric Champion	II
Formula Student Electric — 2nd	II
Formula Student Electric — 3rd	II
FSE Acceleration Winner	II
FSE Autocross Winner	II
FSE Best Prepared Car For Scrutineering	I
FSE Business Plan Presentation Winner	I
FSE Cost Analysis Winner	I
FSE Endurance Winner	II
FSE Engineering Design Winner	I
FSE Most Energy Efficient Car	II
FSE Skid Pad Winner	I
Daimler Best E-Drive Packaging Award	I

Formula Student Driverless	
Formula Sudent Driverless Concept Award Winner	I
Formula Sudent Driverless Concept Award — 2nd	I
Formula Sudent Driverless Concept Award — 3rd	I

The letter behind the award states at which time the award will be presented.

I – Award Ceremony – Part I (Friday)
II – Award Ceremony – Part II (Sunday)

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Schedule 2016

TUE, 9th August				
14:00		Scrutineering Order, Registration- & Entrance Order Available	1	Ticket Center
15:30	— 17:30	FSC & FSE Team Registration	1	Ticket Center
16:00	— 22:00	Entrance for Team Vehicles		Venue
17:00	— 24:00	FSC & FSE Pits & Recreation Area available		Venue
18:00	— 20:00	Accumulator Scrutineering	21	Charging Tent
18:00	— 20:00	Event Control, Driver & Safety Responsible Registration	2	Event Control
18:00	— 22:00	Charging Tent	21	Charging Tent
21:00	— 22:00	Team Welcome	5	Marquee above pits
22:00	— 22:30	Scrutineering Briefing	5	Marquee above pits
Wed, 10th of August				
06:00	— 22:00	Charging Tent	21	Charging Tent
06:00	— 24:00	FSC & FSE Pits & Recreation Area available		Venue
07:30	— 19:00	Ticket Center & Event Control	1	Ticket Center
08:00	— 18:00	FSG Academy On Site	22	South Stand
09:00	— 13:00	Scrutineering / Tech Inspection / Tilt, Brake, Noise, Rain / Fuel	17	Dynamic Area
09:00	— 18:30	FS Driverless Concept Award Judging	7	BW Tower
13:00	— 14:00	Lunch Break & Staging for Panoramic Photograph		Racetrack
14:00	— 19:00	Engine Test	18	Engine Test Area
14:00	— 19:00	Scrutineering / Tech Inspection / Tilt, Brake, Noise, Rain / Fuel	17	Dynamic Area
Thu, 11th of August				
06:00	— 22:00	Charging Tent	21	Charging Tent
06:00	— 24:00	FSC & FSE Pits & Recreation Area available		Venue
07:30	— 19:00	Ticket Center & Event Control	1	Ticket Center
08:00	— 08:30	Team Briefing	5	Marquee above pits
08:00	— 18:00	FSG Academy On Site	22	South Stand
08:30	— 19:00	Scrutineering / Tech Inspection / Tilt, Brake, Noise, Rain / Fuel	17	Dynamic Area
09:00	— 19:00	Engine Test / Testing	17	Dynamic Area
12:00	— 13:00	Scrutineering Lunch Break	17	Dynamic Area
13:15	— 18:00	FSE Engineering Design & FSE Cost Analysis	5	Marquee above pits
13:15	— 18:00	Special Awards	3	FSG Forum
13:30	— 18:00	FSE Business Plan Presentation	7+8	BW Tower, Ravenol Tower
14:00	— 18:30	Team Photos	5	Marquee above pits
19:00	— 20:00	FSE Business Plan Presentation Finals	5	Marquee above pits
Fri, 12th of August				
06:00	— 22:00	Charging Tent	21	Charging Tent
06:00	— 24:00	FSC & FSE Pits & Recreation Area available		Venue
07:00	— 19:00	Ticket Center & Event Control	1	Ticket Center
07:30	— 08:00	Team Briefing	5	Marquee above pits
08:00	— 18:00	FSG Academy On Site	22	South Stand
08:30	— 17:15	FSC Engineering Design, FSC Cost Analysis	5	Marquee above pits
08:30	— 19:00	Scrutineering / Tech Inspection / Tilt, Brake, Noise, Rain / Fuel	17	Dynamic Area
09:00	— 17:45	Team Photos	5	Marquee above pits
09:00	— 18:00	Special Awards	3	FSG Forum
09:00	— 18:30	Engine Test / Testing	17	Dynamic Area
09:00	— 18:30	FSC Business Plan Presentation	7+8	BW Tower, Ravenol Tower
11:00	— 13:30	Worldwide Formula Student Officials Meeting		Motodrom Hotel
11:00	— 18:30	Skid Pad	17	Dynamic Area
12:00	— 13:00	Scrutineering Lunch Break	17	Dynamic Area
19:00	— 20:30	FSE Engineering Design Finals	3	FSG Forum, not public
20:00	— 21:00	FSC Business Plan Presentation Finals	5	Marquee above pits
21:00	— 22:00	Awards Ceremony - Part I	5	Marquee above pits
Sat - 13th. August				
06:00	— 22:00	Charging Tent	21	Charging Tent
06:00	— 24:00	FSC & FSE Pits & Recreation Area available		Venue
07:00	— 19:00	Ticket Center & Event Control	1	Ticket Center
07:30	— 08:00	Team Briefing	5	Marquee above pits
08:00	— 09:00	Design Review	5	Marquee above pits
08:00	— 18:00	FSG Academy On Site	22	South Stand
08:30	— 12:30	FSC & FSE Acceleration		Start/Finish Line
08:30	— 18:30	Fuel / Engine Test / Testing	17	Dynamic Area
08:30	— 18:30	on request: Scrutineering / Tilt, Brake, Noise, Rain	17	Dynamic Area
09:00	— 11:00	Design Feedback - Judges meet Team Members	5	Marquee above pits
11:00	— 11:45	Press Guided Tour	7	Assembly at entrance BW Tower
12:00	— 12:45	Press Conference	7	BW Tower, 4.floor
13:00	— 14:00	VIP Reception	7	BW Tower, 5.floor
13:30	— 13:50	Coursewalk Autocross	17	Dynamic Area
14:00	— 20:00	FSC & FSE Autocross	17	Dynamic Area
15:00	— 17:00	FSD Round Table (not public)	7	BW Tower, 4.floor
19:00	— 21:00	Free BBQ powered by Conti		Venue
19:00	— 21:30	FSC Engineering Design Finals	3	FSG Forum, not public
Sun, 14th of August				
06:00	— 19:00	Charging Tent	21	Charging Tent
06:00	— 20:00	FSC & FSE Pits & Recreation Area available		Venue
07:00	— 19:00	Ticket Center & Event Control	1	Ticket Center
07:30	— 08:00	Team Briefing	5	Marquee above pits
08:00	— 08:20	Coursewalk Endurance	17	Dynamic Area
08:00	— 18:00	FSG Academy On Site	22	South Stand
08:30	— 13:00	FSC & FSE Endurance Morning Session & Parc Fermé	17	Dynamic Area
08:30	— 18:30	Fuel / Engine Test / Testing	17	Dynamic Area
13:00	— 18:00	FSC & FSE Endurance Afternoon Session & Parc Fermé	17	Dynamic Area
21:00	— 22:00	Awards Ceremony - Part II	5	Marquee above pits
22:00	— 01:00	MAHLE-Party	5	Marquee above pits


Medical Centre
Parking Trucks
21
Sling Shot
The Jump
Horse Shoe
Chicane
Killer Cone
17
16
Broken Dreams
13
Halfway
Wings
The Klink
Pendulum
Lost Chain
Grandstands
Nordkurve
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Parking for Sponsors
Parking for Sponsors
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IAV
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FSG
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Press
AUDI
Daimler
MathW.
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Recreation
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Porsche
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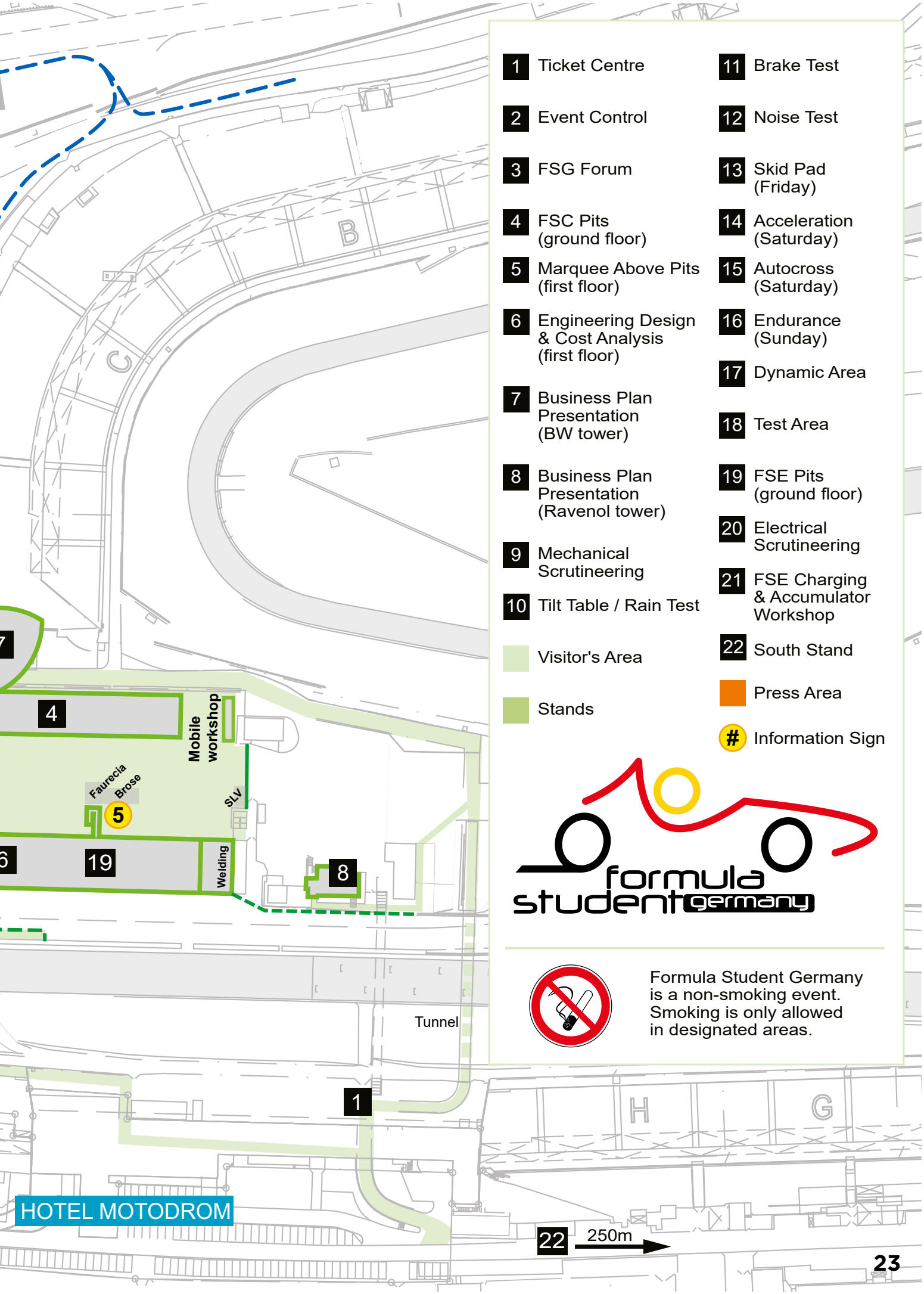


1 Ticket Centre

2 Event Control

3 FSG Forum

4 FSC Pits (ground floor)

5 Marquee Above Pits (first floor)

6 Engineering Design & Cost Analysis (first floor)

7 Business Plan Presentation (BW tower)

8 Business Plan Presentation (Ravenol tower)

9 Mechanical Scrutineering

10 Tilt Table / Rain Test

Visitor's Area

Stands

11 Brake Test

12 Noise Test

13 Skid Pad (Friday)

14 Acceleration (Saturday)

15 Autocross (Saturday)

16 Endurance (Sunday)

17 Dynamic Area

18 Test Area

19 FSE Pits (ground floor)

20 Electrical Scrutineering

21 FSE Charging & Accumulator Workshop

22 South Stand

Press Area

Information Sign

formula student germany

Formula Student Germany is a non-smoking event. Smoking is only allowed in designated areas.

FORMULA STUDENT DRIVERLESS

'COMPETITION BEFORE THE COMPETITION'

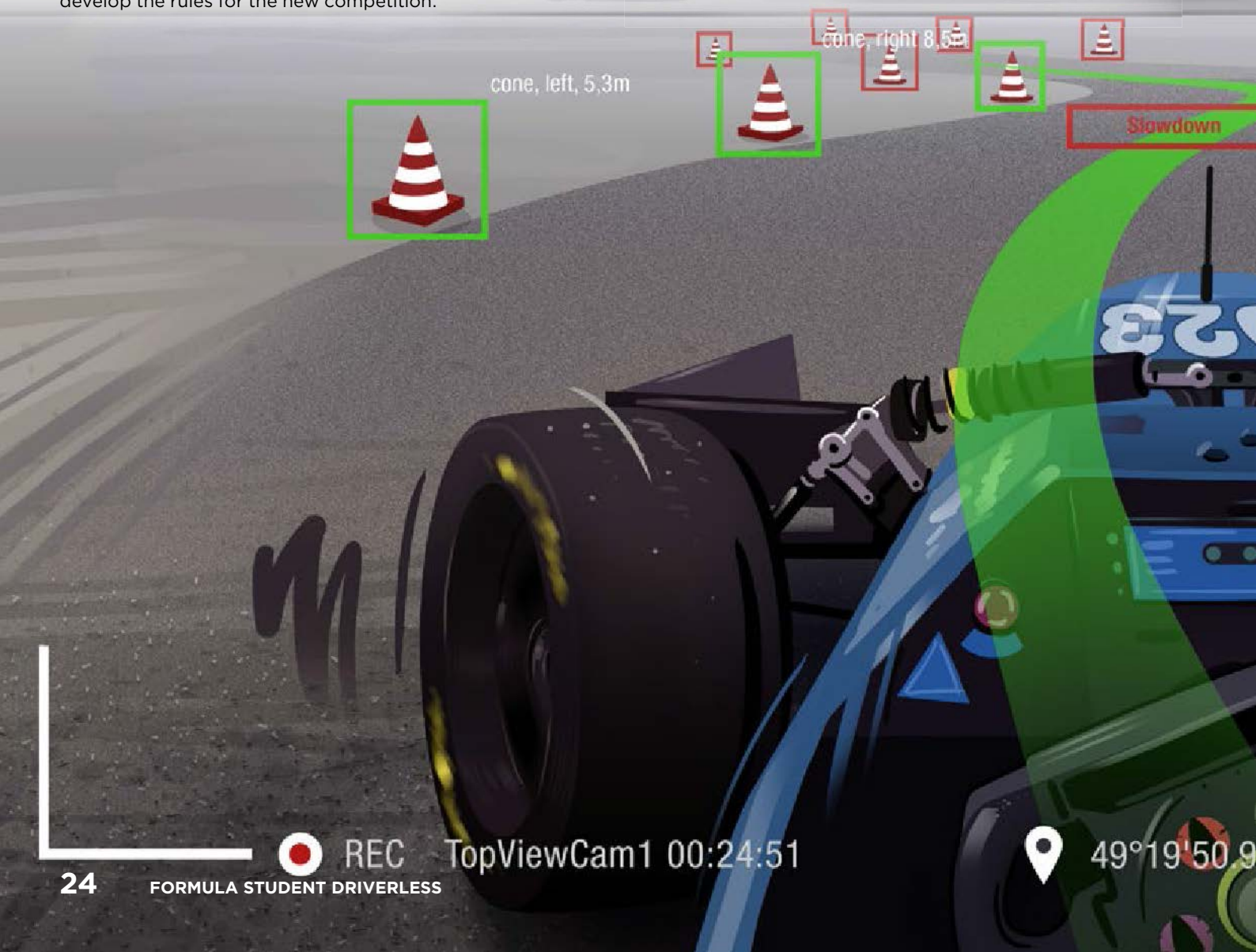
„DER WETTBEWERB VOR DEM WETTBEWERB"

One goal of Formula Student Germany is to set new trends. After their success with Formula Student Electric in 2010, they have decided to take further steps towards autonomous (driverless) driving.

Inline with their goal to boost the demand for new technological skills amongst young engineers, the target is for the new event, "Formula Student Driverless" (FSD) to come to life in 2017. In preparation for this new competition, FSG 2016 will hold the "competition before the competition". This is to give the teams the chance to give input on how they imagine the future driverless competition could look like. Apart from some loose-fitting framework from the organisers of FSD, by which boundary conditions will be defined (mainly for safety), the teams will be able to express their ideas and capabilities the way they desire in the creation of their driverless car concepts. The goal is to take these ideas and use them to develop the rules for the new competition.

Die Formula Student Germany setzt erneut Zeichen: Nach der erfolgreichen Einführung der Formula Student Electric im Jahr 2010 haben sich die Organisatoren jetzt entschieden, den nächsten großen Schritt in Richtung autonomes (fahrerloses) Fahren zu gehen.

Das Ziel lautet: 2017 soll der erste Formula Student Driverless (FSD) Wettbewerb stattfinden – nicht zuletzt um weiterhin dem FSG-Vorsatz gerecht zu werden, die technologischen Fähigkeiten von Jungingenieuren herauszufordern und zu fördern.



The 2016 ‘competition before the competition’ was open worldwide to all eligible university students. They had to submit an abstract to be considered for the finals The 16 finalists come from Germany, Greece, Portugal and the US. During FSG 2016, these teams will present their concept in front of an expert jury and will be awarded during the Award Ceremony on Friday.

From Thursday on, the finalists will have their concepts displayed in the recreation area at the 2016 FSG event.

Further information on the teams who have submitted abstracts and have made it to the finals can be found here:

Weitere Informationen zu den Teams, die ein Abstract eingereicht haben sowie den Finalisten gibt es unter:

For even more information please contact

FSD2016@formulastudent.de

Als Vorbereitung für 2017 gibt es aktuell den „Wettbewerb vor dem Wettbewerb“. Dadurch wird den Teams die Gelegenheit gegeben, ihre Vorschläge und Vorstellungen zu dem neuen Wettbewerb einzureichen. Abgesehen von einigen wenigen Rahmenbedingungen, die die Organisatoren der FSD vorgegeben haben (was hauptsächlich die Sicherheit betrifft), galt für die Teams „Feuer frei“ für ihre Ideen. Das Ziel ist anschließend, die Ideen in das Reglement für den neuen Wettbewerb einfließen zu lassen.

An dem „Wettbewerb vor dem Wettbewerb“ konnten sämtliche Studenten teilnehmen. Sie mussten einen Abstract einreichen, der bewertet wurde. Für die Endrunde qualifizierten sich dadurch 16 Teams. Die Finalisten kommen aus Deutschland, Griechenland, Portugal und den USA. Bei der FSG 2016 präsentieren die Teams ihr Konzept vor einer Expertenjury und die drei besten Teams werden bei der Siegerehrung am Freitag ausgezeichnet.

Auch die Zuschauer können sich die Konzepte bei der FSG 2016 ansehen. Sie werden ab Donnerstag in der Recreation Area auf dem Eventgelände ausgestellt.

STATEMENT

An Automotive Competition Without a Driver?

Ein automobiles Wettstreiten ohne Fahrer?

Dr. Harald Naunheimer
Head of Corporate Research and Development
Leiter zentrale Forschung und Entwicklung
ZF Friedrichshafen AG

The racing series in the Formula classes as well as Formula Student competitions are a symbiosis of driver, team and technology. All three have to deliver a top performance to be successful. "Driverless," the new competition category of Formula Student, may therefore sound slightly bold – an automotive competition without a driver?

Yes! Because, along with electromobility, automated driving is one of the most important trends in the automotive industry. Future mobility will be characterized by more safety, comfort, stress relief and efficiency, and automated driving will be a big part of it. That's why we are playing a major role in helping to shape this area of innovation. We already offer technology that enables vehicles to see, think and act: sensor systems for environment recognition, intelligent control units and mechatronic actuators such as brakes, steering systems and chassis systems.

Providing a car with senses and teaching it how to identify a situation and react correctly is an extremely fascinating job. It is a real challenge for the various specialists from the fields of electronics, IT, mechanics and function development working together as a team to bring all this together. After all, automated driving functions need to make the right decisions in real time. To this end, radar and camera systems record precisely what is happening on the road and around the car. An electronic control unit uses this information to calculate the ideal driving maneuvers and sends signals to the actuators which, in turn, independently actuate the steering, brake and drive systems.
In future, the contestants in the Formula Student Driverless competition will take on this exciting challenge!

Die Rennserien der Formel-Klassen und auch die Formula Student sind eine Symbiose aus Fahrer, Team und Technik. Um erfolgreich zu sein, muss bei allen die Performance stimmen. „Driverless“ als neue Wettbewerbskategorie der Formula Student klingt da zunächst etwas kühn – ein automobiles Wettstreiten ohne Fahrer?

Ja! Denn das automatisierte Fahren ist neben der Elektromobilität einer der wichtigsten Trends in der Automobilbranche. Die Mobilität der Zukunft wird geprägt sein durch mehr Sicherheit, Komfort, Entlastung und Effizienz. Das automatisierte Fahren hat daran wesentlichen Anteil, es ist ein bedeutendes Innovationsfeld, das wir bei ZF mitgestalten werden. Schon heute bieten wir Technik, die Fahrzeuge sehen, denken und handeln lässt: Sensorsysteme für die Umfelderkennung, intelligente Steuerungen und mechatronische Aktuatoren wie Bremse, Lenkung und Fahrwerksysteme.

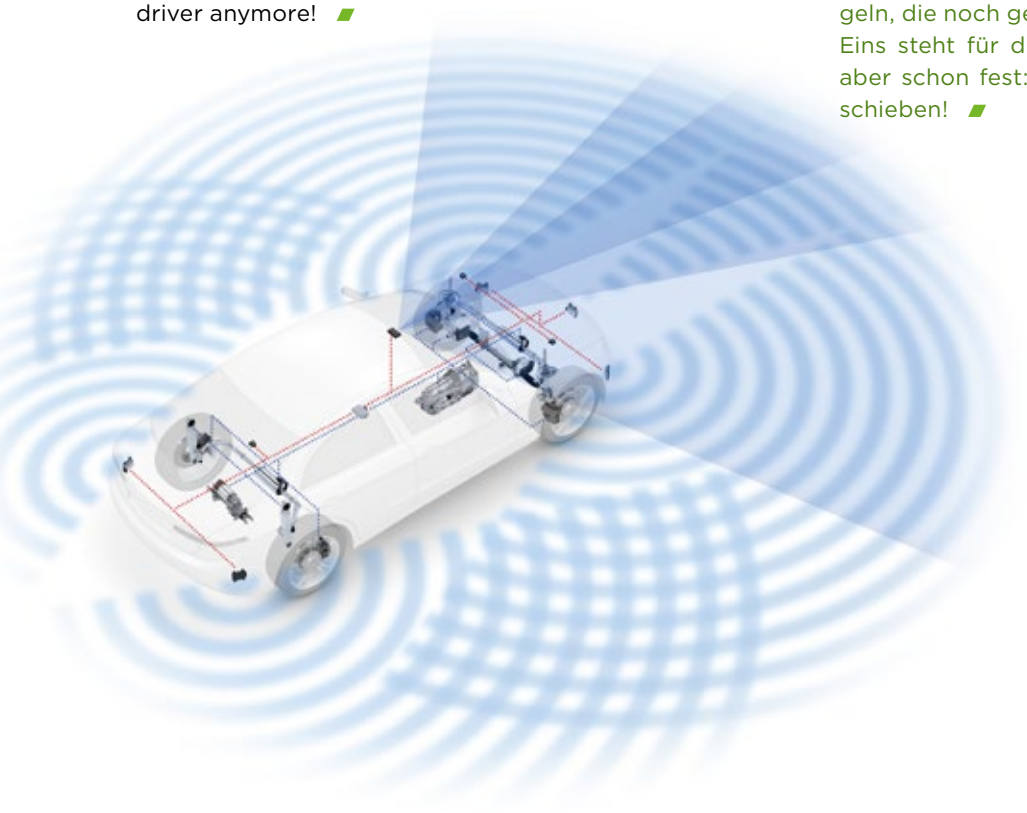
Einem Auto Sinne zu verleihen und beizubringen, Situationen zu erkennen und richtig zu reagieren, ist eine extrem faszinierende Aufgabe. Es ist eine echte Herausforderung für die unterschiedlichsten Spezialisten aus Elektronik, Informatik, Mechanik und Funktionsentwicklung, die als Team gefordert sind: Denn automatisierte Fahrfunktionen müssen in Echtzeit die richtigen Entscheidungen treffen. Radar- und Kamerasysteme erfassen dafür exakt, was auf der Straße und um das Auto herum passiert. Eine elektronische Steuereinheit errechnet aus diesen Informationen ideale Fahrmanöver und sendet Signale an Aktuatoren, die daraufhin Lenkung, Bremse und Antrieb eigenständig betätigen.

One thing applies to both the competition and volume application: Safety is the foundation of automated driving. Because people will only hand over control to the vehicle if they feel perfectly safe. For automated driving functions to become a reality, they have to steer and brake at least as safely as the average car driver – or even more safely.

This will also be reflected in the competition's criteria, which will be jointly developed.
However, one thing is already certain for the teams of Formula Student Driverless: They will not be able to blame the driver anymore!

Dieser spannenden Herausforderung werden sich künftig die Teilnehmer der Formula Student Driverless stellen!
Dabei gilt für den Wettbewerb dasselbe wie für die Serie: Sicherheit ist die Grundlage für das automatisierte Fahren. Denn die Menschen werden erst dann die Kontrolle an das Fahrzeug abgeben, wenn sie sich absolut sicher fühlen. Damit automatisierte Fahrfunktionen Realität werden, müssen sie mindestens so sicher wie durchschnittliche Autofahrer lenken und bremsen – oder noch sicherer.

Dies wird sich auch in den Wettbewerbskriterien widerspiegeln, die noch gemeinsam erarbeitet werden.
Eins steht für die Teams der Formula Student Driverless aber schon fest: Auf den Fahrer kann man es nicht mehr schieben!



WHAT IS DRIVERLESS FOR FSG?

The idea behind Formula Student Driverless is to hand over the driving task from the driver to a technical system. There are many ways how to bring that to reality. In contrast to the field of automated driving on public roads, a competition like the Formula Student can define its own driving environment and disciplines. This is one reason why the competition before the competition was introduced. As part of this, teams were asked to submit their concepts of what the FSD static and dynamic events should look like, as well as explain a safety and security (e.g. car-to-X communication must be secure to prevent external manipulation) concept for the cars and the environment.

All of these concepts have one thing in common, the cars must be able to sense and analyse their environment and must be able to control the car in a suitable way. For a racing event, that also means pushing the car to its limits. From a technical perspective it is expected that future FSD cars will be equipped with a set of sensors (e.g. cameras or laser scanners) and a high amount of processing power to fulfill that ambitious task.

WAS BEDEUTET „FAHRERLOS" FÜR DIE FSG?

Der Grundgedanke der Formula Student Driverless ist es, die Aufgabe des Fahrens vom Fahrer auf ein technisches System zu verlagern. Es gibt viele Möglichkeiten, dies zu realisieren. Im Gegensatz zum automatisierten Fahren auf öffentlichen Straßen, kann ein Wettbewerb wie die Formula Student eine eigene Umgebung und eigene Disziplinen festlegen. Daher wurde der Wettbewerb vor dem Wettbewerb ausgerufen: Die Teams wurden gebeten, ihre Konzepte für statische und dynamische FSD-Disziplinen einzureichen, sowie ein Konzept für sowohl die Betriebssicherheit des Autos als auch für die „Manipulationssicherheit" (z.B. zur Verhinderung von Zugriffen von außen) zu erläutern.

Alle diese Konzepte haben eins gemein: Die Autos müssen ihre Umgebung wahrnehmen, analysieren und jederzeit die Kontrolle behalten können. Im Rahmen eines Rennsportwettbewerbs müssen die Autos außerdem an ihre Grenzen fahren. Aus technischer Perspektive ist abzusehen, dass zukünftige FSD Autos mit Sensoren (z.B. Kameras oder Laserscanner) und enormer Rechenleistung ausgestattet werden, um diese anspruchsvolle Aufgabe zu meistern.

The Volunteers of FSG

Die Ehrenamtlichen der FSG

Every year, it takes over 450 volunteers to make Formula Student Germany a reality. The team of volunteer's function like a well-oiled machine, tackling the ever-growing challenges of the annual event with honed skill and passionate dedication. The volunteers are divided into different groups according to their area of expertise. For example, there are the **scrutineers**, the **judges**, the **red shirts** and the **white shirts**. These are people who handle the many tasks of planning, organising and running the event, as well as helping out and answering questions. The colour of their shirt will tell you just who they are and what their role is at FSG.

The white shirts are in charge of the year-long task of planning the event and of ensuring that everything falls into place as it should on race day. They are the "go-to" people for sponsors, press, participants and visitors and they ensure that the competition runs without a hitch.

The red shirts have jurisdiction over event control and event support. The support team takes care of building up and taking down of every physical transformation that turns the Hockenheim Ring into Formula Student Germany. We need them to ensure that the event runs smoothly. They also act as the track marshals during dynamic events. The so-called **"red-girls"** of the event control team serve as intermediaries between visitors, team members, sponsors and press, so that nobody on FSG grounds is left lost or stranded. The largest group of volunteers in FSG, the red shirts are the ones who make it possible to take on whatever challenges might arise during the event.

Über 450 ehrenamtliche Helfer sind Jahr für Jahr an der Organisation und der Umsetzung der Formula Student Germany beteiligt. Mit Leidenschaft und Engagement meistern sie die stetig wachsenden Herausforderungen, die das Event jedes Jahr aufs Neue mit sich bringt. Die Aufgaben können sie nur als eingespieltes Team bewältigen, das sich aus fünf Funktionsbereichen zusammensetzt: So gibt es die **Scrutineers**, die **Juroren**, die **Redshirts** und die **Whiteshirts** sowie das **Media & IT-Team**. Die unterschiedlichen Gruppen setzen sich dafür ein das Event zu planen, vorzubereiten und vor Ort umzusetzen. Durch ihre verschieden farbige Kleidung lässt sich schnell erkennen, wer über welche Kompetenzen verfügt und somit der ideale Ansprechpartner bei Fragen ist.

Für die ganzjährige Planung der Veranstaltung und deren reibungslose Umsetzung auf dem Eventgelände sind die Whiteshirts verantwortlich. Sie sind Ansprechpartner für Teilnehmer, Sponsoren, Medienvertreter und Besucher.

Für die Bereiche „Event Support" und „Event Control" sind die Redshirts zuständig. Das Support-Team kümmert sich um den Auf- und Abbau und unterstützt die Whiteshirts bei der Durchführung des Events. Des Weiteren kommt den Redshirts die Aufgabe zu, die Streckenposten während der dynamischen Events zu besetzen. Die **„Red-Girls"** des Event Control-Teams bilden die Schnittstelle zwischen Besuchern, Teammitgliedern, Sponsoren und Medienvertretern. Sie sorgen dafür, dass niemand hilflos auf dem Gelände zurückbleibt. Die Redshirts stellen insgesamt die

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The scrutineers - the folks in green- are there to guarantee that all the vehicles are safe. They accomplish this by meticulously checking the cars for potential safety hazards and patiently assisting the teams with any technical problems. A team may not participate in the dynamic events without receiving the go-ahead from our green-shirted volunteers.

Since FSG is essentially a design competition, a team's scoring in the static disciplines is a big factor in its overall standing. It is the job of the judges in their blue shirts to render these scorings. They look at the design, construction, and cost planning; they consider the economics of the project and whether the business plan is a convincing one. It is in great part by their professional expertise, indispensible honesty and constructive criticism that the teams have shown such positive development over the past years.

Don't however neglect what must go on in the background to make the small things we take for granted come to reality. The IT experts are tasked with timekeeping during the dynamic disciples, ensuring that all teams are given a fair and equal assessment. Not only this, but it is thanks to them that the officials and participants can all enjoy a high-speed Internet connection!
Every year, the FSG media team treats the amazed spectators and fans to video and image materials of exceptional quality and creativity.
Their contributions allow us to relive again and again the most stunning and unforgettable moments of the event, long after the smoke from the tires of the race-cars has cleared.
Year after year, it is our great pleasure to prepare a week of incomparable FSG excitement and entertainment for visitors and sponsors alike, for veteran participants and for those who are entering the event for the first time.

This year, we are happy to once again be at hand with advice and assistance!

größte Gruppe ehrenamtlicher Helfer bei der FSG dar. Nur durch ihre Hilfe ist es überhaupt möglich, die vielseitigen, spontanen Herausforderungen während des Events zu meistern.

Für die Sicherheit der Fahrzeuge sind die in grün gekleideten Scrutineers verantwortlich. Sie überprüfen die Boliden der Teilnehmer auf etwaige Sicherheitsmängel und stehen den Teams bei technischen Problemen mit ihrer Expertise helfend zur Seite. Ohne eine fehlerfreie technische Abnahme erhält kein Team die Erlaubnis, an den dynamischen Disziplinen teilzunehmen.

Da es sich bei der FSG um einen Konstruktionswettbewerb handelt, tragen die statischen Disziplinen wie Konstruktion & Design sowie Kostenplanung in erheblichem Maße zur Gesamtwertung bei. Die Juroren, in blau gekleidet, bewerten diese Disziplinen ebenso wie auch die Präsentation der detaillierten Geschäftspläne im Hinblick auf die Wirtschaftlichkeit des Gesamtprojektes. Sowohl die fachliche Kompetenz der Juroren als auch die ehrliche und konstruktive Kritik haben über die vergangenen Jahre hinweg zur positiven Weiterentwicklung der Teams beigetragen.

Zusätzlich wird auch im Hintergrund viel getan, um einen reibungslosen Ablauf des Events zu gewährleisten und Dinge zu ermöglichen, die uns als selbstverständlich erscheinen. Die IT-Experten, in schwarz gekleidet, sind für die Zeitmessungen verantwortlich. Damit tragen sie dazu bei, dass alle Teams fair und gleichwertig beurteilt werden. Außerdem statten sie das Eventgelände mit einer Highspeed-Internetverbindung für die Offiziellen und Teammitglieder aus.
Das Media-Team der FSG, ebenfalls in schwarz gekleidet, überrascht interessierte Beobachter jedes Jahr erneut mit der Professionalität und Kreativität seines Video- und Bildmaterials. Diese Beiträge erlauben es, die schönsten und unvergesslichsten Momente der Veranstaltung auch nach ihrem Ende weiter aufleben zu lassen. Jedes Jahr erneut ist es uns eine große Freude, langjährigen sowie neuen Teilnehmern, Besuchern und Sponsoren eine unvergleichbare, spannende und unterhaltsame Woche bei der Formula Student Germany zu bieten. Wir freuen uns, Ihnen auch in diesem Jahr wieder mit Rat und Tat zur Seite zu stehen.

Formula Student Germany Team 2016

The team behind Formula Student Germany is divided into three groups. The board is responsible for Formula Student Germany, its operations, finances, sponsoring and overall strategy. Das Team der Formula Student Germany ist in drei Gruppen unterteilt. Das Board trägt die Verantwortung für die Formula Student Germany und ihre Kooperationen sowie für Sponsoring, Finanzen und Strategie.

TIM HANNIG
Board (Chairman)
Jaguar Land Rover Ltd.

DANIEL MAZUR
Board (Event Manager)
mazur | events + media

LUDWIG VOLLRATH
Board (External Relations)

RAINER KÖTKE
Board (Finance), EC (Dynamics)
Volkswagen AG

FRANK RÖSKE
Board (Rules)
Porsche Leipzig GmbH

The executive committee (EC) is responsible for the design and development of the competition. Each member of the EC is responsible for one of the fields of the competition and its organisation. Das Executive Committee (EC) veranwortet die Ausgestaltung des Wettbewerbs. Jedes Mitglied ist für Vorbereitung und Durchführung eines Bereiches verantwortlich.

JOHANNES KRATZEL
EC (Event Support)
Robert Bosch GmbH

KONRAD PAULE
EC (FS-Academy) & Pit Marshal
Dr. Ing. h.c. F. Porsche AG

SEBASTIAN SEEWALDT
EC (New Rules) & Pit Marshal
Dr. Ing. h.c. F. Porsche AG

ROB OPDAM
EC (M & E Inspection)
RWTH Aachen University

TORSTEN RILKA
EC (Statics) & Scoring
Volkswagen AG

ULF STEINFURTH
EC (Mechanical Inspection)
University of Applied Sciences Stralsund

The operative team (OT) supports the board and EC in the preparation and realisation of the event throughout the year. Das Operative Team (OT) unterstützt das Board und das EC in der Vorbereitung übers Jahr und in der Durchführung des Wettbewerbs.

DANIEL AHRENS
OT (Event Control)
Dentsu Aegís Network

CATHRIN BECKER
OT (Press Office)
Verein Deutscher Ingenieure e.V.

MARIA BONILLA-TORRES
OT (Electrical Inspection)
Robert Bosch GmbH

SARAH-KRISTIN BATTIGE
OT (Electrical Inspection)
TU Dresden

RAPHAELA BIHR
OT (Business Plan Presentation)
MAN Truck & Bus AG

MATTHIAS BRUTSCHIN
OT (Event Support)
DAIMLER AG

MATTHÄUS DECKER
OT (Event Support)
Siemens AG Österreich

SIMON DENSBORN
OT (Electrical Inspection)
University of Stuttgart

RICARDA FRIES
OT (Communications)

SVEN GRUNDNER
OT (Back Office)

STEFFEN HEMER
OT (FS-Driverless)
TU Kaiserslautern

PETER JAKOWSKI
OT (Security)
Bosch Engineering GmbH

NORINA KURTH
OT (Registration & Ticket Centre)
SICAT GmbH & Co. KG

PETER LEIPOLD
OT (Design Event)
ZF Friedrichshafen AG

LENA PAULE
OT (Communications)
ABB AG

JOST PHILIP PÖTTNER
OT (Design Event)
Red Bull Technology

KRISTINA PUTH
OT (Communications)

KLAUS SCHEUPLEIN
OT (Communications & Photographers)
Brose Fahrzeugteile GmbH & Co. KG

TIM SCHMIDT
OT (Back Office)
Mankiewicz Gebr. & Co.

PATRICK STENNER
OT (Mechanical Inspection)
Technische Universität München

BARBARA DECKER-SCHLÖGL
OT (Event Support)
MAGNA Steyr Fahrzeugtechnik

LUKAS FOLIE
OT (FS-Electric)
AUDI AG

JULIAN GÖBEL
OT (FS-Driverless)
Bosch Engineering GmbH

TINE HANNIG
OT (Communications)

SEBASTIAN HOPPE
OT (Cost Event)
ZF Friedrichshafen AG

LEONA KÖTKE
OT (Visa)

ANKE LACHMANN
OT (VIP Lounge & Culina)
Step by Step - Studio für Ballett und Bewegung

FABIAN LIESCH
OT (IT & Timekeeping)
Alpha Sigma GmbH

ALIA PIERCE
OT (Communications & FSG TV)
Continental Engineering Services (UK)

WOLF-BASTIAN PÖTTNER
OT (IT & Timekeeping)
Bosch Connected Devices and Solutions GmbH

HELENA REINKE
OT (Event Manager Assistant)
Formula Student Germany e.V.

JOCHEN SCHMIDT
OT (Dynamics)
DLR

KARSTEN STAMMEN
OT (Dynamics)
AUDI AG

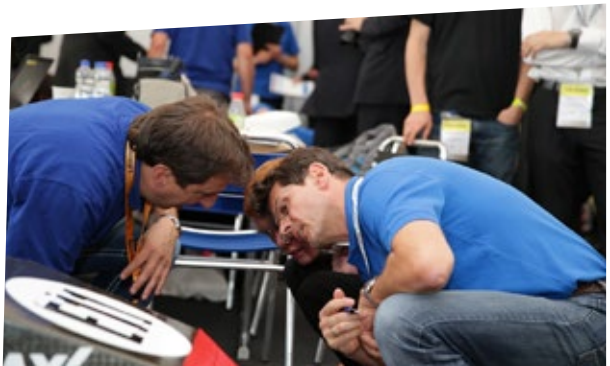
Judges 2016

Business Plan Presentation

BJEKOVIC, Robert
BRECHTELSBAUER, Thomas
BRUENN, Katja
DELLER, Uwe
DESS, Manfred
DIGHELLO, Alfonso
DUTT, Birgit
EICKHOFF, Mathias
ESSER, Klaus
FAHR, Alexander
FERKEN, Reiner
FRANK, Detlef
GREINER, Alexander
HAHN, Thomas
HARTHERZ, Patrik
HAYN, Bernhard
HEIDEMEYER, Peter
HERRMANN, Jesko
HODGKINSON, Philip
HODGKINSON, Raymond
JUNGE, Tobias
KÄFER, Timo Michael
KAHLE, Nari
KARSCH, Ulrich
KINSKI, Andreas
LANGE, Stephan
LENZEN, Thomas
LEYH, Michael
LÖFFLER, Maximilian
MANNHARDT, Carl
MAURER, Andreas
MUELLER, Andreas
NÄTHER, Sylvio
NIEMEYER, Reinhard
NUSCHELER, Barbara Christine
OTT, Tobias
PETERS, Jan
PILAT, Yves
PORSCH, Stefan
PRINZ, Michael
RUX, Christopher
SCHLEMMER, Franziska
SENDZIK, Susanne
STERR-BARTSCHAT, Claudia
STOCKHEIM, Andreas
TABATABAI, Stefan
TEMPLIN, Nicholas
VADEHRA, Bernhard Prem
VON BERG, Katrin
WIDDERSHOVEN, Guido
WOLFER, Richard

Cost Analysis

BERTRAM, Michael
BUOB, Manuel
BRUNNER, Daniela
FROMM, Claudia
GERHARD, Mike
GRAUEL, Patrick
GRUNDNER, Harald
GULAS, Tomas
HACKER, Clemens
HAGL, Markus
HANSTEIN, Andreas
HERTH, Martin
HEY, Matthias
KEHR, Guenter
KLEIN, Christian
KOBLISCHKE, Alexander
KRAUSS, Heiko
LAUCH, Kurt
LEHR, Mario
LOVELL, Caspar
MASCHKE, Paulina
MAYER, Fabian
MEIER, Peter
MEIER, Stefan
MERKL, Julia
MOREL, Romain
MÜLLER, Karsten
OPPERMANN, Thilo
PILTZING, Roger
RAU, Fabian
REGH, Fabian
RIEDRICH, Tina Karolin
RUSH, Agnes
SCHIFFER, Wilhelm
SCHWENKE, Henning
SPAN, Benjamin
STRAUB, Christian
STRAUBERT, Alexander
STROHBACH, Anja
WEBER, Axel
WENSCH, André
WINKLER, Tino
WÖRZ, Wolf



Engineering Design

AERTS, Joris
AMANN, Matthias
ASCIOGLU, Andreas
BAIER, Karlheinz
BLANUSA, Denis
BOHNER, Christian
BOLZ, Peter
BREMKAMP, Joerg
BÜRCKEL, Dagmar
BURGHARDT, Daniel
CALERO, Manuel
CARLESS, Owen
CHRISTOFFERSEN, Lasse
CLARKE, Pat
COLLENBERG, Michael
DANIEL, Marc
DECKERS, Jean-Noel
DENCKER, Peter
DIMITROV, Michael
DITTRICH, Rudolf
DOETTLING, Thomas
DÖLLE, Norbert
DROOGENDIJK, cas
ENGEL, Valerie
ENGLER, Friedhelm
EWERT, Sebastian
FISCHER, Raphael
FISCHER, Stefan
FREDE, Daniel
FRIEDRICH, Linus
FRIES, Benedikt
GARDUNO, Luis
GAWLIK, Marek
GERTH, Hendrik
GESELE, Frank
GIEBENHAIN, Clenn
GINETE, Joao
GLOGER, Stefan
GOSLICH, Leonhard
GRAMS, Sebastian
GRUBER, Gregor
HAHN, Christoph
HALSDORF, Georges
HAMMANN, Frank-Michael
HANIGK, Martin
HANISCH, Thomas
HENNINGS, Thomas
HICKSON, Alex
HICKSON, Alex
HÖLZGEN, Andre
HÜGEL, Rudolf
HÜPER, Harald
JAKOBI, Reinhard
JOEDICKE, Anne
KAUSSEN, Martin
KERBER, Michael
KLUTH, Volker
KOLB, Christian
KOPANAKIS, Alexander
KORTEN, Mike
KRAMER, Jochen
KRAPPEL, Michael
KUDRITZKI, Detlef
KÜPPERS, Jörg
LANGE, Martin
LIEBST, Fabian
LIECHTI, Stefan
LÖCHNER, Joachim
LOPEZ, Jose
MÄHLER, Mathias
MALACK, Sebastian
MAREK, Christian
MICHAELS, Tobias
MILKE, Burkhard
MISSLER, Christian
MORESCHI, Marcel
MUEHL, Nils
MUELLER, Rolf
MUEMMLER, Rainer
MÜLLER, Sebastian
NEAV, Yongchin
NEERPASCH, Uwe
NILSSON, Lars
NOWICKI, Daniel
PADBERG, Jochen
PATTON, Chris
PETI, Philipp
PETRY, Markus
PETZ, Andreas
QUARZ, Philipp
RAUCH, Markus
REITZ, Jörg André
REMMLINGER, Jürgen
RENNER, Dominik
REUBOLD, Philipp
RISING, David
ROQUETTE, David
ROUELLE, Claude
SACHSE, Mick
SANDER, Udo
SANDLER, Jan
SATTLER, Steve
SCHÄFER, Michelle
SCHIMMELS, Juergen
SCHMITZ, Tom
SCHNORR, Jörg
SCHOEN, Wolfgang
SCHULZ, Achim
SCHWEIGERT, Waldemar
SEIB, Timo
SHAW, Richard
SOENS, Andreas
SPEED, BENJAMIN
SPOIDA, Thomas
STELZIG, Michael
STOLZ, Franz
STRASSER, Roman
SUHARTO, Reza Garibaldi
TEUFEL, Simon
ULRICH, Niels Ole
VÖLKL, Timo
WAGNER, Thomas
WALTER, Thomas
WEBER, Martin
WEBER, Thomas
WEIDEMANN, Reiner
WEINFURTNER, Sven
WEINGART, Robert
WENGERT, Jochen
WOLPERT, Sven
WUNSCHHEIM, Lukas
ZECHMANN, Hannes
ZEISBERG, Marcel
ZHANG, Chen
ZINKE, Christopher
ZÖLS, Thomas

Scrutineers and Redshirts

2016

Scrutineers


2015

ASH, Howard
BEISSWANGER, Christoph
BRANDAUER, Jakob
BRECHTMANN, Nick
BRÜGEL, Willi
CLAUSSNITZER, Eric
EHINGER, Christian
ELAND, Efraïm
EPPLE, Nico
FETZER, Matthias
HADER, Stefan
HEGEDUS, Miki
HUBER, Marius
JAKOB, Dominic
KIRCHOFF, Sarah
KLÖSS, Karl
KNEER, Sarah
KREHER, Tina
KRUITHOF, Richard
MAUL, Ralf
METZEN, Matthias
MÖLLER, Benjamin
MONN, Marcial
MÜLLER, Benjamin
MÜLLER, Winfried
PÄRSCHKE, Roman
PLETSCHKE, Tobias
RAAPKE, Richard
RIES, Eveline
SCHIMPITZ, Christian
SCHMITZ-RODE, Benedikt
SCHMUCK, Lennart
SCHNEIDER, Lena
SCHOLZ, Juergen
SCHRÖDER, Tilman
SCHÜTZE, Thomas
THOMASSEN, Kevin
TIEMANN, Maik
TUITERT, Jet
VANDENHENDE, Wouter
WITTICH, Mark
WOLFSBERGER, Stefan
WRAGE, Christian

Redshirts, Media, TK & IT


2015

AGOCS, Csilla
AHRENS, Andreas
AMERSBACH, Christian
BADIYE, Yash
BARRABAS, Sascha
BÄUERLEIN, Sonja
BAUFELD, Aaron
BAYER, Konrad
BERGAN, Stephanie
BOESSENKOOL, Rick
BOLÓN BRUN, Natalie
BORRMANN, Daniel
BRAUSER, Austin
BRINK, Stefan
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BUCK, Pierre
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CLEMENS, Oliver
DE JONG, Stef
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DEMEURICY, Paul
DIETRICH, Franziska
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GÖTZ, Oliver
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INTERVIEW
DR. KARLHEINZ BLESSING

NEW CHALLENGES DEMAND NEW IDEAS

NEUE HERAUSFORDERUNGEN BRAUCHEN NEUE IDEEN

Dr. Karlheinz Blessing
Chief Human Resources Officer
Personalvorstand
Volkswagen AG

Karlheinz Blessing is the Chief Human Resources Officer at Volkswagen and is responsible for more than 600,000 employees. He sees the automotive industry on the threshold of a New Age: digitalisation and electrification require new thinking and work methods, new problem solving strategies, capabilities and structures.

Karlheinz Blessing ist Volkswagen Personalvorstand mit Verantwortung für mehr als 600.000 Mitarbeiter von Marke und Konzern. Er sieht die Automobilbranche an der Schwelle zu einem Neuen Zeitalter: Digitalisierung und Elektrifizierung erfordern neue Denk- und Arbeitsweisen, neue Problemlösungsstrategien, Kompetenzen und Strukturen.

Dr. Blessing, what is Volkswagen's vision for the mobility of the future?
The car of the future will be entirely different from what we know today. Not just in terms of powertrains, but also as regards the entire customer experience. We want to play a decisive role in shaping this development. That is why Volkswagen is evolving from a car manufacturer to a provider of sustainable mobility. Our Company will continue to develop and build state-of-the-art cars, but we are also establishing a further strong business unit focusing on mobility solutions that offer our customers an entirely new experience and even greater usability. One thing is certain: the mobility of the future will be very exciting!

The mobility of the future will be very exciting!

Die automobile Mobilität der Zukunft wird sehr spannend!

How is Volkswagen preparing for this change – also in respect of its role as an employer?
Our company is working very hard on future technologies such as electromobility and digitalization, and is doing so by harnessing the concentrated innovative power of the Volkswagen brand. At the same time, we are becoming ever more modern as an employer. We are developing new work methods and work-time models which give our employees even more flexibility in their work-life balance. That includes mobile work, for example, which allows our employees to perform their work outside of the office environment.

Herr Dr. Blessing, welche Vision hat Volkswagen für die automobile Mobilität der Zukunft?
Das Automobil der Zukunft wird ganz anders als sein als wir es heute kennen. Das betrifft nicht nur die Antriebe, sondern das gesamte Kundenerlebnis. Wir wollen diese Entwicklung maßgeblich mitgestalten. Volkswagen wandelt sich deshalb vom Automobilhersteller zu einem Anbieter nachhaltiger Mobilität. Wir entwickeln und produzieren im Unternehmen also weiterhin modernste Autos, bauen aber ein weiteres starkes Geschäftsfeld auf. Hier geht es um Mobilitätslösungen, die unseren Kunden ein völlig neues Erlebnis und noch höheren Nutzwert bieten. Fest steht: Die automobile Mobilität der Zukunft wird sehr spannend!

Wie bereitet sich Volkswagen – auch als Arbeitgeber – auf diesen Wandel vor?
Wir treiben Zukunftstechnologien wie Elektromobilität und Digitalisierung im Unternehmen mit Hochdruck voran. Dabei setzen wir auf die geballte Innovationskraft der Marke Volkswagen. Zugleich werden wir als Arbeitgeber immer moderner. Wir entwickeln neue Arbeitsweisen und Arbeitszeitmodelle, die unseren Beschäftigten noch mehr Flexibilität geben, Privates und Beruf miteinander zu vereinbaren. Dazu gehört zum Beispiel die mobile Arbeit. Das heißt, man kann seine Arbeit auch außerhalb des Büros erledigen.

Does this result in new priorities for employee training and qualification? What fields of study are becoming more important?
Digitalization will revolutionize the world of work on the shop floor and in the office. There will be entirely new tasks. We are preparing our workforce for this with intensive qualification programs and making them fit for digitalization. At the same time, we are steering our manpower requirements with an eye to the automobile future. That means we are recruiting the best talent in mechanical engineering, vehicle construction or electrical engineering, in lightweight construction, production technology and information technology.

What does an international design competition such as Formula Student mean in this context?
As an enthusiastic racing fan I know you can only be successful in racing if you have a strong team. And a team spirit is one of the strong points of Formula Student, because it not only calls for individual skills, but also for the interdisciplinary knowledge of the participants and their competence in collaborating efficiently in a team. Every single member of the team must contribute their know-how and creativity in order to put a completely new car on the track each season. And it is equally important that the entire team works together in a target-oriented partnership. And that is exactly what is important for successful work at Volkswagen, too. Formula Student encourages these competencies in a unique way. And that is why I have been a fan for many years and supported the competition for a long while, going back to my time in the steel industry.

A new class – Formula Student Electric – was developed five years ago and met with an extremely positive response from the teams. Where could Formula Student go from here in its development?
I think it is great to see Formula Student moving with the times – and in fact sometimes even being one step ahead. Take Formula Student Electric, for example, which has been up and running for five years already, or this year's "Driverless Concept Award". Looking to the future, I would like to see Formula Student continue to put the emphasis on innovative drive concepts and future technologies such as autonomous driving.

Ergeben sich neue Schwerpunkte in der Ausbildung und Qualifizierung der Mitarbeiter? Welche Studienrichtungen werden wichtiger?
Die Digitalisierung wird die Arbeitswelt in Fabrik und Büro revolutionieren. Es werden ganz neue Aufgaben entstehen. Darauf bereiten wir unsere Beschäftigten mit intensiver Qualifizierung vor und machen sie fit für die Digitalisierung. Zugleich steuern wir unseren Personalbedarf mit Blick auf die automobile Zukunft. Dazu stellen wir die Besten ihres Fachs ein: aus Maschinenbau, Fahrzeugbau oder Elektrotechnik, aus Leichtbau, Produktionstechnik und Informationstechnologie.

Was bedeutet in diesem Kontext ein internationaler Konstruktionswettbewerb wie die Formula Student?
Als begeisterter Rennfahrer weiß ich: Im Rennsport ist man nur mit einer starken Mannschaft erfolgreich. Und Teamgeist zeichnet auch die Formula Student aus. Denn sie fordert nicht nur das eigene Können, sondern auch das interdisziplinäre Wissen der Teilnehmerinnen und Teilnehmer und ihre Kompetenz, im Team effizient zusammenzuarbeiten. Alle im Team müssen ihr Know-how und ihre Kreativität einbringen, um in jeder Saison ein komplett neues Auto auf die Rennstrecke zu bringen. Genauso wichtig: Alle im Team müssen zielorientiert zusammenarbeiten. Genau das ist es, was auch für eine erfolgreiche Arbeit bei Volkswagen wichtig ist. Die Formula Student fördert diese Kompetenzen auf einzigartige Weise. Deshalb bin ich seit vielen Jahren ihr Fan und habe sie schon lange, auch in meiner Zeit in der Stahlindustrie, unterstützt.

Vor fünf Jahren wurde mit der Formula Student Electric eine neue Klasse entwickelt, die auf äußerst positive Resonanz bei den Teams gestoßen ist. Was könnten die nächsten Schritte einer Weiterentwicklung in der Formula Student sein?
Ich finde es klasse, dass die Formula Student auf der Höhe der Zeit ist – und manchmal sogar einen Schritt voraus. Das zeigt nicht nur die Formula Student Electric, die es bereits seit fünf Jahren gibt, sondern auch der diesjährige „Driverless Concept Award". Für die Zukunft wünsche ich mir, dass in der Formula Student weiterhin viel Wert auf innovative Antriebskonzepte und Zukunftstechnologien wie autonomes Fahren gelegt wird.

INTERVIEW

TORSTEN RILKA AND HIS JUDGES

TORSTEN RILKA UND SEINE JURORENEN

I am a classic. At the end of 2009, whilst studying for my Masters, I was brought into the world of Formula Student during a recruiting event for the WHZ Racing Team in Zwickau. After two years of being in the team, in 2011, I moved to the Formula Student Operative Team and since then, still have the same enthusiasm as I did on day one.
As of FSG 2012, I have been organising the Special Awards during the event. Last year, I was also put in charge of the FSG Static Events and so am now responsible for the judges and sponsors.
The judges (jury group) are made up of dedicated employees of our sponsors and many former team members (FS Alumni). They significantly contribute to the overall score of a team during the competition, as through their reviews, they decide on the success of the teams in the Static Events. And, they all share the same enthusiasm for Formula Student!

Torsten Rilka

Ich bin klassisch, Ende 2009 während meines Masterstudiums, über die Recrutingveranstaltung des WHZ Racing Teams aus Zwickau in die Welt der Formula Student gekommen. Nach zwei Jahren im Team wechselte ich 2011 die Seiten ins Formula Student Germany Operative Team und bin seitdem mit gleicher Begeisterung dabei wie am ersten Tag.
Seit der FSG 2012 organisiere ich den Ablauf der Special Awards während des Events. Im vergangenen Jahr habe ich die Leitung des Statics Teams übernommen und betreue daher nun auch die Sponsoren und ihre Juroren. Neben engagierten Mitarbeitern unserer Sponsoren sind auch viele ehemalige Teammitglieder, sogenannte Alumni, Teil der Jurorengruppe. Die Juroren tragen maßgeblich zur Gesamtpunktzahl eines Teams im Wettbewerb bei, da sie durch ihre Bewertungen über den Erfolg der Teams in den statischen Disziplinen entscheiden. Und alle teilen sie die gleiche Begeisterung für die Formula Student!

How many judges are there at FSG?
Since 2010, 563 judges have been part of FSC and FSE. At every event between 160-190 judges attend for the 115 competing teams. From these judges, 113 have taken part in four or more events.

What does a day as a judge look like?
The static events take place between Thursday and Saturday. The judges arrive on Thursday morning. The first thing that happens is the registration and hand out of equipment consisting of a shirt, pen, notepad and a file of the teams as well as a copy of their schedules. Up to lunchtime, they will have their individual briefings on the Cost, Design and Business Plan Events. After the lunch break, the static disciplines for FSE begin. In parallel, part one of the Special Awards for FSC and FSE teams take place in the FSG forum. In the evening the judges gather once again for the debrief. The first day comes to an end with the FSE Business

Wie viele Juroren gibt es bei der FSG?
Seit 2010 haben 563 Juroren an der FSC und FSE teilgenommen. Dabei kommen pro Event zwischen 160 und 190 Juroren auf 115 teilnehmende Teams. Von diesen Juroren haben 113 bereits an vier und mehr Events teilgenommen.

Wie sieht der Tagesablauf bei einem Juror aus?
Von Donnerstag bis Samstag finden die statischen Disziplinen statt. Die Juroren reisen am Donnerstagmorgen an. Nach der Registrierung und Ausrüstung mit Shirt, Stift, Block, Teammappen sowie Zeitplänen finden bis Mittag die einzelnen Briefings in Cost, Design und Business statt. Nach der Mittagspause beginnen die statischen Disziplinen für die FSE-Teams – parallel laufen die Special Awards für FSC- und FSE-Teams im FSG Forum. Am Abend kommen die Juroren für ein Abschlussbriefing zusammen. Der erste Tag endet mit den Businessfinals der FSE-Teams auf der Hauptbühne. Aufgrund der größeren Anzahl an Teams

Pioneering spirit – there is no better fuel for progress!

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Welcome to MTU in Friedrichshafen, Germany.
We look forward to hearing from you.

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mtu

Power. Passion. Partnership.

Plan Finals on the main stage. Due the the large number of teams, the static events for the FSC teams start on Friday morning. The second part of the Special Award judging takes place once again in parallel. On Friday evening, the Business Plan Finals for FSC take place, as well as the Design Finals for the FSE teams. The Design Finals for the FSC teams then follow on Saturday evening.

Is every judge allowed to take place in the Finals?
Whilst all the judges participate in the Business Plan Finals to see the best teams at the same time, only experienced judges judge the Design Finals. This group includes judges who have been volunteering for many years and judges who were former team members who have gained a lot of experience when they were active in a team.

What is a Chief Judge?
Due the to the large number of teams, it is not possible for every judge to see every team. As a result, we have our Chief Judges. They mediate in discussions and make sure that points are weighted equally from the individual juries. To avoid some teams facing only the demanding judges and others facing ones that are easy to excite, the judges rotate and don't remain fixed in a group – also to ensure a uniform evaluation.

Are there preferred judging categories?
As with the trend of the teams, the technical beats the economical. The spots for design judges are always in demand. For this reason, every year, we have to turn down the applications of a lot of good judges.

beginnen die statischen Disziplinen für die FSC-Teams bereits am Freitagmorgen. Parallel laufen weitere Special Awards. Am Freitagabend finden die Business Plan Presentation Finals für die FSC sowie die Design Finals für die FSE-Teams statt – die Design-Finals für die FSC-Teams folgen am Samstagabend.

Darf jeder Juror an den Finals teilnehmen?
Während bei den Businessplan Finals alle Juroren teilnehmen, um gleichzeitig die besten Teams zu sehen, nehmen an Design-Finals die erfahrenen Juroren teil. Zu dieser Gruppe gehören langjährige Juroren oder auch Juroren, die bereits als aktives Teammitglied viele Erfahrungen gesammelt haben.

Was ist ein Chief Judge?
Auf Grund der Anzahl der Teams ist es nicht möglich, dass jeder Juror jedes Team sieht. Aus diesem Grund gibt es unsere Chief Juroren. Sie vermitteln bei Diskussionen und stellen sicher, dass die Punkte aus den einzelnen Jurorengruppen gleichgewichtet sind. Um zu vermeiden, dass ein Team ausschließlich auf anspruchsvolle Juroren trifft und ein anderes auf solche, die leicht zu begeistern sind, rotieren die Judges und bleiben nicht in einer festen Gruppe. So können wir zusätzlich zu den Chief Judges eine gleichmäßige Bewertung sicherstellen.

Gibt es Jurorenkategorien die beliebter sind?
Tendenziell ist es wie bei den Teams – die Technik schlägt die Wirtschaft. Die Plätze für die Design-Juroren könnten wir zu jedem Event mehrfach vergeben. Aus diesem Grund müssen wir leider auch jedes Jahr viele Absagen an gute Juroren schreiben.

COMMENT

Shaping Mobility for Tomorrow

Prof. Dr. Peter Gutzmer
Deputy CEO and Chief Technology Officer
Vorstand Technologie
Schaeffler AG

Watching Formula Student Germany live at the Hockenheim Ring is a very special experience. The air is laden with tension, team spirit, and the thirst for competition. The students put so much energy into building their race cars – working, adapting and optimizing until the very last minute in order to achieve the best result in every discipline. It goes without saying that this immense enthusiasm is infectious and the sponsors also get swept up in it.

This passion is the exact reason why Schaeffler supports multiple Formula Student teams all over the world every year, by providing funding, components and expertise. Of course, the students that make up these teams gain immensely valuable, in-depth practical experience: They require a comprehensive technical understanding and the ability to organize themselves well, calculate costs, and formulate sales arguments. This is no different from project management as it is practiced in the day-to-day working environment, so it is a major advantage to them later on as they embark on their professional careers.

Most importantly, the commitment that can be seen in a Formula Student team also reflects dedication and passion for technology. For Schaeffler, establishing a network with young and motivated people is vitally important for the future Formula Student allows these up-and-coming engineers to test ideas of their own and try out new things, and thus provides them with an innovative way of familiarizing themselves with future-oriented topic areas. This spirit of innovation, the thrill of adapting and improving in competition, and a passion for the technologies of the future are the elements that Schaeffler needs in order to shape “Mobility for tomorrow”, which means that these young people are the embodiment of the talent that Schaeffler looks for in its employees.

It should come as no surprise, therefore, that Schaeffler is one of the event’s main sponsors for the third time. We are delighted to be able to support Formula Student Germany and its up-and-coming racing talent, and we wish all of the students taking part, a successful event at the Hockenheim Ring.

Bei der Formula Student Germany am Hockenheimring dabei zu sein, ist ein besonderes Erlebnis. Der Teamgeist, die Anspannung und das Wettbewerbsfieber hängen förmlich in der Luft. Die Studenten stecken so viel Energie in ihre Rennwagen, sie tüfteln, schrauben und optimieren bis zum letzten Moment, um das Beste in allen Disziplinen herauszuholen. So viel Begeisterung steckt natürlich an und reißt auch die Sponsoren mit.

Genau diese Leidenschaft ist der Grund, warum Schaeffler jedes Jahr rund ein Dutzend FSG-Teams finanziell, mit Bauteilen und Know-how zur Seite steht. Natürlich sammeln die Studenten in ihren Teams tiefgreifende und enorm wertvolle Praxiserfahrungen: Sie brauchen ein umfassendes technisches Verständnis und müssen sich gut organisieren, Kosten kalkulieren und Verkaufsargumente formulieren. Das ist nichts anderes als Projektmanagement wie es auch im Arbeitsalltag gelebt wird und damit ein großer Pluspunkt beim späteren Berufseinstieg.

Darüber hinaus spiegelt das Engagement in einem Formula-Student-Team aber vor allem Einsatzbereitschaft und Begeisterung für Technik wieder. Ein Netzwerk zu jungen, motivierten Menschen aufzubauen, ist für Schaeffler ein wichtiger Baustein für die Zukunft. Bei der Formula Student können die Nachwuchskräfte eigene Ideen testen, Neues versuchen und sich so auf innovative Weise selbstständig mit zukunftsweisenden Themen vertraut machen. Dieser Innovationsgeist, der Spaß am Verändern und Verbessern im Wettbewerb und die Begeisterung für die Technologien der Zukunft sind die Zutaten, die Schaeffler braucht, um die „Mobilität für morgen“ zu gestalten. Damit entsprechen diese jungen Menschen genau den Talenten, die Schaeffler sich als Mitarbeiter wünscht.

Bereits zum dritten Mal ist Schaeffler deshalb auch einer der Hauptsponsoren der Veranstaltung. Wir freuen uns, die Formula Student Germany und die Nachwuchsrennsportler so tatkräftig unterstützen zu können und wünschen allen teilnehmenden Studenten viel Erfolg am Hockenheimring.

WORDS FROM OUR SPONSORS

WILLIAM F. BERTAGNI
Vice President Vehicle Engineering Europe & Member of the Management Board Adam Opel AG

For the Adam Opel AG the sponsorship of the Formula Student competition is a core element of promoting the development and education of young engineers. As one of Europe's largest automakers with more than 150 years company tradition we offer young people a great variety of opportunities to work on high-tech technologies as well as future concepts.

Das Engagement im Formula Student-Wettbewerb ist für die Adam Opel AG ein zentrales Element der Nachwuchsförderung. Als einer der größten Automobilhersteller in Europa mit einer über 150-jährigen Unternehmenstradition bieten wir jungen Menschen vielfältige Möglichkeiten, an Hightech-Themen zu arbeiten und Zukunftskonzepte zu entwickeln.

Audi

ANTJE MAAS
Director International HR Marketing, AUDI AG

The fascination of Formula Student Germany: to us, being there means being part of a truly special atmosphere that we would not want to miss for anything. This is where we meet around 3,600 young, ambitious people from all over the world who are just as enthusiastic about automotive technology as we are at Audi.

Faszination Formula Student Germany: Dabei zu sein bedeutet für uns, Teil einer ganz besonderen Atmosphäre zu sein, die wir um keinen Preis missen möchten. Hier treffen wir rund 3.600 junge und ambitionierte Menschen aus aller Welt, die von automobiler Technik genauso begeistert sind wie wir bei Audi.

BASF
We create chemistry

HANS-PETER BERINGER
Vice President, Head of Business Management
Transportation, BASF SE

BASF's engineering plastics are widely used in the automotive industry for example in vehicles range from bodywork and chassis to interior trim and engine components. We consider "Formula Student Germany" to be a great opportunity to get in contact with ambitious and well-educated young people. Good luck to all teams!

Die BASF bietet eine Vielzahl von Kunststofflösungen für die Automobilindustrie an, angefangen beim Karosseriebau, über das Fahrwerk bis hin zu Innenausstattung und Motoranbauteilen. „Formula Student Germany" bietet uns die Möglichkeit, mit ambitionierten und gut ausgebildeten Nachwuchskräften in Kontakt zu kommen. Wir wünschen allen viel Erfolg.

BMW GROUP

OLIVER FERSCHKE
Head of HR Marketing BMW Group

The BMW Group is very enthusiastic about its involvement in the Formula Student Germany. The challenges the teams face during the course of a season are also always faced by the BMW Group. We are, therefore, pleased when qualified participants from all over the world gain their first practical experience in the BMW Group.

Mit großer Begeisterung engagiert sich die BMW Group in der FSG. Die Herausforderungen, mit welchen sich die Teams im Laufe einer Saison konfrontiert sehen, beschäftigen auch uns bei der BMW Group immer wieder. Daher freuen wir uns, wenn qualifizierte Teilnehmer aus dem In- und Ausland ihre ersten Praxis-Erfahrungen in der BMW Group sammeln.

BOSCH
Invented for life

HEIDI STOCK
Human Resources Management - Talent Management and Diversity

At Bosch, we're convinced: Diversity is enrichment and prerequisite for our strive to excellence. Behind these aspects stand associates with individual competencies, mindsets and experiences. Diversity is also what we're counting on at Formula Student: Hence we're supporting talents who work together in a team to master interdisciplinary challenges.

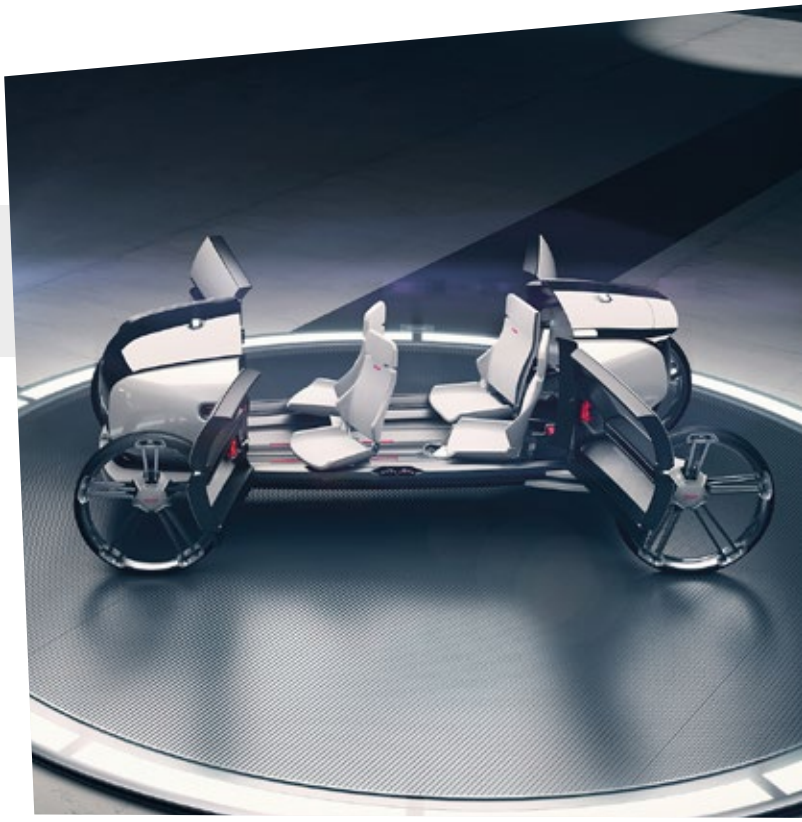
Bei Bosch sind wir davon überzeugt: Vielfalt ist Bereicherung und Voraussetzung für Spitzenleistungen. Dahinter stecken Mitarbeiter/innen mit individuellen Kompetenzen, Denkweisen und Erfahrungen. Vielfalt zählt auch bei der Formula Student: Daher unterstützen wir Talente, die im Team die interdisziplinären Herausforderungen gemeinsam meistern.

brose
Technik für Automobile

ELKE SULZ
Director Recruiting, HR Marketing, Expatriate Management Brose Group

We offer committed students who are technology enthusiasts the chance to assume responsibility in an international industry and actively shape the future of the automobile. At FSG, we meet people who have what we want from our future employees: Dedication, creativity and team spirit!

Wir bieten engagierten und technikbegeisterten Studenten die Möglichkeit, in einer internationalen Branche Verantwortung zu übernehmen und die Zukunft des Automobils aktiv mitzugestalten. Bei der FSG treffen wir Menschen, die mitbringen, was wir uns von unseren zukünftigen Mitarbeitern wünschen: Einsatzbereitschaft, Kreativität und Teamgeist!



Brunel

MARKUS ECKHARDT
General Manager

Automotive engineering has for more than 20 years ranked among the most important industries for Brunel, one of Germany's leading engineering service providers. In line with our keen interest in young engineering talents in this sector, we have been one of the main sponsors for Formula Student Germany since 2006.

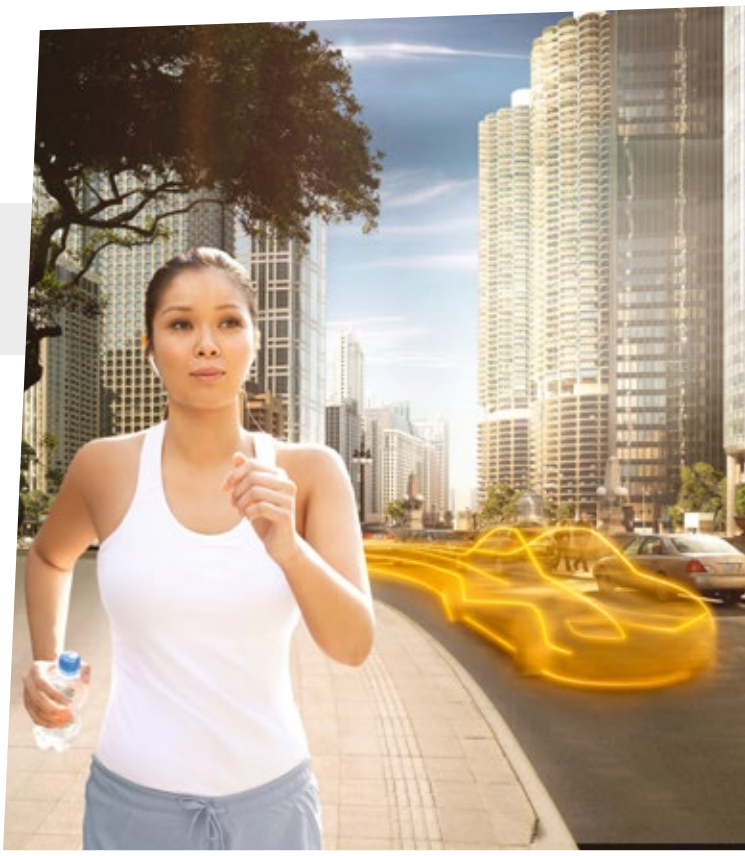
Für uns als einer der führenden Ingenieurdienstleister Deutschlands gehört die Automobilindustrie seit über 20 Jahren zu einer unserer wichtigsten Branchen. Weil uns hier der Ingenieurnachwuchs sehr am Herzen liegt, unterstützen wir die Formula Student Germany bereits seit 2006 als einer der Hauptsponsoren.

Continental
The Future in Motion

BARBARA TEXTER
Head of Employer Branding Germany, Continental AG

For over 140 years, Continental has been working on motorized individual mobility of the future. In order to continue this success story, we are constantly looking for qualified technical and management personnel. Top talent of the kind we are seeking can be found at the Formula Student competition.

Seit über 140 Jahren arbeitet Continental erfolgreich an der individuellen Mobilität der Zukunft. Um diese Erfolgsstory weiterzuschreiben sind wir ständig auf der Suche nach qualifizierten Fach- und Führungskräften. Diese Toptalente finden wir beim internationalen Konstruktionswettbewerb Formula Student.



DAIMLER

DR. ANNA-MARIA KARL
Senior Manager Global Talent Sourcing, Daimler AG

The FSG experience is ideal for future engineers: Their expertise, hands-on experience, strong sense of teamwork, and their passion for technology are qualities we value highly! Our activities with the FSG foster the students' commitment, business acumen, ability to work independently and their confidence to innovate. See you in Hockenheim!

Die FSG ist perfekt für zukünftige Ingenieure: Expertise, praktische Erfahrung, Teamgeist und Leidenschaft für Technik sind Eigenschaften, die uns als Arbeitgeber beeindrucken! Bei unseren Aktivitäten rund um die FSG fördern wir Engagement, unternehmerisches Denken, eigenverantwortliches Arbeiten und Mut zur Innovation. Viel Erfolg in Hockenheim!

ETAS

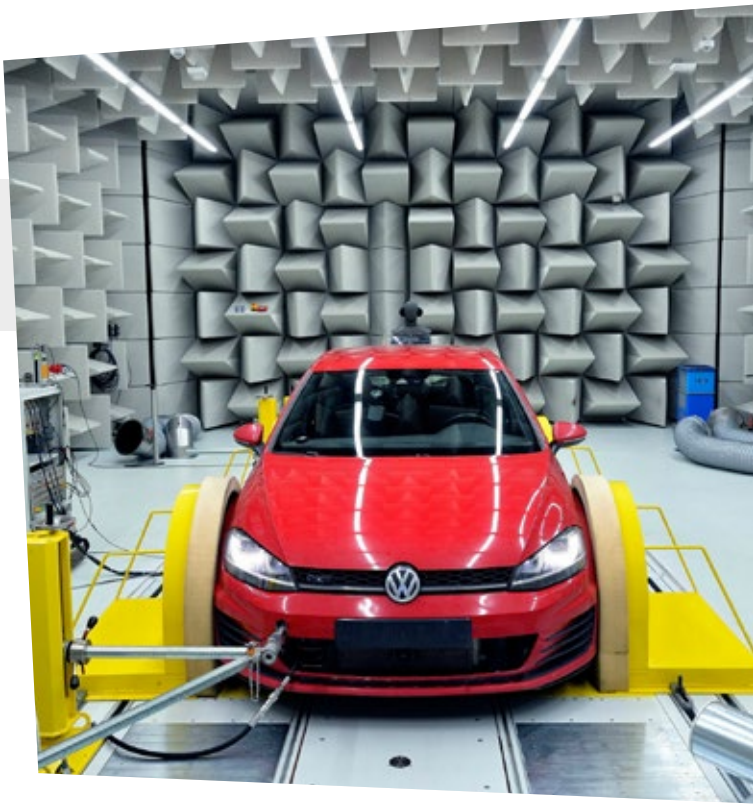
FRIEDHELM PICKHARD
President ETAS GmbH

Speed, high technology, and team spirit – what could be better than to measure oneself in these disciplines? We share the thrills with our 30 teams as – with engineering skills and passion – they show their mettle under the toughest conditions. We wish all teams the motivation, enthusiasm, and success required to be front-runners in the field.

Geschwindigkeit, Spitzentechnologie und Team-Spirit – was kann es Schöneres geben, als sich in diesen Disziplinen zu messen? Wir fiebern mit unseren 30 Teams mit, wenn sie mit Ingenieurskunst und Herzblut unter den härtesten Bedingungen zeigen, was sie können. Wir wünschen allen Teams den Spirit und Erfolg, ganz vorne mit dabei zu sein.

faurecia

MARTIN STÜTTEM
Vice President Europe Division Faurecia Emissions Control Technologies



FSG participants and the automotive supplier Faurecia share some of the most important characteristics: A passion for innovation, ambition, determination and the courage to pursue unconventional and creative solutions. We are proud to be a first-time sponsor at this year's FSG and look forward to meeting the teams. Best of luck to everyone!

Die Teilnehmer der FSG und der Automobilzulieferer Faurecia haben vieles gemeinsam: Leidenschaft für Innovation, Ehrgeiz, Zielstrebigkeit und den Mut zu ungewöhnlichen und kreativen Lösungen. Wir sind stolz, dieses Jahr zum ersten Mal als Sponsor der FSG dabei zu sein und freuen uns auf den Austausch mit den Teams. Wir wünschen allen viel Erfolg!

automotive engineering iav

CHRISTIAN WILLENBERG
Human Resources

With over 6,500 members of staff, IAV is one of the world's leading providers of engineering services to the automotive industry. The company can look back on more than 30 years of experience in developing innovative concepts and technologies for future vehicle generations. For further information about IAV, go to www.iav.com.

IAV ist mit über 6.500 Mitarbeitern weltweit einer der führenden Engineering-Partner der Automobilindustrie. Das Unternehmen entwickelt seit über 30 Jahren innovative Konzepte und Technologien für zukünftige Fahrzeuggenerationen. Weitere Infos zu IAV erhalten Sie über unser Karriereportal www.iav.com/karriere.

FRANZ SCHNABL

Vice President Human Resources Europe,
Magna International

Magna is the most diverse automotive supplier in the world and is always searching for the most capable and talented young engineers. This is why we are there to witness young engineers as they showcase their talents. Our commitment to the FSG allows us to present ourselves as a global company to the young engineers we would like to recruit.

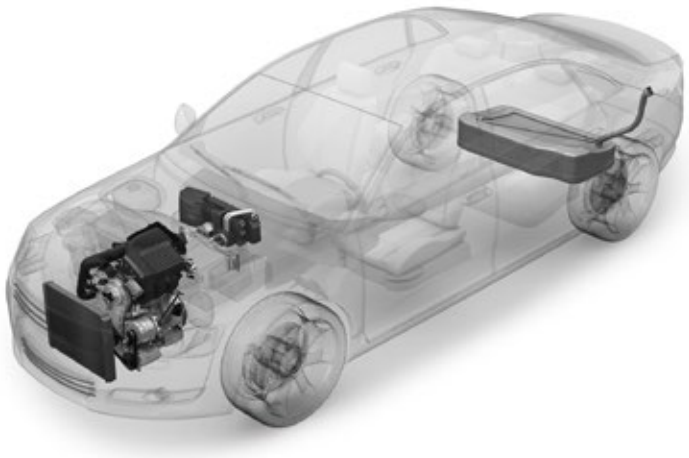
Magna ist der am stärksten diversifizierte Automobilzulieferer der Welt und ständig auf der Suche nach den fähigsten Köpfen im Ingenieursnachwuchs. Deshalb sind wir da, wo der Nachwuchs sich und seine Fähigkeiten präsentiert. Mit unserem Engagement bei der FSG können wir uns als global agierendes Unternehmen vorstellen und erste Kontakte knüpfen.

JOACHIM REICHLE

Vice President Corporate Personnel Development
and Learning

If you want to make a decisive move, you need to have innovative ideas, courage, endurance and drive. If the environment fits and the team is right, innovative and convincing ideas emerge from visions. Our aim is to support talented and enthusiastic specialists and future executives in achieving their ambitious goals.

Wer Entscheidendes bewegen will, braucht Ideen, Mut, Ausdauer und Biss. Wenn dann noch das Umfeld stimmt und das Team das Richtige ist, werden aus Visionen innovative und überzeugende Lösungen. Unser Ziel ist es dabei, talentierte und begeisterungsfähige angehende Fach- und Führungskräfte bei der Erreichung ihrer ehrgeizigen Ziele zu unterstützen.



YVONNE BENKERT
Head of HR Innovation 4.0: Talent Relations, HR Marketing, Employer Reputation, HR Communications, HR Digital, Diversity & Inclusion

Respect, team spirit, and determination as well as integrity — all these qualities bring a team to success at the Formula Student challenge. At MAN, we place an emphasis on these values for our new employees; that is why we consider sponsoring the Formula Student a valuable investment in our own future.

Respekt, Teamgeist, Entschlossenheit, Integrität–diese Eigenschaften bringen ein Team bei der Formula Student zum Erfolg. Wir gewinnen und verlieren gemeinsam! Auf diese Werte legen wir bei MAN den Fokus bei unseren neuen Mitarbeitern/innen und sehen deshalb das Sponsoring der Formula Student als eine wertvolle Investition in unsere eigene Zukunft.

CHRISTOPH HAHN
Automotive Competition Technical Lead

Employing a Model-Based Design approach to automotive design process for the Formula Student Germany Competition enables teams to design, test, validate and share their models within one environment. Using industry-standard tools such as MATLAB and Simulink helps students tackle real engineering problems. www.mathworks.com/fsg

Teams der Formula Student Germany, die Model-Based Design für ihren Autodesignprozess einsetzen, ermöglicht ihnen dieser Ansatz ihre Modelle zu testen, validieren und sie auch untereinander zu teilen. Mit dem Einsatz von standardisierten Tools wie MATLAB und Simulink lösen Studenten reale, automobiltechnische Probleme. www.mathworks.com/fsg

YUMIKO MATHIAS
Manager HR Marketing and Employer Branding

MTU is one of the world's leading manufacturers of large diesel engines and complete propulsion systems. We are pleased to support this event and the upcoming engineers again in 2016. Karl Maybach, founding father of MTU and technical pioneer, would certainly love Formula Student Germany. And so do we. We wish all participants the best of luck!

MTU zählt zu den weltweit führenden Herstellern von Großdieselmotoren und kompletten Antriebssystemen. Wir freuen uns das Event und hochmotivierte Nachwuchsingenieure erneut zu unterstützen. Karl Maybach, MTU-Gründervater und Technikpionier, wäre begeistert. Wir sind es auch! Wir wünschen allen Teams einen erfolgreichen Wettbewerb!

KONSTANZE MARINOFF
Director Human Resource Marketing

With more than 30.000 victories, Porsche, as the most successful manufacturer in motorsports, stands for Intelligent Performance and extraordinary team spirit. Become part of it and define the next chapter of the future of sportscar engineering – at the Formula Student competition and at Porsche. We wish good luck and success to all teams.

Mit mehr als 30.000 Rennsiegen steht Porsche als der erfolgreichste Hersteller im Motorsport nicht nur für Intelligent Performance sondern auch für einzigartige Teamleistungen. Werden Sie Teil davon. Schreiben Sie mit am nächsten Kapitel der Zukunft des Sportwagens - bei Formula Student und bei Porsche. Wir wünschen allen Teams viel Glück & Erfolg.

SCHAEFFLER

CORINNA SCHITTENHELM
Chief Human Resources Officer

Team spirit, commitment, and a love of technology – those are the qualities that our employees and the Formula Student teams share. As a sponsor we are in close contact with the teams and support them financially and with our expertise. We want the participants to become passionate about our company, and applications from them are very welcome.

Teamgeist, Engagement und Leidenschaft für Technik – das sind Eigenschaften, die unsere Mitarbeiter und die Formula-Student-Teams verbinden. Als Sponsor stehen wir in engem Kontakt mit den Teams und unterstützen diese finanziell sowie mit unserem Know-how. Die Teilnehmer sind gern gesehene Bewerber, die wir für unser Unternehmen begeistern möchten.

SIEMENS

THORSTEN WALZ
Manager Partner Recruitment & Enablement
und Manager Academics

Team spirit, an infectious enthusiasm and the impressive professionalism of all the teams – that is what distinguishes the FSG. Siemens PLM Software is very proud of being the sponsor of this extraordinary competition since 2015 and is looking forward to the week in Hockenheim, which is a real highlight for us. Come and talk to us – it's worth it!

Teamgeist, eine ansteckende Begeisterung und die beeindruckende Professionalität aller Teams – das ist es, was die FSG auszeichnet. Siemens PLM Software ist sehr stolz darauf, seit 2015 Sponsor dieses außergewöhnlichen Wettbewerbs zu sein und freut sich auf die Woche in Hockenheim, die für uns ein echtes Highlight ist. Kommen Sie mit uns ins Gespräch – es lohnt sich!

SKF

BASTIAN MATTLENER
Employer Branding & Corporate Communication

It requires courage and endurance but also creativity and teamwork to face the challenges in the Automotive Industry. Qualities that you demonstrate already today. We are pleased to support young students from all over the world with such an ambitious project like Formula Student. On behalf of the SKF team we wish all participants good luck!

Es benötigt vor allem Mut und Ausdauer aber auch Kreativität und Teamwork um sich den Herausforderungen der Automobilindustrie zu stellen. Fähigkeiten die Sie bereits heute demonstrieren. Wir freuen uns daher sehr, Studenten auf der ganzen Welt bei einem so ambitionierten Projekt wie Formula Student unterstützen zu können und wünschen viel Erfolg!

VDI

DIPL.-ING. CHRISTOF KERKHOFF
VDI-Society Automotive and Traffic Systems Technologies

VDI, the Association of German Engineers, is proud to be a partner and sponsor for Formula Student Germany since the very beginning. This competition is a model for other programs we run to stimulate interest in the engineering profession and to lend a hand to the future generation, and our more than 155,000 members follow it keenly every year.

Der Verein Deutscher Ingenieure (VDI) ist stolz darauf, die Formula Student Germany seit Ihren Anfängen als ideeller Träger und Sponsor zu unterstützen. Dieser Wettbewerb ist ein Vorbild für andere Programme, mit denen wir das Interesse für Technikberufe wecken, den Nachwuchs fördern und er begeistert unsere über 155.000 Mitglieder jedes Jahr.

PROF. DR. STEFAN GIES
Head of Chassis Engineering Passenger Car,
Volkswagen AG

Passion and curiosity for mobility of the future connects the Formula Student Germany and us. Together we want to turn ideas into reality and strike out new directions. For that reason, in 2016, we will continue to support highly talented young engineers and will inform them about the employer Volkswagen. Good Luck to all teams !

Die Formula Student Germany und uns verbindet die Neugier und Begeisterung für die Mobilität der Zukunft. Gemeinsam wollen wir Ideen real werden lassen und neue Wege gehen. Deshalb unterstützen wir 2016 erneut talentierte Nachwuchsingenieure/-innen und informieren über den Arbeitgeber Volkswagen. Wir wünschen allen Teams viel Erfolg!

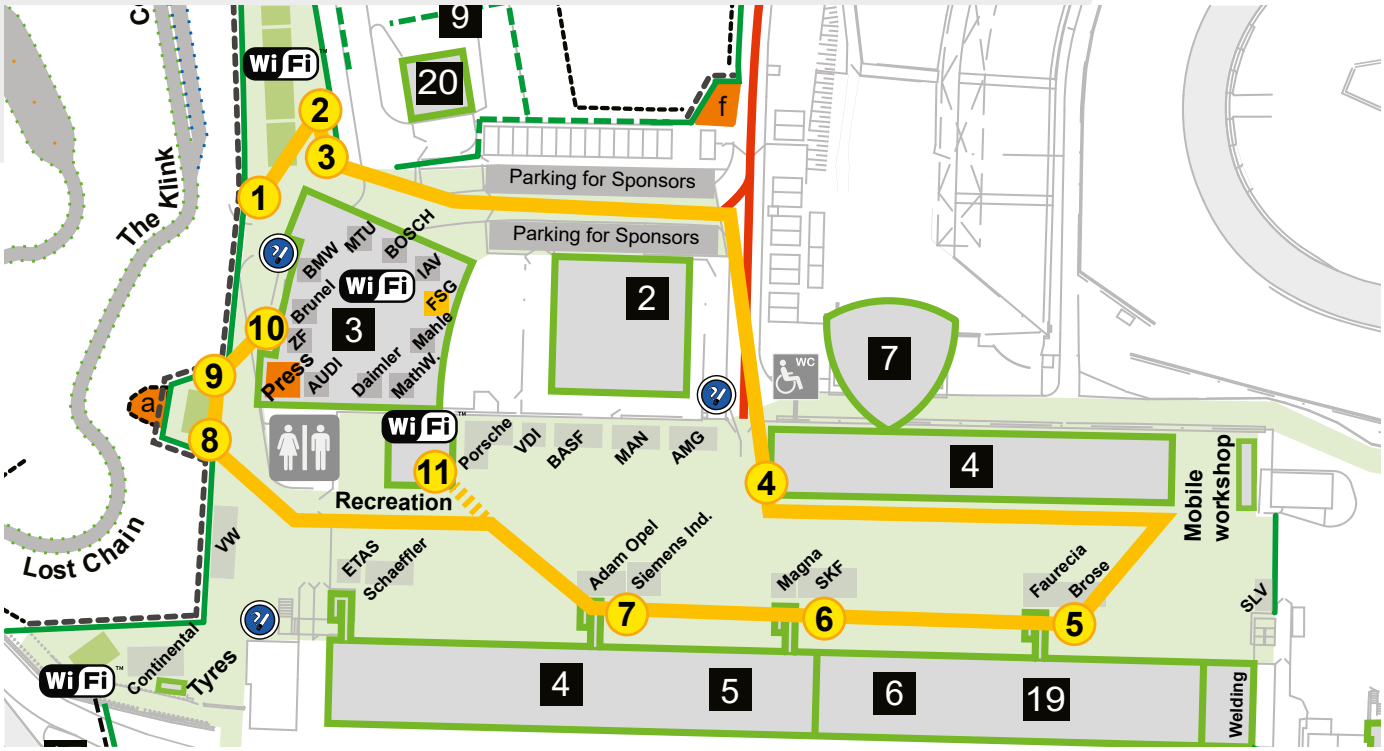
MARTIN FRICK
Head of Talent Attraction

As one of the biggest automotive suppliers, ZF is dealing with digitizing mechanical components, pushing forward e-mobility, and reducing road accidents and emissions. We support Formula Student to give the participants an early insight in our activities that shape the future of mobility.

Als einer der weltgrößten Automobilzulieferer beschäftigt sich ZF mit der Digitalisierung mechanischer Komponenten, dem Forcieren der Elektromobilität und der Reduzierung von Verkehrsunfällen und Emissionen. Bei der Formula Student engagieren wir uns, um den Teilnehmern frühzeitig Einblicke zu geben, wie wir die Zukunft der Mobilität mitgestalten.

Guided Tours

Führungen



Exploring Formula Student Germany by yourself

Welcome to Formula Student Germany. To help you make most of your visit, we have prepared a tour for visitors, press and sponsors. You can follow the tour by following the numbered signs across the event site (see map above). If you wish, for a more personal experience, you can also sign up to be guided by one of our experienced tour guides.

The information signs are numbered 1 to 11. Following them in order will take you from the large dynamic area to the technical inspection and then on to the pit lane. Along the way you will learn about the history of the competition. Don't be shy to ask team members anything you would like to know about their car, however, please remember they are participating in a competition, so make sure not to hinder them! From the pit lane, the tour takes you back to the large dynamic area. The tour will finish back at the FSG Forum, where you will be able to learn more about the background of the participants competing at Formula Student Germany 2016.

A special bonus for smartphone users: try scanning the QR-code on each sign to get more in-depth information.

Erkundungstour

Willkommen bei der Formula Student Germany! Wenn Sie während Ihres Besuchs gerne mehr über die FSG erfahren möchten, können Sie sich zum Beispiel vor Ort für eine der geführten Touren registrieren. Während der 45-minütigen „Formula Student Basic Tour" erhalten die Teilnehmer einen umfassenden Einblick in die Formula Student Germany mit ihren zwei Fahrzeugklassen, der Formula Student Combustion und der Formula Student Electric. Ob der Fokus einer jeden Führung eher auf Verbrennungs- oder Elektrofahrzeugen gelegt werden soll, kann von der Besuchergruppe individuell entschieden werden. Der Startpunkt für die Führungen befindet sich am Infocounter im FSG Forum. Hier können auch die Startzeiten jeder Führung eingesehen werden.

Alternativ können Sie das Eventgelände auf eigene Faust erkunden. Folgen Sie den elf nummerierten Schildern (siehe oben stehende Karte), die Sie zu den unterschiedlichen Bereichen führen und Ihnen den Wettbewerb sowie die einzelnen Disziplinen erläutern.

Für alle Smartphone-Nutzer stecken hinter den QR-Codes auf jedem Schild weiterführende Informationen!

A week of FSG

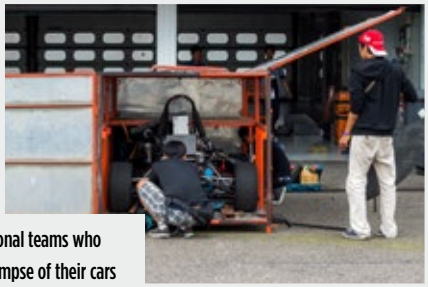
Eine Woche bei FSG

After hours of queuing, the teams are finally able to register and the next year of FSG can begin!

Whilst teams are setting up their boxes, the drivers can go and register. An RFID system is used to securely store the details of the drivers for safety purposes

The volunteers finish off setting up just in time for the Welcome Ceremony

Team Welcome - returning trophies



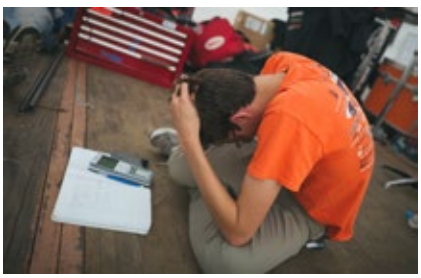
As the teams enter the site, the international teams who have imported their cars, finally get a glimpse of their cars and can assess what needs to be done to get ready for scrutineering

Lunch break and staging for panoramic photograph - teams proudly flying their flags for the panoramic photo

Nervous excitement as the teams prepare for scrutineering

Scrutineering briefing

Software checks on ECU's



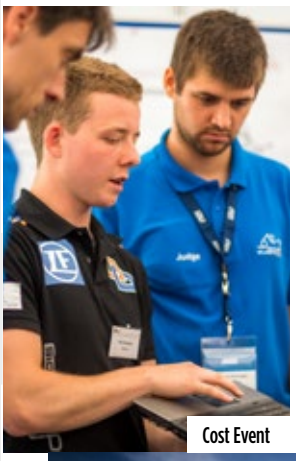
Pat giving advice to enthusiastic students in Pat's Corner


HOCKENHEIMRING
RAVENOL
SACHS
0W-20
KANSAS
AKRON
LOCTITE
57
90
23
81
120
55
26
14
118
15
E6
108


FAN-SHOP
DAIMLER
AVL
SCHAEFFLER
WEINGARTEN
AGP
Feel the difference
SIEMENS
20
R5
E12
18
39
68
E35
45

Thursday Friday

Teams waiting for re-scrutineering



Cost Event

international formula student round table

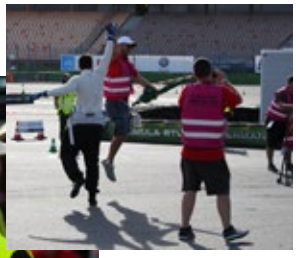
Business Plan Finals

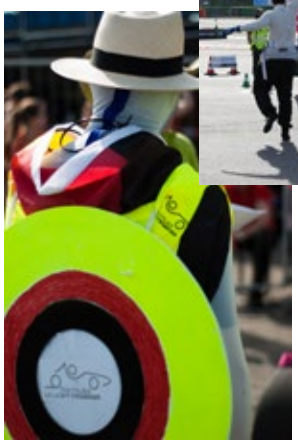
Sponsors bring their super cars to inspire and attract students towards a future working for their companies

Car on fire in the test area

Wetpad/Skidpad

Sometimes things don't go to plan - what a race car looks like after the fire extinguishers have been on it

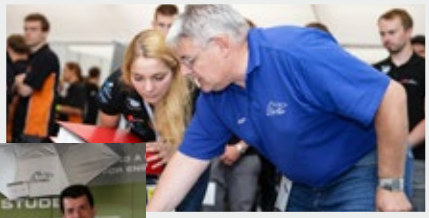




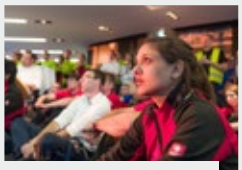
Commentators out on the track to report what is going on

Judges being briefed before they start a busy few days of judging

Design Event



Design Finals



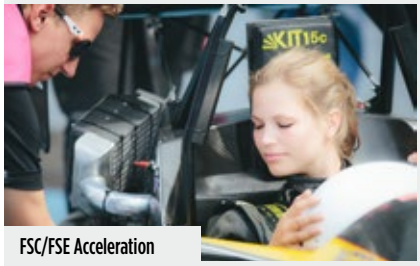
Merchandise/Guided Tours and forum counter open for business

Volunteer get together

Award Ceremony Part 1

Judges hard at work

Saturday



FSC/FSE Acceleration

Grandstands filling up

Queue for FSC/FSE AutoX

Press/timings during FSC/FSE AutoX

FSC/FSE AutoX

Ice-cream break for marshals during AutoX

Marshal escorting driver off track during FSC/FSE AutoX

Scrutineers hard at work during FSC/FSE AutoX

Aerodynamic fail part 1 FSC/FSE AutoX

Aerodynamic fail part 2 FSC/FSE AutoX

Aerodynamic fail part 3 FSC/FSE AutoX

Hit a cone during FSC/FSE AutoX

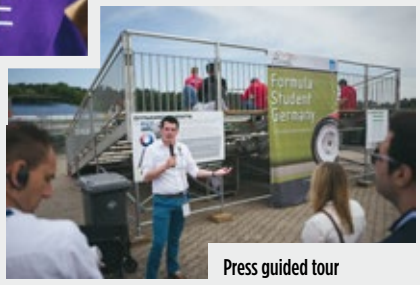
Team members waiting anxiously to get some times down for FSC/FSE AutoX

FSC Engineering Design Finals

Relaxing after a busy day - rest before the big day on Sunday

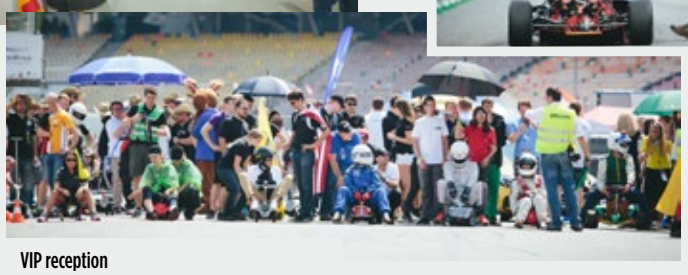
Motivated student

FSG site at night - view from BW-tower



Press guided tour

FSC/FSE Acceleration



VIP reception

Sunday

Flags for endurance

Game over for one team as they are pushed off the track by marshals during Endurance event

Scrutineer discussing with driver and team member

Broken chain at FSG endurance

Teams preparing for endurance - waiting for their time slot

FSG Endurance

This team rolled through something blue

Driver change during endurance

FS driver deep in thought

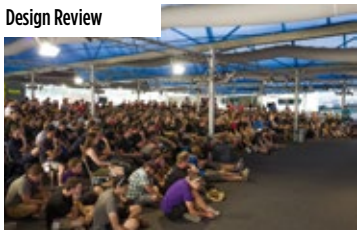
Preparation for final 5 at FSG Endurance

FSG Endurance - final 5

Team member congratulating driver during FSG endurance

Team mascot heading back to the pits

Design Review



Teams celebrating with teams during Award Ceremony Part 2

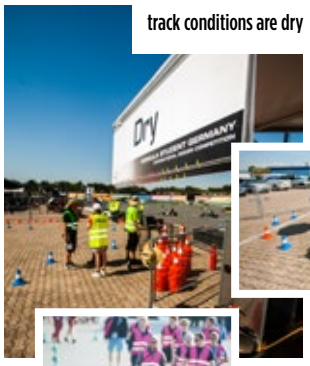
FSG 2015 champions celebrating

Mahle-Party time!

Band at Mahle Party

Happy team member as they receive their award during Award Ceremony Part 2

Finnish Photo



track conditions are dry

team members with big hats

Queue for FSG endurance

happy team members!

FSG Endurance - final 5 - crossing finish line

Pure emotion after FSG endurance final 5 - but have they done enough to win?

Award Ceremony Part 2

Winners of FSG

Cheers for 2015

Empty boxes - another FSG is over

FSG - THE END

More pictures on: media.formulastudent.de
Mehr Bilder unter: media.formulastudent.de

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* wenn ohne Angabe; Teamprofile ausgenommen

Team-Profile
Text und Bilder bereitgestellt von den Teams (Juli 2016)

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LADIES OF FORMULA STUDENT GERMANY

DIE LADIES DER FORMULA STUDENT GERMANY

The Ladies of Formula Student Germany are a unique group of motivated women who not only excel in their roles at the Formula Student Germany competition, but also in their working lives. Though being rare and far between at any Formula Student competition, their involvement, whether it be as team members or volunteers, has supported them in becoming confident and successful women, ambassadors to future women who aspire to be successful in the currently male dominated industries.

Here are the profiles of just a few members of our Operative Team:

Die „Ladies der Formula Student Germany" ist eine Gruppe hochmotivierter Frauen, die sich sowohl durch ihren besonderen Einsatz für die Formula Student Germany als auch in ihrem Arbeitsleben auszeichnen. Zwar gibt es gar nicht mal so viele „Ladies" bei Formula Student-Wettbewerben. Aber sie werden durch ihr Engagement (egal ob als Teammitglied oder im Orga-Bereich) oftmals selbstbewusster und erfolgreicher. Gleichzeitig sind sie Botschafter für junge Frauen, die künftig in aktuell immer noch männlich dominierten Bereichen arbeiten möchten.

Die folgenden Seiten zeigen die Profile von einigen weiblichen Mitgliedern unseres Orgateams:

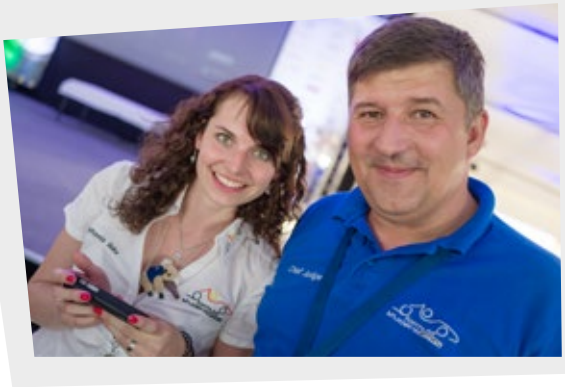
Maria Bonilla-Torres (B. Eng, Bachelor of Science)
German-American

Education	Bachelor of Engineering in Electric Engineering at DHBW Stuttgart
Formula Student History	2009/2010: small tasks on dyno & chassis manufacturing, Team photographer 2010/2011: Teamleader Electronics (from early 2011 on), engine calibration, sensors & electronics and driver 2011/2012: Task Force "E-Car", Support of Electronics Team (Alumna)
Formula Student Germany History	2014: E-Scrutineer Since 2015: Scrutineer/White Shirt: FSG Operative Team Member – Electrical Inspection
Career Success	2011-2015: Robert Bosch GmbH, Engine Control Unit Development, Software System Designer for Asian Customer Projects 2015-today: Robert Bosch GmbH, Engine Control Unit Development, Team Leader for "HiL Model & Test Automation Team" and responsible for System Test Strategy for Asian Customer Projects
How Formula Student got me where I am today	First of all Formula Student forced me to speak up in a mainly male dominated environment. This might sound unspectacular for most men but often is a big hurdle for many women. I also learned a lot about vehicle design and combustion engines as well as project management and testing methods. All of these skills and methods are unlikely to gain at university and helped me getting to where I am right now.
Opinion of being a Formula Student Germany Lady	For me it's great to see young women experiencing same or similar things as I did years ago. And I'm especially happy to see the many different types of women united with one same passion. Female engineers (or engineering students) are not only those stereotypical "unkempt women". We can be feminine, strong-willed, rational, emotional, sensitive, level headed and many things more. I'm proud to show that these attributes are not necessarily conflicting with each other.

Dipl.-Ing. Alia Pierce

British/German

University	Mechanical Engineering, Karlsruhe Institute for Technology (2005-2013)
Formula Student History	Founding member KA-RaceIng. (2005) Team leader of Ergonomics and Safety (2005-2007) Chief financial officer (2007-2008)
Formula Student Germany History	Red Shirt 2009-2010: Assistant to commentator White Shirt 2011-today: Founder FSG TV, commentator, presenter award ceremony, active member of communications team, write publications and supports in translations and event planning
Career Success	2013-2015: xperion GmbH/xperion E&E LLC, project/process/manufacturing engineer responsible for the technology transfer of a new manufacturing facility manufacturing type IV pressure vessels for the CNG and H2 industry between Germany and USA. 2015-today: Continental Engineering Services (UK) (Zytek Automotive Ltd.), project manager
How Formula Student got me where I am today	Formula Student gave me confidence to work in a male dominated environment, I would never have become as fluent in German as I am without it. I learnt and am still learning skills that I use in my everyday life.
Opinion of being a Formula Student Germany Lady	Proud to be one of the Formula Student Ladies, it is great to work with such passionate and motivated people and always fun to see them again year after year.



Raphaela Bihr (MSc.)

German

Education	Master of Science in Business Engineering, Karlsruhe Institute for Technology (2007-2014)
Formula Student History	Team Leader Marketing/Organisation, Team Captain
Formula Student Germany History	2012-today: White Shirt: Responsible for the business plan presentation
Career Success	2015-09/2016: Graduate Trainee Sales Truck, MAN Truck & Bus AG Since 09/2016: Product Portfolio Manager (ADAS*), MAN Truck & Bus AG *advanced driver assistance systems
How Formula Student got me where I am today	Formula Student hat meinem Studium einen Sinn gegeben, weil es mir gezeigt hat, was ich später damit machen kann. Außerdem hat mich die Teamarbeit geprägt in jeder Hinsicht und mir einen Erfahrungsvorsprung gegenüber anderen Absolventen ermöglicht. Von den Kontakten und dem, was ich dort gelernt habe, profitiere ich bis heute Formula Student gave meaning to my studies because it showed me what I can do later with it. Not only this, but the team work has influenced me in every way and has provided me with a head start over other graduates. From what I have learned there, I still benefit from today.
Opinion of being a Formula Student Germany Lady	War nicht immer einfach, ist aber eine gute Schule, wenn man später in einem männerdominierten Umfeld arbeitet. Erweitert den Horizont und stärkt das Durchsetzungsvermögen. Außerdem ist es eine gute Möglichkeit, sich selbst zu beweisen, wenn man zu einer Minderheit gehört – und manchmal ist es dann auch ganz schön, etwas „Besonderes“ zu sein :-) It was not always easy, but is a good school for learning how to work in a male dominated field. It extends the horizon and strengthens assertiveness. It is also a good way to prove yourself when you belong to a minority - and sometimes it is then also very nice to be something “special” :-)

Dipl.-Ing. Barbara Decker-Schloegl

Austrian

Education	Diplom in Telematik, Technical University of Graz
Formula Student History	TU Graz Racing Team: Member of the Marketing Team (2004) Head of Marketing (2005) Team Leader (2006)
Formula Student Germany History	White Shirt: 2007-2008: Responsible for the Business Plan Presentation Event 2009-2014: responsible for the Static Events, Member of the Executive Team 2015-today: Member of the Event Support Team
Career Success	2012 – today: Department Manager 'World Class Manufacturing', MAGNA STEYR Fahrzeugtechnik AG & Co KG 2007-2012: Project Manager, Mubea Carbo Tech GmbH Mubea Carbo Tech is a major player in the challenging market of manufacturing structural carbon fiber components for motorsports and exclusive high performance vehicles.
How Formula Student got me where I am today	Die Mitarbeit in einem Formula Student Team zeigte mir, wie wichtig es ist, auch in stressigen Situationen, einen kühlen Kopf zu bewahren. Gute Teamarbeit und der respektvolle Umgang miteinander sind Erfolgsfaktoren um hochgesteckte Ziele zu erreichen. The participation in a Formula Student team showed me how important it is, even in stressful situations, to keep a cool head. Good teamwork and dealing respectfully with each other are success factors to achieving big goals.
Opinion of being a Formula Student Germany Lady	Ich freue mich jedes Jahr auf die Event-Woche. Es macht Spaß mit motivierten Kollegen aus verschiedenen Nationen zusammen zu arbeiten. Über die Jahre hinweg sind schöne Freundschaften entstanden. Every year I look forward to the event week. It's fun working with motivated colleagues from different nations. Over the years wonderful friendships have been formed.

...there are a lot more! Driving Formula Student Germany forward.

... und es gibt noch viele mehr! Sie bringen die Formula Student Germany nach vorne.

Tanja Notheiß, IT Project Manager Information Systems

“What’s more interesting than looking into the future?
Shaping it.”

Porsche is seeking interns (f/m).

For further information, visit www.porsche.com/careers

or join us on www.facebook.com/porschekarriere

PORSCHE

HOW TO BUILD A RACE CAR IN A YEAR AND WHAT CAN GO WRONG

There are hundreds of teams every year who will do what it takes to even get close to achieving a Top 5 position at FSG. With the multiple deadlines, to even get a spot in the FSG competition at all is a big challenge in itself.
In order to help boost the moral of the 115 teams who will be competing at FSG this year, here are some anecdotes from some of our 2015 Top 5 teams on some of their struggles that they first had to overcome before they even made it to the competition.

Manufacturing starts

Design phase starts

Concept Freeze

Create concepts

Monocoque Manufacturing

In terms of money saving we decided to use wood fibre boards instead of the common ureol for mould making. Due to the material properties of wood fibre boards, we couldn't use prepreg to produce our CFK tooling anymore and had to change to a resin infusion process. A few nights full of preparation, aligning the layers and finally the infusion itself later, we had to accept: the project utilizing wood fibre boards had failed. To fix this, we ordered some ureol, milled, grinded and polished our new mould and some days later the CFK tooling was finished. Unfortunately, we had again problems with the manufacturing of the monocoque itself, this time in terms of aluminum honeycomb. The honeycomb in the Side Impact Structure and elsewhere shrunk and our monocoque wouldn't meet any safety requirements anymore, so back to the beginning once again, where we built a new, second monocoque...

beer cans used as catch tanks

Cat Racing – manufacturing

Laser Sintered Uprights

Two of our best design engineers sat down and started designing laser, sintered uprights out of titanium. Their target was to design the lightest uprights within the world of Formula Student. Months later the designs were finished and the parts went into production. When we received them back, we immediately started with the removal of the support material. With every work step, we were forced to remember the excellent material properties of titanium... once this was done, we granted a sponsor the chance to enjoy the post processing of the thin-walled, complex and high-strength parts on the milling machine.
The most rewarding task was tapping the uprights and losing one thread tap after another. All in all, seven months and a lot of nerves later, we had the lightest uprights in Formula Student!

Greenteam Uni Stuttgart – team management

"Sorry, I didn't expect it to be that time-consuming. I can't be part of the team anymore". We got to listen to those sentences not once, not twice but thirteen times this season. With so many people leaving the team this led to a lot of changes in the team structure and made it very hard for the remaining team members to focus on their initial tasks. Obviously, not even the reorganisation of the team could replace 25% of the team members. So getting everything done in time was a real challenge. However, the solidarity in the team was overwhelming and teamwork made the impossible possible: the E0711-7 was completed just in time.

FSG Deadlines

Januar

- Early registration January 18th 2016
- Main registration January 25th 2016

April

- Submission of SES + 3 dimensional CAD model April 1st 2016
- Impact Attenuator Data (IAD) April 1st 2016
- FSC Electronic Throttle Control (ETC) Notice of Intent and FMEA Upload April 1st 2016
- FSE ESF Add Item Request (EAIR) April 1st 2016
- FSE Electrical System Form April 1st 2016
- Scrutineering Quiz April 29th, 2016

Mai

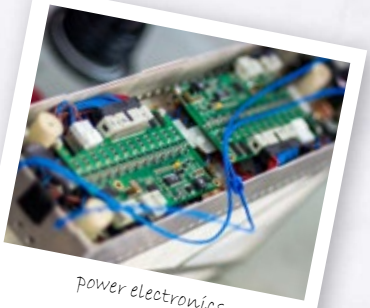
- Submission of SES Approval (only valid for monocoque cars) May 27th 2016
- Cost Add Item Requests May 27th, 2016

Design freeze

TU Delft – manufacturing – finishing

After weeks of sleepless nights, the CF chassis was finally completed. Especially the last layer, a layer of copper mesh for conductivity, was tough. A week later, we brought the chassis to the company that paints the livery on the car. We taped off the chassis and coved the rest in paper, but forgot one important part. When we got back the next day we found a chassis that had primer all over the inside. The copper mesh was almost completely covered. All white. It took us days and days of sanding to get the conductivity back.

suspension



power electronics

Completion of manufacturing

Test phase

Finalising everything for competition

Rollout

TU Graz Racing Team – rollout

This year we didn't get the brackets for our new brakes in time for our rollout so we had to find an alternative solution to mount our brakes at least temporarily. The complex form of our upright design prevented us from milling a simpler version of the brackets ourselves.
Fortunately we have access to a 3D printer. But unfortunately we aren't the only ones with access and the person printing before us broke it! So now we were forced to use a much older and slower 3D printer. In the end we were able to complete the parts just in time (!) for the rollout.

Shake down

joanneum racing graz – testing phase

From chassis layout and monocoque design, over a fully, redesigned suspension geometry with different tires to a completely new aerodynamic package, nearly every part on the jr15 was different from its predecessor. The consequence of this all-new concept was that we were facing numerous growing pains throughout the whole testing season towards FSG 2015. There were issues with the brake system, multiple suspension failures, shifting problems or software problems in our new steering wheel, just to name a few. Because of all these problems we couldn't even manage to complete a single full endurance while testing. Nevertheless, we were able to address all the crucial issues prior to the competition. At FSG we finally could finish our first endurance in 5th place which allowed for an amazing 3rd place overall.

FSG 2016

Get team together

Juni ⇨ Juli ⇨ August

Business Plan Executive Summary June 3rd, 2016
Engineering Design Report and Design Spec Sheet June 3rd 2016
Cost Report – electronic copy June 3rd 2016
FSC Fuel Type Order June 17th 2016

FSE Charging Connector and max. Power June 17th 2016
FSE Electrical System Officer(s) Qualification Update June 17th, 2016
Team member designation June 17th 2016

Vehicle Status Video (VSV) and Vehicle Status Report (VSR) July 8th 2016

Cost Addendum August 9th, 2016
Competition held 9th to 14th August 2016

FORMULA STUDENT

An International Community

The Formula Student (FS) community keeps on growing and growing. It consists of anyone and everyone who is or has been involved in Formula Student for long enough to catch the "FS virus". With teams popping up from Universities from all corners of the world, the worldwide Formula Student competitions are in demand to keep up!

International gathering

Event-Organisatoren aus unterschiedlichen Ländern diskutieren neue Ideen

Every competition around the world faces different hurdles which they must overcome in order to cater for the hundreds of teams who will be fighting for a spot to compete. Whether it be searching for the perfect venue or looking for enough volunteers, or volunteers with the correct experience, the community is strong and works together to provide, in order for these competitions to be successful.

Through this connection, the different FS organisations enjoy working together to make the world network of competitions as interlinkable as possible, so that teams can compete with the same car at the different competitions with only minimal modifications necessary. One way of doing this is by ensuring that they work to develop the rules as the competition progresses. In the past, Formula Student Germany has been host to round tables, where the organisers from the different competitions are invited and the rules for the future are discussed. There, all organisers share feedback and experiences and offer advice to other organisers in order to allow for the competitions to mature around the world. Once again, in 2016, organisers of the events in Europe, America and Asia will come together in Hockenheim.

It is not only the worldwide competitions that face challenges, there are also many teams around the world that will only ever have the chance to compete if they travel internationally. Once again, the FS community is there to help. Teams host teams. When a racecar arrives from Africa in small pieces, because that was the only way the team could afford the shipping, they can be guaranteed as much support as possible from their fellow teams. This help may be as simple as allowing them to use tools and materials or physically supporting in the reassembly of their race cars.

417 combustion - teams from 55 countries
Australia, Austria, Belgium, Bosnia and Herzegovina, Brazil, Canada, China, Croatia, Czech Republic, Denmark, Ecuador, Egypt, Estonia, Finland, France, Germany, Greece, Hungary, India, Indonesia, Ireland, Israel, Italy, Japan, Jordan, Malaysia, Malta, Mexico, Netherlands, New Zealand, Norway, Pakistan, Poland, Portugal, Puerto Rico, Romania, Russia, Serbia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Taiwan, Thailand, Turkey, Ukraine, United Kingdom, United States, Venezuela

83 electric - teams from 27 countries
Australia, Austria, Belgium, Canada, China, Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Hungary, Iceland, India, Iran, Israel, Italy, Japan, Netherlands, Norway, Portugal, Russia, Slovakia, Spain, Sweden, Switzerland, United Kingdom

Formula Student breaks cultural and language barriers, whether it be through your work, during your social life or someone you happened to sit down next to on the plane, because as soon as two people who have been infected by the Formula Student virus come into the vicinity of one another, the only topic on the agenda is racecar.

Shipping FS cars around the world

FS-Autos aus aller Welt

In der Welt zu Hause

Die Formula Student (FS) Gemeinschaft wird immer größer. Sie besteht aus den Menschen, die mit dem „FS-Virus“ infiziert wurden. Und in allen Ecken der Welt entstehen neue Teams, denen die Organisatoren und Events gerecht werden müssen!

Jedes Event auf der Welt hat mit anderen Herausforderungen zu kämpfen, um die vielen hundert Teams zu versorgen. Das beinhaltet beispielsweise die Suche nach dem perfekten Gelände und nach genügend Volunteers, sowie nach Volunteers mit der richtigen Erfahrung. Gerade hier hilft die FS Gemeinschaft, um die Wettbewerbe erfolgreich stattfinden zu lassen.

Durch dieses Geben und Nehmen macht es den unterschiedlichen FS Organisationen Spaß zusammen zu arbeiten, auch um die Veranstaltungen so vergleichbar wie möglich zu machen. Ziel ist es, dass die Teams durch nur kleine Veränderungen mit den gleichen Autos an unterschiedlichen Wettbewerben teilnehmen können.

Ein Weg, um das zu gewährleisten ist die gemeinsame Entwicklung der Regeln. In der Vergangenheit hat die Formula Student Germany die Organisatoren der verschiedenen Wettbewerbe bereits mehrfach zu Treffen eingeladen, bei denen zukünftige Regeln diskutiert wurden. Außerdem dienen diese Treffen dazu, Feedback und Erfahrungen auszutauschen und anderen mit Rat und Tat zur Seite zu stehen. Auch 2016 werden wieder die Organisatoren der Events in Europa, Amerika und Asien in Hockenheim zusammen kommen.

Aber nicht nur die Veranstalter stehen vor großen Herausforderungen. Es gibt viele Teams auf der ganzen Welt, die nur dann die Chance haben, an einem Wettbewerb teilzunehmen, wenn sie ins Ausland reisen. Auch hier hilft die FS Gemeinschaft. Teams stellen sich als Gastgeber für Gäste-Teams zur Verfügung. Wenn ein Auto aus Afrika in kleinen Teilen ankommt, weil dies der einzige Weg war wie sich das Team eine Verschiffung leisten konnte, dann ist ihnen die größtmögliche Unterstützung durch andere Teams gewiss – angefangen mit dem Verleihen von Werkzeug bis hin zum körperlichen Einsatz am Auto.

Die Formula Student bricht kulturelle und sprachliche Grenzen auf, sowohl auf der Arbeit, im Privatleben oder auch im Flugzeug, wenn man zufällig neben einem „FSler“ sitzt. Denn wenn sich zwei Menschen treffen, die mit dem FS Virus infiziert sind, geht es letztlich nur noch um „Racecars“.

International event officials discussing new ideas

Internationales Treffen

INTERVIEW
CHRISTOPH VON HUGO, DAIMLER AG

FSG: A STARTING POINT FOR A FRUITFUL CAREER

FSG: SPRUNGBRETT INS BERUFSLEBEN

Christoph von Hugo (Daimler AG)

Christoph von Hugo, a founding member of the Lions Racing Team from Brunswick, in 2000, together with his team mates built up a team that has been competing at numerous FS competitions ever since. Today he works as a Manager in Research and Development for Daimler in Stuttgart and as Daimler is an FSG sponsor, he is able to continue the FSG fun through his employer.

Christoph von Hugo, Gründungsmitglied des Lions Racing Team aus Braunschweig, baute im Jahr 2000 mit seinen Teamkollegen ein FSG-Team auf, das seither an zahlreichen FS Wettbewerben teilgenommen hat. Heute ist er Manager in der Forschung und Entwicklung bei Daimler in Stuttgart und weil Daimler ein FSG-Sponsor ist, bleibt er nach wie vor mit der FSG verbunden.

Students compete in Formula Student Germany for different reasons, what was your reason?
I had just returned from studying abroad and was desperately missing practical content such as case studies in my German schedule. That's when I first learned about Formula Student and I didn't need a second thought to decide that this would be an ideal chance to get hands-on experience in vehicle engineering, real-life teamwork (with all its ups and downs) and – last but not least – start-up founding. After all, Formula Student was not only new to my university but also to Germany!

Do you think Formula Student helped you in your career development?
Maybe not in terms of "Hey, you've been part of Formula Student? Here is your promotion!". But if I certainly benefitted from the things I have learned during my intense time at FSG regarding both hard skills as well as soft skills. If you have overcome the numerous hurdles of financing, constructing, shipping and importing an FSG race car to Australia with a bunch of motivated but rather uncoordinated fellow students then there is not much that can stop you in the real business world!
Needless to say, FSG also gives to a lot of great examples to illustrate your skills (and weaknesses) during a job interview...

Es gibt unterschiedliche Gründe, warum Studenten an der Formula Student Germany teilnehmen. Warum hast du dich damals entschlossen mitzumachen?
Ich war gerade von meinem Auslandssemester zurückgekehrt und vermisste an der Uni in Deutschland die praktischen Inhalte, wie z.B. Fallstudien: Da kam die „Formula Student", von der ich zu dem Zeitpunkt das erste Mal erfuhr, gerade recht. Mir war gleich klar, dass mir dieser Wettbewerb eine einmalige Gelegenheit bietet, praktische Erfahrungen sowohl in der Fahrzeugtechnik als auch in Sachen Teamarbeit (mit all ihren Höhen und Tiefen) und nicht zuletzt im Gründen von Start-Ups zu sammeln. Denn Formula Student fühlte sich zu der Zeit wirklich wie ein Start-up an!

Hat dir die Formula Student bei deinem beruflichen Werdegang geholfen?
Vielleicht nicht nach dem Motto „Du hast an einem Formula Student-Wettbewerb teilgenommen? Hier ist deine Beförderung!" Aber von meiner intensiven Zeit bei der FSG habe ich auf jeden Fall profitiert – sowohl was die Hard als auch die Soft Skills angeht. Wenn du die zahlreichen Hürden überwunden hast, ein FSG-Rennauto zu finanzieren, zu bauen, zu verschiffen und nach Australien zu importieren – und das als zwar motivierte aber doch recht unkoordinierte Truppe junger Studenten –, dann kann dich im echten Berufsleben wenig stoppen!
Aber natürlich hat man durch eine FSG-Teilnahme auch automatisch eine Menge plakativer Beispiele parat, die dir in einem Bewerbungsgespräch dabei helfen, deine Stärken (und Schwächen) zu erläutern.

Do you still come to FSG?
Not as often as I wish to! But throughout all the years I have stayed in touch in various ways. Of course there is still contact to my former team colleagues but I am also involved in the participation of my current employer in FSG. Turns out that by now way more people know Formula Student and I regularly have conversations about this topic with absolute strangers. As a former Formula Student participant I feel as part of a global family... also a rather large one by now.

What is your favourite part of Formula Student Germany?
Do I really have to choose one? Well, in that case it would be the spirit that is still very vivid at every FS competition: despite all the professionalism that some teams have incorporated by now, FS is not really about winning but about taking part and reaching one`s own goals. I can't remember the team that won the first FS event I ever went to in Birmingham, but I sure remember the team from India whose car arrived in small cardboard boxes (my first experience with CKD) and that only managed to have their car running a few rounds the last day of the competition because every other team helped out with know-how and spare parts! There were standing ovations for this 460kg piece of steel...

Besuchst du die FSG noch regelmäßig?
Leider nicht so oft wie ich es mir wünschen würde! Aber ich bin all die Jahre auf unterschiedlichen Wegen mit der FSG in Kontakt geblieben. Natürlich habe ich noch Kontakt zu meinen ehemaligen Teamkollegen, aber ich engagiere mich auch über meinen jetzigen Arbeitgeber. Es ist tatsächlich so, dass die Formula Student mittlerweile viel bekannter ist und ich mich regelmäßig mit wildfremden Personen über dieses Thema unterhalte. Als ehemaliger FS-Teilnehmer fühle ich mich als ein Teil einer globalen und mittlerweile richtig großen Familie.

Wofür schwärmst du bei der FSG am meisten?
Muss ich mich hier wirklich für eine Sache entscheiden? Also in dem Fall ist es der „FS-Spirit", der bei jedem FS-Wettbewerb sehr lebendig ist: Trotz all der Professionalität, die manche Teams bereits erreicht haben, geht es bei den Wettbewerben nicht wirklich ums Gewinnen, sondern darum teilzunehmen und die eigenen Ziele zu erreichen. Ein Beispiel: Ich kann mich nicht mehr an das Team erinnern, das mein erstes FS-Event in Birmingham gewonnen hat. Dafür erinnere ich mich aber lebhaft an das Team aus Indien, dessen Auto in kleinen Pappkartonboxen ankam (meine ersten Erfahrungen mit CKD). Das Auto ist am letzten Tag des Wettbewerbs tatsächlich ein paar Runden gefahren, weil alle anderen Teams in den Tagen zuvor mit Know-how und Ersatzteilen ausgeholfen hatten! Es gab Standing Ovations für dieses 460 kg-Stahl-Paket.

I didn't need a second thought to decide that this would be an ideal chance to get hands-on experience in vehicle engineering, real-life teamwork (with all its ups and downs) and – last but not least – start-up founding.

Mir war gleich klar, dass mir dieser Wettbewerb eine einmalige Gelegenheit bietet, praktische Erfahrungen sowohl in der Fahrzeugtechnik als auch in Sachen Teamarbeit (mit all ihren Höhen und Tiefen) und nicht zuletzt im Gründen von Start-Ups zu sammeln.

THE TRUTH ABOUT WHAT TO EXPECT WHEN COMPETING AT FORMULA STUDENT GERMANY

Since 1999, Oxford Brookes Racing has scored more points, entered more competitions, and turned faster laps than any other UK Formula Student team, achieving the honour of top team from the UK five times along the way.

Mission: Oxford Brookes Racing aims to improve engineering knowledge, team work and leadership skills of Oxford Brookes University students and to develop good overall competence with engineering practice to improve the team members' skills in order to work in top class industries in the future.

Some teams arrive at Formula Student Germany with their shiny new racecars, whizz through the competition, making it look so easy and come out the other side with a trophy. But what about the other 113 shiny new racecars who don't? What is it that drives them to come back year after year?

We asked one of our most loyal international teams, Oxford Brookes Racing, from Oxford Brookes University in the United Kingdom to give us some insight to what exactly goes on in their team and how and on those down years, when they just miss our on a victory, how they keep their spirits high to come back to try again.

> **When we know that we have laid everything on the table and done the best we could have, no matter the result, it will be worth it.**

In its 16 year history, Oxford Brookes Racing (OBR) has had its fair share of ups and downs. Through all of these experiences the team has learnt a lot about what to, and what not to do at competition. Hopefully we can give a little insight into what has and hasn't worked for us over the years.

As with any project of this scale, a lot can be decided at the start of the year by the team you assemble. With OBR being completely extracurricular, we have the advantage of being able to take on students from Foundation level all the way to up to Masters students. This is a key point to note about our team; we love having the younger years heavily involved right from the start, it's amazing what someone can learn over a year. Towards the end of the project the first years in our team become some of the most valuable members. Having students who are ready and enthusiastic to get stuck into any task, no matter how mundane, can be a huge help to the team, especially when exam season starts to roll around and the final year students have dissertations and degree projects to be finishing.

Planning is the next big hurdle to overcome. How are we going to track everything? Who is around to work on the car? What events are we going to? When are all the competition deadlines? We have found that knowing when things need to be done and planning well in advance makes a huge difference to the quality of our final car and can also remove a little stress from what is undoubtedly going to be a very busy team.

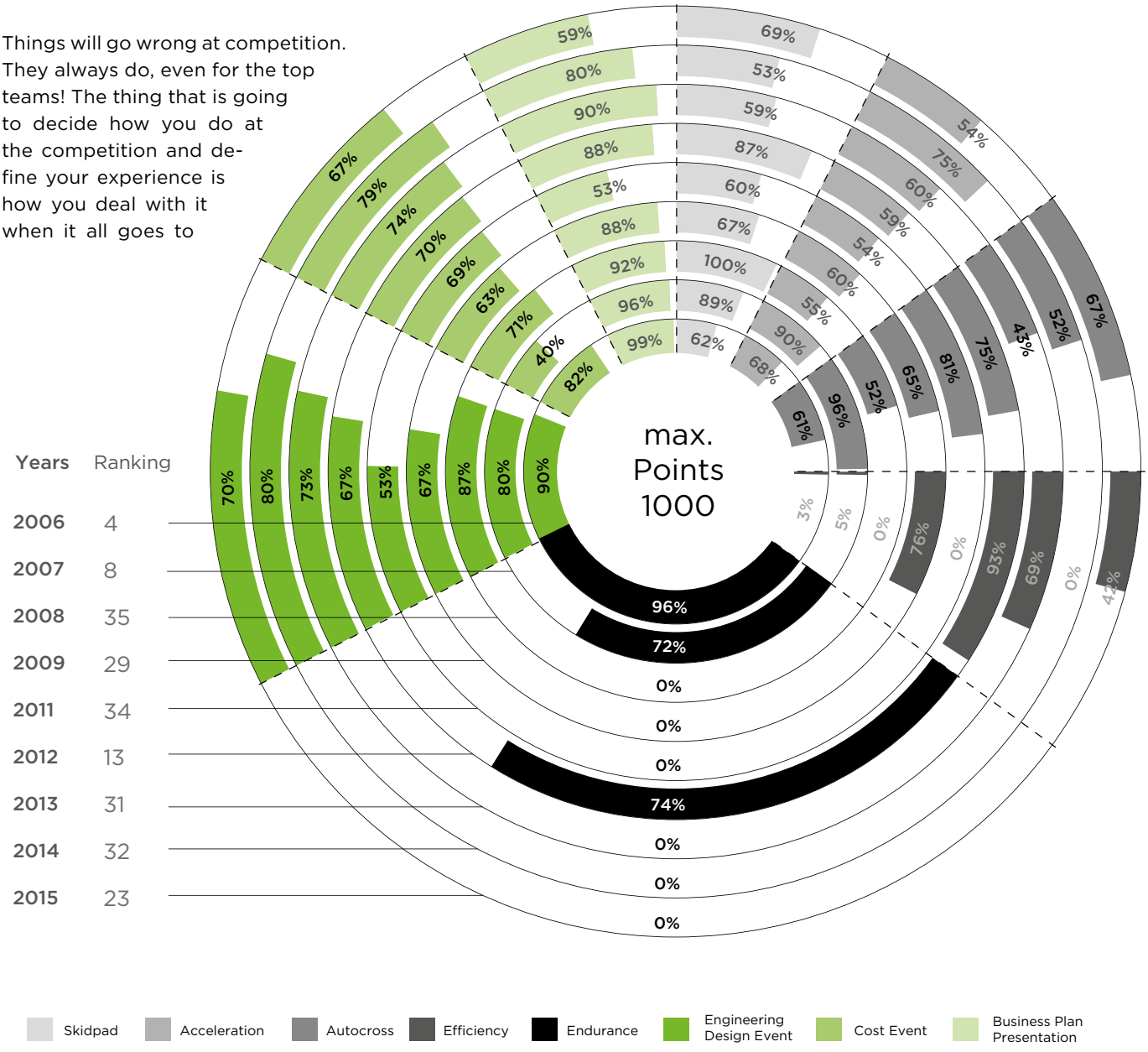
Stress probably has one of the biggest impacts on a team's performance throughout the year. It's highly contagious and if one member of the team is worried about something, whether it's the car, coursework or exams, it can spread through the rest of the team. Doing our best to keep stress to a minimum and morale in the team high is one of the most important factors to having a good year. OBR try to blow off some steam organising socials from Go Karting to a simple pub trip.

When all the hard work through the winter and spring months is over, we all finally make it here! To FSG! We've got a shiny new racecar, hopefully with some solid testing mileage on it and the team is happy and working together well. Only a few days of competition between you and achieving your team goals, right?! From experience we can tell you that even if you've done everything right up until competition it's very easy to see it all unravel in a weekend.

So how can we stop this? A lot of it can be down to luck, but there are many ways in which you can make your own luck. Not falling into the traps that many do at competition seems easy, but it is amazing how the sleep deprivation, the hours of travel time and the stress of competition can get to you. In the same way that you need to plan throughout the year, you definitely need to plan at competition. We must confess that OBR missed our second acceleration run at FSG 2015: bad luck? Maybe. Bad planning by not going out in the first hour of the event when the track was empty? Definitely. The same thing almost happened during the sprint at the same event, but thankfully time was on our side that time, though we were the final car out on track! The most important thing is to learn from these mistakes (you will likely see us out a little earlier in both events this year).

Things will go wrong at competition. They always do, even for the top teams! The thing that is going to decide how you do at the competition and define your experience is how you deal with it when it all goes to pot. This is one of the areas that OBR has quite a bit of experience in and something that if you talked to any of our team members would be regarded, in a strange way, as one of the most exciting and rewarding parts of the event. That moment when all seems lost and you fix the car with seconds to spare, that's when a team shows its true colours. To do this you need to have a team that is prepared to put everything in when it's needed. Whether they're the person that needs to fix a problem under insane pressure or the person that is making the sandwiches for the people fixing the problem. When we know that we have laid everything on the table and done the best we could have, no matter the result, it will be worth it. It's the stories of previous year's issues that people remember. Team members tell them with pride, because at that moment they were putting in everything they had.

So next time you seem to be facing the impossible, remember you are not alone, as Oxford Brookes Racing can tell you, just give it all you can and trust that whatever the outcome, it will be worth it in the end.



Participating FSE TEAMS 2016

Car	City/University	Country	Pit	Page
1	Delft TU	Netherlands	36	84
4	Ravensburg DHBW	Germany	24	92
6	Osnabrück UAS	Germany	15	90
8	Stuttgart DHBW	Germany	22	93
10	Augsburg UAS	Germany	2	81
11	Göteborg Chalmers	Sweden	19	85
12	Bayreuth U	Germany	14	81
13	München UAS	Germany	27	89
15	Hannover U	Germany	8	86
18	Darmstadt TU	Germany	6	82
19	Braunschweig TU	Germany	10	82
20	New Delhi IIT	India	39	90
21	Köln TH	Germany	30	88
22	Leuven KU	Belgium	13	88
23	Amberg OTH	Germany	25	81
26	Stuttgart U	Germany	40	93
31	Ilmenau TU	Germany	35	87
32	Terrassa ESEIAAT	Spain	12	93
33	Zürich ETH	Switzerland	32	95
34	Ingolstadt UAS	Germany	38	87

Car	City/University	Country	Pit	Page
35	Wolfenbüttel UAS Ostfalia	Germany	4	94
39	Liuzhou UAS	China	33	89
40	Eindhoven TU	Netherlands	1	85
41	Wien TU	Austria	18	94
42	Clausthal TU	Germany	16	82
44	Deggendorf UAS	Germany	9	84
45	Sankt Augustin UAS	Germany	5	92
60	Nürnberg GSO UAS	Germany	17	90
61	Aalen HS	Germany	29	80
63	Trondheim NTNU	Norway	7	94
64	Kaiserslautern TU	Germany	31	87
68	Karlsruhe KIT	Germany	26	88
76	Freiberg TU	Germany	3	85
78	Hamburg TU	Germany	23	86
96	Zwickau UAS	Germany	37	95
99	Aachen RWTH	Germany	20	80
118	Dresden TU	Germany	34	84
131	München TU	Germany	21	89
185	Padova U	Italy	28	92
191	Göttingen HAWK	Germany	11	86

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Participating FSC TEAMS 2016

Car	City/University	Country	Pit	Page
201	Corvallis OSU	United States	60	100
202	Stuttgart U	Germany	42	117
207	Hatfield UH	United Kingdom	100	104
211	Auburn U	United States	63	97
212	Navi Mumbai PIIT	India	119	112
213	München UAS	Germany	110	111
214	Islamabad PIEAS	Pakistan	127	105
215	Glasgow U Strath	United Kingdom	128	102
216	Graz UAS	Austria	67	103
217	Montréal U McGill	Canada	117	110
218	Stralsund UAS	Germany	111	116
219	Madrid TU	Spain	51	108
220	Moscow BMSTU	Russia	74	110
221	Gießen UAS THM	Germany	122	102
222	Shiyan HUAT	China	84	116
224	Athens TU	Greece	104	97
225	Dubai BIT	United Arab Emirates	126	102
227	Roma U Tor Vergata	Italy	116	114
231	München TU	Germany	61	111
232	Coimbatore COT	India	113	100
234	Chennai SRMU	India	77	99
235	Maribor U	Slovenia	125	108
236	Giza U Cairo	Egypt	123	102
237	Modena UNIMORE	Italy	62	109
239	Heilbronn UAS	Germany	78	104
241	Liverpool U	United Kingdom	118	107
242	Darmstadt UAS	Germany	65	100
244	Ulm UAS	Germany	105	118
245	Pomona CSU	United States	109	113
246	Arnhem UAS	Netherlands	121	96
248	Bochum U	Germany	64	98
250	Uxbridge U Brunel	United Kingdom	46	118
253	Graz TU	Austria	58	103
254	Vellore VIT	India	50	119
258	Paderborn U	Germany	57	113
261	Sevilla U	Spain	103	116
262	Regensburg OTH	Germany	76	114
265	Wiesbaden UAS	Germany	66	120
266	Melbourne Monash	Australia	43	109
268	Nevers ISAT	France	68	112
269	Seattle U Washington	United States	79	115
270	Coburg UAS	Germany	114	99
277	Volos U	Greece	81	119
278	Tampere UAS	Finland	120	117
279	Győr U	Hungary	44	103
280	Kassel U	Germany	115	106
285	Padova U	Italy	75	113
287	Bari PT	Italy	129	97
292	Oxford Brookes U	United Kingdom	69	112
294	Esslingen UAS	Germany	47	102
296	Manipal U	India	73	108
297	Schweinfurt UAS	Germany	112	115
299	Brno TU	Czech Republic	49	99
300	Berlin UAS	Germany	52	98
301	Montréal ETS	Canada	45	110
302	Poznań PUT	Poland	107	114
303	Berlin TU	Germany	101	98
307	Wrocław TU	Poland	53	120
311	Mumbai Somaiya	India	124	111
312	Thessaloniki U	Greece	56	117
313	Ann Arbor U MI	United States	59	96
316	Karlsruhe KIT	Germany	55	105
321	San Sebastián TECNUN	Spain	108	115
323	Kempten UAS	Germany	72	106
324	Zagreb U	Croatia	106	121
339	Toronto U	Canada	83	118
340	Istanbul TU	Turkey	71	105
343	Konstanz UAS	Germany	70	107
358	Erlangen U	Germany	54	102
360	Weingarten UAS	Germany	80	120
369	Hamburg UAS	Germany	41	104
395	Valéncia UPV	Spain	48	119
397	Milano PT	Italy	130	109
398	Lemgo UAS	Germany	82	107
399	Karlsruhe UAS	Germany	102	106

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AACHEN
RWTH Aachen University

Car 99 | **Pit 20** | **WRL 13** | **Germany**

Until last year our team has built 10 cars with internal combustion engines and 4 electric powered cars. After having the most successful season of our history in 2015, thanks to an vehicle with two electric motors in the rear, we decided to take the next step in terms of technology: the whole new CFRP chassis, 4WD, the new suspension and improved aerodynamics are expected to enable us to close the gap to the top teams. Therefore we are looking forward to having a great competition in 2016.

FRAME CONSTRUCTION One piece CFRP Monocoque
MATERIAL Aluminiun honeycomb and rohacell sandwich material
OVERALL L / W / H (mm) 2908 / 1442 / 1106
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1250 / 1200
WEIGHT WITH 68kg DRIVER (Fr / Rr) 127 / 139
SUSPENSION Double unequal length A-Arm. Push rod actuated horizontally oriented spring and damper Anti-Roll-bar
TYRES (Fr / Rr) 18x7.5 R10 Hoosier R25B
WHEELS (Fr / Rr) 10x7.5 CFRP rim
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE planetary gear set
DIFFERENTIAL Electric Torque Vectoring
COOLING plain water cooling. radiators mounted in sidepod.
BRAKE SYSTEM AP Racing CP7855 14mm bore fron /16.8 bore rear front 2x2 piston 25mm dia. fixed mtg. rear 2 piston
ELECTRONICS self developed BMS, universal ECU's with individual extensions, live telemetry system

AALEN
Hochschule Aalen - Technik und Wirtschaft

Car 61 | **Pit 29** | **WRL 52** | **Germany**

The fifth car of the E-Motion Rennteam comes along with plenty of premieres.For the first time we are using two motors to drive the rear wheels, an complete aerokit and a huge number of self developed electronic components such as the AMS, ECU or the CAN-bus hardware.As the harder, faster, and better Version of its predecessor the ERT-05/16 is competing in FSA and FSG this Year.We are looking forward to see you all at the Events!

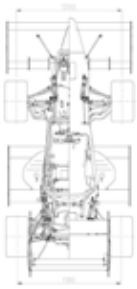
FRAME CONSTRUCTION tubular space frame
MATERIAL E355
OVERALL L / W / H (mm) 2750 / 1360 / 1400
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1157 / 1141
WEIGHT WITH 68kg DRIVER (Fr / Rr) 140 / 144
SUSPENSION double unequal length A-Arms (thin wall steel tubing). Direct actuated Damper with air spring
TYRES (Fr / Rr) Hoosier 6.0/18.0-10 LC0
WHEELS (Fr / Rr) 7.5x10, 22mm offset, center locking
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE Half shaft with tripods
DIFFERENTIAL
COOLING Two independant cooling circuits for each drivetrain side
BRAKE SYSTEM 4-Disc system
ELECTRONICS Can Bus system, AMS communication via light, self developed ECU, multifunctional touchdisplay

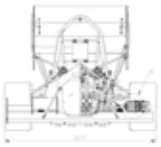
AMBERG

Ostbayerische Technische Hochschule Amberg-Weiden (OTH)

Car 23 **Pit 25** **WRL 18** **Germany**

The Running Snail Racing Team was established in August 2004 at the OTH Amberg-Weiden. After building eight combustion cars, the „RS16“ is our fourth generation electric powered racecar, which is a further development of last years car to improve performance. Achieving a reduction of weight while simultaneously increasing the power of the car was set a target. For further information please visit our website.





FRAME CONSTRUCTION Composite CFRP/aluminium sandwich monocoque
MATERIAL aluminium honeycomb, prepreg CFRP
OVERALL L / W / H (mm) 2921 / 1451 / 1188
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1200 / 1180
WEIGHT WITH 68kg DRIVER (Fr / Rr) 126 / 137
SUSPENSION Double unequal length A-Arm, Pushrod actuated ZF/Sachs spring/damper-unit, U-type anti-roll-bar
TYRES (Fr / Rr) Hoosier 18.0x7.5-10 R25B
WHEELS (Fr / Rr) 7.0x10, 21.4 mm offset, CFRP-Al rim
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE planetary gearbox
DIFFERENTIAL N/A
COOLING twin side pod mounted radiator
BRAKE SYSTEM fr: 4 piston; fr: 2 piston; semi-floating, hub mounted, 175mm diameter, adjustable brake balance
ELECTRONICS data logging system, selfdesigned telemetry, CAN, safety monitoring

AUGSBURG

University of Applied Sciences Augsburg

Car 10 **Pit 2** **WRL 24** **Germany**

This seasons car is named Silencio, according to a character from Augsburger Puppenkiste.The change from a rear driven drive to a four wheel drive was not the only big step in our associations history. Additionaly we made our monocoque with prepreg carbon fibre and aluminum honeycomb. Our Suspension takes advantage of a third-spring system. A novality in our electronic system is the use of ethernet for communication. Furthermore we included sensor fusion algorithms in our dynamic systems.

FRAME CONSTRUCTION One piece Composite monocoque with tubular roll bars
MATERIAL Carbon fiber with aluminum honeycomb core / S355 steel main hoop / EN AW 6061 aluminum front hoop
OVERALL L / W / H (mm) 2893 / 1448 / 1145
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1535 / 1250 / 1200
WEIGHT WITH 68kg DRIVER (Fr / Rr) 132 / 168
SUSPENSION Double unequal length A-Arms, Push rod actuated horizontally oriented spring and damper.
TYRES (Fr / Rr) 205/407R13 C16, Continetal
WHEELS (Fr / Rr) 7x13, 22mm offset, hybrid rim with carbon rim base aluminum rim star
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE planetary gear
DIFFERENTIAL n/a
COOLING 2 side pod mounted radiator cooled by airstream
BRAKE SYSTEM 4-Disk system, self developed rotors, adjustable brake balance
ELECTRONICS Multifunctional Steering Wheel, Torque Vectoring, Traction Control, selfdesigned AMS, EMC shielding

BAYREUTH

University of Bayreuth

Car 12 **Pit 14** **WRL 8** **Germany**

Elefant Racing e.V. was founded in spring 2004 at the University of Bayreuth. Since 2010/11 we develop electrically powered vehicles. For our latest race car, the “FR16 Parsifal”, we focused on weight reduction of the chassis. Furthermore, our car features a self-developed and programmed battery management system. For further information, or to just to have a good time with us, you are very welcome to visit our pit.

FRAME CONSTRUCTION Full CFRP monocoque with aluminum Front and steel Main Hoop
MATERIAL CFRP & C/AFRP hyprid prepreg,Al-honeycomb, Rohacell structural foam, Epoxy adhesive and surface film
OVERALL L / W / H (mm) 2929 / 1422 / 1204
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1180 / 1180
WEIGHT WITH 68kg DRIVER (Fr / Rr) 94 / 110
SUSPENSION Double unequal length A-Arm, Pull rod
TYRES (Fr / Rr) 18x7.5 - 10, R25B, Hoosier
WHEELS (Fr / Rr) 8.0 x 10, CFRP rim with aluminium wheel center, 25 mm offset
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE Polychain belt drive
DIFFERENTIAL Drexler formula student clutch pack limited slip, 50% / 30% lock
COOLING 2 side mounted radiators attached to a parallel water cooling system
BRAKE SYSTEM 4-Disk system, self developed steel alloy rotors with 172mm diameter, adjustable brake balance
ELECTRONICS self developed ECU, sensor nodes, display driver interface, selfdesigned telemtetry system

BRAUNSCHWEIG

Technische Universität Braunschweig

Car 19 | **Pit 10** | **WRL 62** | **Germany**

Some people say the Lions Racing Team is building the same car every year. Not this year, the LR16 is a new concept. We accepted to go the big challenge „first monocoque" together with an entirely new powertrain based on the AMK formula student package. We have been working closer with VW than ever. Our goal is to come back to Hockenheim with a competitive concept to attack Top 10 and a good base to develop on.

FRAME CONSTRUCTION Monocoque
MATERIAL carbon reinforced plastic with aluminium honeycomb
OVERALL L / W / H (mm) 2700 / 1360 / 1059
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1168 / 1150
WEIGHT WITH 68kg DRIVER (Fr / Rr) 144 / 157
SUSPENSION Double antiparallel unequal length A-Arm . Push rod actuated, adjustable in compression and rebound.
TYRES (Fr / Rr) C16 205/470 R13, Continental, Fr and Rr
WHEELS (Fr / Rr) 7x13, 26mm offset, 3pc AlMgSi1 Rim, Fr and Rr
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE planetary gearbox
DIFFERENTIAL torque vectoring though control unit, no differential as there are 4 motors
COOLING Left and right side sidepot integrated coolers without fan. 2 split system.
BRAKE SYSTEM 4-Disk system, self developed rotors with 220mm diameter, AP Racing CP4227-2S0 calipers
ELECTRONICS self developed, decentral control unit system and telemetry system, multifunctional dashboard

CLAUSTHAL

Clausthal University of Technology

Car 42 | **Pit 16** | **WRL 56** | **Germany**

With the GV-Racer 5, we follow the successful GV-Racer 4, our first car that ever raced on an official FS-Event. Our goal this year is to finish all the dynamic events and thereby establishing a reliable car. In comparison to the GV-Racer 4, we are aiming for a weight loss of 30kg.A whole new motor concept, switching from 10" to 13" tires and a fancy new steering show our ambitious aim to create an innovative race car.

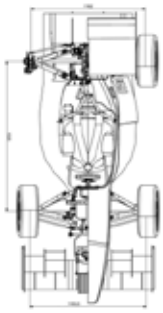
FRAME CONSTRUCTION welded tubular space frame
MATERIAL S355
OVERALL L / W / H (mm) 2820 / 1680 / 1037
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1400 / 1400
WEIGHT WITH 68kg DRIVER (Fr / Rr) 107 / 161
SUSPENSION Double unequal length A-Arm. Pull rod actuated. vertically oriented air spring
TYRES (Fr / Rr) Continental C16 / 205 / 470 R13
WHEELS (Fr / Rr) Continental C16 / 205 / 470 R13
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE toothed pulley gearing system
DIFFERENTIAL Drexler limited slip differential
COOLING Radiators on both sides, circualted by airstream. Separate accumulator air cooling
BRAKE SYSTEM 4-Disk, Floating, self developed rotors, D=210mm, adjustable brake balance
ELECTRONICS Self developed BMS, local control units,

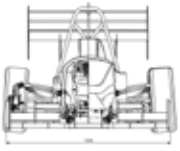
DARMSTADT

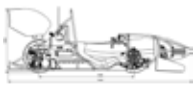
Technische Universität Darmstadt

Car 18 | **Pit 6** | **WRL 19** | **Germany**

DART Racing is a voluntary high school group that dedicated itself to promote research and development for the construction of electrical vehicles. Hereby, 40 students from different fields of study build in their leisure a high-performance racecar. The lambda2016 is designed as a single seated formula racecar with state-of-the-art-technology both on the mechanical and electrical side with focus on superior reliability and easy driveability even for amateurs.







FRAME CONSTRUCTION One-piece monocoque
MATERIAL CFRP, aluminium honeycomb
OVERALL L / W / H (mm) 2966 / 1345 / 1038
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1525 / 1183 / 1162
WEIGHT WITH 68kg DRIVER (Fr / Rr) 126 / 137
SUSPENSION Double-wishbone, Short-Long Arm, pull rod, air spring
TYRES (Fr / Rr) 185/40 R15, Pirelli
WHEELS (Fr / Rr) 185/40 R15, Pirelli
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE -
DIFFERENTIAL electronic differential
COOLING radiator and fan, mounted in sidepot
BRAKE SYSTEM 4-disk system, diameter front/rear 240 mm / 220 mm, Tilton master cylinders
ELECTRONICS live-telemetry of battery data, dashboard with LED-panel for driver information

Nina Kayser, Alternative Drivetrains, Japan (Tokyo)

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DEGGENDORF

University of Applied Sciences Deggendorf

Car 44 **Pit 9** **WRL 40** **Germany**

Fast Forest is the Formula Student Team of the Deggendorf Institute of Technology. Our new car Jenny08X is built up from scratch and builds on longstanding solutions like a CFRP full-monocoque, directly actuated dampers, a centralised control unit and employs on the other hand new developments like a new stack concept in the battery, an optical speed measuring device and four wheel hub motors each with a planetary gearbox. We thank all our Sponsors for their great support all season long.

FRAME CONSTRUCTION Monocoque
MATERIAL preimpregnated fibres with aluminum honey comb
OVERALL L / W / H (mm) 2850 / 1370 / 1130
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1540 / 1194 / 1196
WEIGHT WITH 68kg DRIVER (Fr / Rr) 121 / 147
SUSPENSION Double unequal length A-Arm. Directly linked spring and damper, ARB
TYRES (Fr / Rr) 205/470 R13 / 205/470 R13
WHEELS (Fr / Rr) 7x13, 30mm offset, 1 pc AlMg Rim
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE Planetary gearbox
DIFFERENTIAL electrical torque-vectoring
COOLING Two radiators in the twin side-pods
BRAKE SYSTEM self developed rotors, adjustable brake balance, ISR front and self-developed rear calipers
ELECTRONICS selfdesigned optical speed measuring unit

DELFT

Delft University of Technology

Car 1 **Pit 36** **WRL 3** **Netherlands**

Formula Student Team Delft is a team of over 60 students from over 6 faculties of the TU Delft. The team is divided into six technical departments and a management team of four people. The team's newest vehicle, the DUT16, is a 4 wheel driven electric vehicle featuring aerodynamic devices. As with it's 15 predecessors a lightweight design was one of the key focus points of this year's vehicle. Together with the newest iteration tyres and a new innerwheel concept, the DUT16 is ready to race!

FRAME CONSTRUCTION CFRP single piece monocoque with aluminium honeycomb core
MATERIAL Textreme 100 gsm plain weave impregnated with MTC510, DeltaTech M46J and STS UD prepregs
OVERALL L / W / H (mm) 2831 / 1426 / 1174
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1200 / 1200
WEIGHT WITH 68kg DRIVER (Fr / Rr) 111 / 117
SUSPENSION Double unequal length A-arms with pullrod front, double unequal length A-arms with pushrod rear
TYRES (Fr / Rr) 225-368-R10 Apollo
WHEELS (Fr / Rr) 225-368-R10 Apollo
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE Single-stage double-spur gearbox
DIFFERENTIAL Electrical
COOLING Sidewing mounted radiator inside duct, air inlet scoop in duct
BRAKE SYSTEM Double caliper on front, single caliper on rear, adjustable brake balance from cockpit, electric ABS
ELECTRONICS Custom ECU, Long range telemetry, high resolution dashboard, 4 distributed CAN sensor nodes

DRESDEN

Technische Universität Dresden

Car 118 **Pit 34** **WRL 59** **Germany**

In its 10th year of existence, the team "Elbflorace" from Dresden proudly presents its first four wheel driven car. As the 6th electric car in the team's history "SophE" combines valuable experiences and concepts of earlier seasons. It has a monocoque made of CFRP, a wheel-hub drivetrain with an integrated gearbox and a new aero package. Combined with a test time of about 2.5 months the car is on the best way to reach our main goal: a top 10 rank.

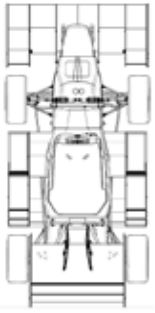
FRAME CONSTRUCTION CFRP-Monocoque
MATERIAL wet lay-up carbon, aramid honeycomb and foam sandwhich
OVERALL L / W / H (mm) 2951 / 1405 / 1089
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1550 / 1200 / 1150
WEIGHT WITH 68kg DRIVER (Fr / Rr) 139 / 139
SUSPENSION Double unequal length A-Arm fabricated from CFRP, U-Anti-Roll-Bar in Front, Z-Anti-Roll-Bar Rear.
TYRES (Fr / Rr) 205x55 Continental
WHEELS (Fr / Rr) 7x13, 35 mm Offset, O.Z. Mg Rim
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE 1.5 stage planetary gear
DIFFERENTIAL N / A
COOLING two separate Cooling System with flow optimized Cooling Parts
BRAKE SYSTEM 4-Disk system, self developed mono-block calipers front, adjustable brake balance
ELECTRONICS Live Telemetry System via WLAN, Real Time Linux with dual core CPU and a FPGA, GPS Sensor

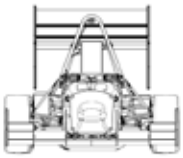
EINDHOVEN

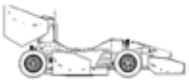
Eindhoven University of Technology

Car 40 | **Pit 1** | **WRL 20** | **Netherlands**

Universtiy Racing Eindhoven stands for technological innovation, teamwork and a passion for engineering. By competing in the Formula Student competition, we try to push ourselves and our cars to new limits! The URE11 is the teams seventh electric car and the second one to be equipped with four in-wheel electric motors. A special feature is the completely self-developed powertrain: the accumulator, custom quad inverter and self-developed motors get the most out of our Apollo tyres.







FRAME CONSTRUCTION CRFP sandwich full monocoque
MATERIAL Textreme M30SC/CPV4 prepreg, NTPT M40J UD, Bi and Triax. Al 5056 core
OVERALL L / W / H (mm) 2925 / 1345 / 1144
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1535 / 1180 / 1139
WEIGHT WITH 68kg DRIVER (Fr / Rr) 116 / 137
SUSPENSION Unequal length double wishbone, pushrod actuated horizontal placed spring/dampers
TYRES (Fr / Rr) Apollo R&D 205/50R10 custom compound and rain profile
WHEELS (Fr / Rr) 7.5x10 inch, 48 mm offset hybrid carbon aluminium rim
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE compound planetary gear system
DIFFERENTIAL Electronic torque vectoring differential
COOLING Side mounted double radiator, water cooled
BRAKE SYSTEM Floating, steel hub mounted, 182x3 mm, vented student designed rotors; 2 piston calipers
ELECTRONICS Self-developed 300W DC/DC converter, IO Nodes, 12 way fusebox settable via CAN, Live telemetry

FREIBERG

TU Bergakademie Freiberg

Car 76 | **Pit 3** | **WRL 6** | **Germany**

Racetech Racingteam was founded in 2005 and enters FSG for the 10th time. With our fifth electric car, the RT10, we focused on the development of our first monocoque, while adjusting well proved systems like our 2WD power train and aerodynamics to the new chassis. We are looking forward to a great season with events in Austria, Germany and Spain and are glad to meet you all there!

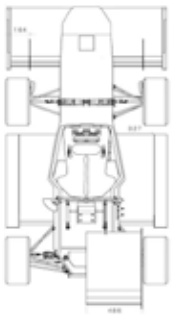
FRAME CONSTRUCTION Monocoque and casted rear structure
MATERIAL magnesium sheets (AZ31) and aluminum honeycomb
OVERALL L / W / H (mm) 2891 / 1402 / 1124
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1200 / 1160
WEIGHT WITH 68kg DRIVER (Fr / Rr) 134 / 134
SUSPENSION Double unequal length A-Arm, pull rod (front) and push rod (rear) actuated spring-damper system
TYRES (Fr / Rr) 205x34 R13, Continental C16
WHEELS (Fr / Rr) 7x13, 34mm offset, 2pc CFRP shell, Mg-center
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE two stage spur gearbox
DIFFERENTIAL Torque Vectoring
COOLING twin sidepod mounted radiators, independent circuits for motors and inverters
BRAKE SYSTEM self-developed Al-casted calipers, 4 pistons (front), 2 pistons (rear)
ELECTRONICS self-developed Vehicle Dynamics Control Unit, adjustable control parameters via dashboard

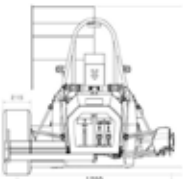
GÖTEBORG

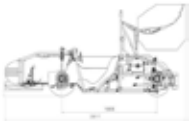
Chalmers University of Technology

Car 11 | **Pit 19** | **WRL 39** | **Sweden**

At Chalmers we build a new car every year as well as a completely new team. This year we designed an easy-to-manufacture car for more extensive testing and has focused on validation of analysis by physical tests. Safety, adjustability and sophisticated software highlights the CFS16 car. We have self developed the BMS and processing nodes to better suit our car and keep the reliability high and weight low.







FRAME CONSTRUCTION One-piece monocoque with Al honeycomb core and integrated front hoop
MATERIAL Prepreg CF and Al honeycomb structure, 4130 steel main hoop, 2014 Al front hoop
OVERALL L / W / H (mm) 2917 / 1375 / 1196
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1200 / 1200
WEIGHT WITH 68kg DRIVER (Fr / Rr) 124 / 139
SUSPENSION Double unequal wishbones both rear and front
TYRES (Fr / Rr) 18x6 -10 Hoosier / 18x6 -10 Hoosier
WHEELS (Fr / Rr) 7x10, 11mm offset, 3pc Al Rim / 7x10, 11mm offset, 3pc Al Rim
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE 2 stage spur gears individual per motor
DIFFERENTIAL n/a
COOLING Rear mounted radiator with a San Ace 120 fan
BRAKE SYSTEM Floating 195x4 (front) 186x4.5 (rear), toolox 33 steel, ventilated
ELECTRONICS Torque Vectoring, slip control, launch control, wireless real/time data transfer

GÖTTINGEN

Hochschule für angewandte Wissenschaft und Kunst Hildesheim/ Holzminden/Göttingen

Car 191 **Pit 11** **Germany**

Blue Flash Mobility Concepts is a new and unique team founded in 2015 by the technical faculty of the HAWK in Goettingen. The E_Hawk16, our first team car, is designed to be the lightest first year car since the beginning of the competition. It will weight only about 199 kilos. The unique part of this car is the safety concept, which includes driver-optimized ergonomics and the low voltage concept (tractive system voltage below 60V DC)

FRAME CONSTRUCTION Tubular space frame, baseline
MATERIAL S355 steel round tubing, 25mm tubing
OVERALL L / W / H (mm) 2775 / 1430 / 1135
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1540 / 1190 / 1140
WEIGHT WITH 68kg DRIVER (Fr / Rr) 128 / 139
SUSPENSION double A-arm, unequal lenth. Push rod, Spring and Damper horrizontally
TYRES (Fr / Rr) 457,2x190,5 R25B
WHEELS (Fr / Rr) 457,2x190,5 R25B
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE Chain
DIFFERENTIAL electrical diffenrential
COOLING Rear mounted 600cc Radiator and two 120mm electric fans.
BRAKE SYSTEM 4-Disk system, self developed rotors with 190mm diameter,adjustable brake balance,ISR brake calipers
ELECTRONICS Central control box for shutdown logic

HAMBURG

Hamburg University of Technology

Car 78 **Pit 23** **WRL 46** **Germany**

e-gnition is the Formula Student Electric Team of the TU Hamburg. The focus of this season was on reliability and love. The team members are building the car, the egn16, exclusively in their free time, in return they get love and fun but no credit points or money. So we decided to make the benefits as big as possible and we tried to love our mates as much as we can. We also built a very reliable car to rush trough the scrutineering and take all dynamic events to the end. See you on the podium.

FRAME CONSTRUCTION Carbon fibre monocoque
MATERIAL HTS Fibres with Rohacell IGF-71 Core
OVERALL L / W / H (mm) 2336 / 1385 / 1125
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1560 / 1200 / 1150
WEIGHT WITH 68kg DRIVER (Fr / Rr) 111 / 167
SUSPENSION double unequal length a-arms,push rod actuated horizontally oriented spring/damper, anti-roll bar
TYRES (Fr / Rr) Continental 470 x 205 R13
WHEELS (Fr / Rr) 7x13", 30mm offset, magnesium rim
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE Spur Gear
DIFFERENTIAL torque vectoring
COOLING side mounted selfdesigned radiators
BRAKE SYSTEM 4-Disk system, self developed rotors with
ELECTRONICS wiring harness, self-developed BMS, selfdesigned Live-Telemetry System,

HANNOVER

Leibniz Universität Hannover

Car 15 **Pit 8** **WRL 44** **Germany**

HorsePower Hannover e.V. was founded in 2007 by a group of 10 engineering students. Our first events were Silverstone and Hockenheim in 2009 with the RacePony09, a combustion racecar. Step by step we learned about building an electric racecar. By retaining the know-how and establishing new structures of organisation, our team of more than 60 interdisciplinary students is improving the all wheel driven, single CFRP monocoque every year.

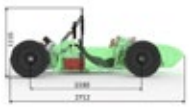
FRAME CONSTRUCTION two-piece Monocoque CFRP-Aluminum Honeycomb-Sandwich
MATERIAL K200K 1200 CP004 42 (CFRP; Prepreg); Aluminum Honeycomb (Al5056)
OVERALL L / W / H (mm) 2592 / 1428 / 998
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1555 / 1225 / 1185
WEIGHT WITH 68kg DRIVER (Fr / Rr) 133 / 133
SUSPENSION Double unequal length A-Arm. Push rod actuated horizontally oriented spring and damper
TYRES (Fr / Rr) 18.0 x 6.0-10 Hoosier R25B, 18.0 x 6.0-10 Hoosier R25B
WHEELS (Fr / Rr) 6,5x10 -45 mm offset 4pc alu, 6,5x10 -45 mm offset 4pc alu
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE planetary gearbox
DIFFERENTIAL electric
COOLING
BRAKE SYSTEM
ELECTRONICS selfdesigned Live-Telemetry Sytem, Multifunctional Steering Wheel

ILMENAU

Ilmenau University of Technology

Car 31 **Pit 35** **WRL 43** **Germany**

We, the now 10 years existing Team Starcraft are competing with our 4th electric car. Our team is set together of about 60 active team members consisting of engineering, social studies and economics students of Ilmenau University of Technology. We decided to develop and optimize our car with the focus on the main goals of simplicity, packaging and efficiency. This is realized with our self designed and manufactured motors and power electronics as well as the detachable direct drive concept.



FRAME CONSTRUCTION CFRP sandwich monocoque with detachable aluminium rear end and tubular steel roll bars
MATERIAL Rohacell foam / balsa wood sandwich panel (20/10mm core)
OVERALL L / W / H (mm) 2705 / 1373 / 1117
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1200 / 1200
WEIGHT WITH 68kg DRIVER (Fr / Rr) 111 / 167
SUSPENSION Double unequal length A-Arm. Push rod actuated, horizontally oriented spring and damper
TYRES (Fr / Rr) 178x54 R13, Hoosier R25B / 178x54 R13, Hoosier R25B
WHEELS (Fr / Rr) 7x13, 18mm offset, 2 pc Al Rim / 7x13, 18mm offset, 2 pc Al Rim
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE direct drive
DIFFERENTIAL n/a
COOLING single rear top mounted radiator with thermostatic controlled electric fans
BRAKE SYSTEM 4-Disk system, self developed rotors with 220 mm dia., adjustable brake balance, AP Racing calipers
ELECTRONICS Launch Control, Torque Vectoring, Traction Control, Live-Telemetry System

INGOLSTADT

Technische Hochschule Ingolstadt

Car 34 **Pit 38** **WRL 29** **Germany**

The FS Team “Schanzer Racing Electric” will participate for the fourth time in the FS Germany. Students from all faculties have already designed and built up the 4th race car in Schanzer history. With this new formula car the team wants to tie with the really good results of the last three seasons. This year’s success will be placed in a weight decrease of about 34 kg, a carbon fiber monocoque, torque vectoring, revised battery, optimized engine and other new developments. SCHANZER POWER!

FRAME CONSTRUCTION CFRP Monocoque
MATERIAL Carbon Fibre Reinforced Plastic
OVERALL L / W / H (mm) 2449 / 1436 / 1134
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1550 / 1214 / 1176
WEIGHT WITH 68kg DRIVER (Fr / Rr) 100 / 171
SUSPENSION Double equal length A-Arm. Push rod actuating horizontal orientated spring-damper
TYRES (Fr / Rr) 205/470 R13
WHEELS (Fr / Rr) 10.x0x6.0, Magnesium OZ
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE
DIFFERENTIAL Torque Vectoring
COOLING Rear mounted, one Radiators with two 25w Pumps
BRAKE SYSTEM 4-Disk system, self developed rotors with 195mm diameter, adjustable brake balance
ELECTRONICS Selfdesigned LV-Battery, Multifunctional Steering Wheel, Data Logging and Live Telemetry

KAISERSLAUTERN

Kaiserslautern University of Technology

Car 64 **Pit 31** **WRL 63** **Germany**

The Kaiserslautern Racing Team is a collaboration of 35 active members from both the TU and UAS Kaiserslautern, located in south-western Germany.The Electronyte e16 is the fifth electric car designed and built by KaRaT, continuing a design philosophy started in 2014: It features independently driven rear wheels, a carbon fibre monocoque and 10“ pullrod suspension. The design focus is on reliability and compact packaging to achieve maximum performance in the dynamic events.

FRAME CONSTRUCTION Single piece monocoque, tubular steel roll bars
MATERIAL Carbonfibre twill weave and unidirectional prepreg, Aluminium honeycomb sandwich core
OVERALL L / W / H (mm) 2826 / 1334 / 1140
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1150 / 1100
WEIGHT WITH 68kg DRIVER (Fr / Rr) 123 / 144
SUSPENSION Double unequal length A-Arm. Pullrod actuated horizontally oriented spring and damper (coil-over).
TYRES (Fr / Rr) 18.0x6.0-10 Hoosier R25B / 18.0x6.0-10 Hoosier R25B
WHEELS (Fr / Rr) 7x10, 00mm offset, CFRP shell+ AL center
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE Single-stage spur gear
DIFFERENTIAL Electronic torque distribution, torque vectoring available
COOLING Watercooled motors and motor-controllers, sidepod-mounted dual radiators
BRAKE SYSTEM 4-Disk system, self-designed rotors, adjustable brake balance, 4 piston front+2 piston rear calipers
ELECTRONICS self-developed control system for data aqcuisition and processing

KARLSRUHE

Karlsruhe Institute of Technology

Car 68 **Pit 26** **WRL 2** **Germany**

KA-RaceIng is the Formula Student team of the Karlsruhe Institute of Technology, founded in 2006. Since 2010 we stand for „one team - two cars", designing, manufacturing and competing with a FSE and a FSC car every year. The KIT16e is the consequent development of the du-al-x-drive, our unique motor-gearbox concept.We would like to thank all our supporters for the enormous help throughout the season!

FRAME CONSTRUCTION CFRP sandwich monocoque, motor-gear-units mounted centraly underneath
MATERIAL HT and HM fibres, twill and unidirectional plies, kevlar twill
OVERALL L / W / H (mm) 2911 / 1423 / 1182
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1220 / 1150
WEIGHT WITH 68kg DRIVER (Fr / Rr) 128 / 130
SUSPENSION Double unequal length A-Arm. Pull rods
TYRES (Fr / Rr) Hoosier 18.0x7.5-10 R25B
WHEELS (Fr / Rr) Hoosier 18.0x7.5-10 R25B
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE double staged planetary gear
DIFFERENTIAL
COOLING 2 radiators, Powerelectronics water cooled, Motors oil cooled
BRAKE SYSTEM 4 floating disks and two piston calipers on the front, 4 pistons at the rear
ELECTRONICS Live-Telemetry, Traction Control, Active Yaw Control, Torque Vectoring, modular hardware design

KÖLN

Technische Hochschule Köln

Car 21 **Pit 30** **WRL 57** **Germany**

eMotorsports Cologne, the Formula Student Team of TH Köln (former UAS), was founded in 2010. Since then we have built 6 electric Formula Student race cars to compete in the FSE. After 5 successful seasons with 5 different race cars, this year we managed to gather our knowledge in order to design the most high-performance eMC-model, the eMC16 "elina". The BEST TEAM WORK AWARD we won at FS Spain 2015 showed us that not only our technical base is strong, but also our team cooperates very well.

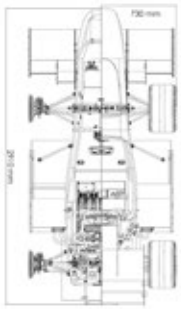
FRAME CONSTRUCTION full monocoque
MATERIAL carbon fibre, aluminium honeycomb
OVERALL L / W / H (mm) 3003 / 1395 / 1128
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1200 / 1150
WEIGHT WITH 68kg DRIVER (Fr / Rr) 138 / 150
SUSPENSION double A-Arm, Pullrod actuated vertically oriented spring and damper.
TYRES (Fr / Rr) 20.5 x 7 R13, Hoosier
WHEELS (Fr / Rr) OZ 7 inch x 13, 22 mm offset, 4 x 100, Al Rim
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE two stage gearbox
DIFFERENTIAL Drexler limited slip differential Formula SAE
COOLING side pod mounted radiator with temperature controlled electric fans
BRAKE SYSTEM floating 4-brakerotorsystem; 8 piston on front axle; 4 piston on rear axle; 4 x 100 wheel studs body
ELECTRONICS Live-Telemetry, LCD display, self-developed PCBs, multifunctional dashboard, ABS

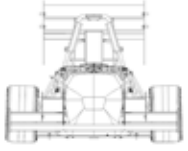
LEUVEN

KU Leuven - Group T Campus

Car 22 **Pit 13** **WRL 26** **Belgium**

Formula Electric Belgium is a team of 37 engineering students from KU Leuven and Thomas More, making it a multi-regional team. It's focus is on optimization and reliability. A 3D printed batterycase reduces weight and improves ease of assembly, while an optimized aerodynamic package generates more downforce. Reliability is achieved through self-designed motors, a new ECU with upgraded software and a predesigned cable loom. The car also features a single piece monocoque for the first time





FRAME CONSTRUCTION Single piece monocoque structure
MATERIAL woven prepreg carbon fiber with aluminium honeycomb core
OVERALL L / W / H (mm) 2910 / 1460 / 1185
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1535 / 1200 / 1200
WEIGHT WITH 68kg DRIVER (Fr / Rr) 124 / 149
SUSPENSION Short-Long Arm, Push-Rod actuated, Horizontally oriented springs and dampers, Semi-active damping.
TYRES (Fr / Rr) 18 x 7,5-10 R25B Hoosier
WHEELS (Fr / Rr) 7,5
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE Planetary gearbox
DIFFERENTIAL Electronic differential
COOLING twin side mounted radiators with twin pumps in parallel circuits per motor.
BRAKE SYSTEM 4 hub mounted steel alloy rotors with 190mm diameter, adjustable brake balance, AP racing calipers.
ELECTRONICS Self designed cable loom, dSpace ECU, DRS, Torque Vectoring, Self designed telemetry system.

LIUZHOU

Lushan College of Guangxi University of Science and Technology

Car 39 **Pit 33** **China**

LS Racing was founded in Dec.12th,2009.The team has three division:the combustion team,the electric team and the Baja team.We have been competed in China for 6 years,and in 2015,we won the champion of the Formula Student Electric China.And we will represent China to compete in Formula Student Germany.We are ready for the challenge!

FRAME CONSTRUCTION 4130 steel tube frame
MATERIAL 4130 steel tube
OVERALL L / W / H (mm) 2823 / 1396 / 1005
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1575 / 1190 / 1170
WEIGHT WITH 68kg DRIVER (Fr / Rr) 160 / 173
SUSPENSION Double unequal length A-Arm. Push rod actuated horizontally oriented spring and damper (coil-over).
TYRES (Fr / Rr) Hoosier R25B 10"×6"
WHEELS (Fr / Rr) 5.5×10 21mm offset,one piece Al Rim/5.5×10 21mm offset,one piece Al Rim
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE Two stage chain transmission
DIFFERENTIAL Torque sensitive limited slip bevel gear differential with internal preload adjustment
COOLING Rear mounted 350cc Mini radiator and 135mm electric fan
BRAKE SYSTEM 4-Disk system,adjustable brake balance
ELECTRONICS Dash mounted LCD screen

MÜNCHEN

Technische Universität München

Car 131 **Pit 21** **WRL 10** **Germany**

The TUfast Racing Team from the TU Munich consists of 80 team members who in one team design and build two race cars each season (electric + combustion). One Team – Two cars – TUfast. The main goals designing the TUfast eb016 are lightweight design and aerodynamics well-balanced between high downforce and efficiency. To achieve these goals: Wheel hub Drive, full CFRP- monocoque, Hoosier R25B on CFRP Rims, Planetary Gears, DRS.Feel free to come to our pit and talk to us!

FRAME CONSTRUCTION CFRP Monocoque with aluminium honeycomb
MATERIAL carbon fibre reinforced plastic
OVERALL L / W / H (mm) 2900 / 1440 / 1185
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1525 / 1220 / 1180
WEIGHT WITH 68kg DRIVER (Fr / Rr) 122 / 122
SUSPENSION Double unequal length A-Arm. Front: Pull rod actuated. Rear: Push rod actuated.
TYRES (Fr / Rr) 18x6.0-10 R25B Hoosier / 18x6.0-10 R25B Hoosier
WHEELS (Fr / Rr) 6,0 x 10, 1pc: CFRP Shells / 6,0 x 10, 1pc: CFRP Shells
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE stacked planetary gearing system
DIFFERENTIAL N/A
COOLING Rear mounted radiators with ducting
BRAKE SYSTEM self-built aluminium calipers, drilled floating rotors, adjustable brake balance.
ELECTRONICS Multifunctional Steering Wheel and Dashboard, rear axle steering system, drag reduction system

MÜNCHEN

University of Applied Sciences München

Car 13 **Pit 27** **WRL 14** **Germany**

PassionWorks - not only the name of our cars but also our guiding principle! Last season we took a big step forward with our four wheel driven car. This year we designed a car that signifies an evolutionary step. Our main goal was to design a reliable car and to omit the mistakes we made last year. Combined with many testing kilometers and a strong team, we want to improve upon last year's results.

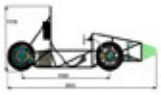
FRAME CONSTRUCTION Monocoque with tubular front & mainhoop
MATERIAL CFRP sandwich structure, rohacell core
OVERALL L / W / H (mm) 2925 / 1395 / 1136
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1540 / 1150 / 1128
WEIGHT WITH 68kg DRIVER (Fr / Rr) 126 / 130
SUSPENSION Double unequal length A-Arm. Push rod actuated horizontally oriented spring and damper
TYRES (Fr / Rr) 18.0x7.5-10 Hoosier R25B / 18.0x7.5-10 Hoosier R25B
WHEELS (Fr / Rr) 7.5x10, 2pc CFRP/ Aluminium hybrid rim / 7.5x10, 2pc CFRP/ Aluminium hybrid rim
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE planetary gearbox with step planets
DIFFERENTIAL torque vectoring
COOLING seperate cooling circuits for each side radiators with controlled electric fans
BRAKE SYSTEM AP racing four/two piston calipers, AP racing master cylinders.
ELECTRONICS 4x highspeed CAN, live telemetry via wlan, recuperation, traction control

NEW DELHI

Indian Institute of Technology Delhi

Car 20 **Pit 39** **India**

Axlr8r Formula Racing, FS team of IIT Delhi was formed in 2006 and is one of the first FS teams in India.With a core team of 15 members and a glorious past of 5 successful combustion cars, we present our first electric car, XLR16E.Being supported by Sponsors like JCB and Continental, our team aims at showing excellence in FS events through our innovative and cost effective design. the team has gone through many ups and downs and with passion towards cars we have and we will overcome each of it



FRAME CONSTRUCTION Tubular steel spaceframe with 31kg weight
MATERIAL Round tubes of ASTM A179 grade B
OVERALL L / W / H (mm) 2652 / 1465 / 1130
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1550 / 1260 / 1230
WEIGHT WITH 68kg DRIVER (Fr / Rr) 124 / 186
SUSPENSION Double unequal length CFRP A-Arm. Pull rod actuated spring and damper in front and rear.
TYRES (Fr / Rr) Continental 205/510 R13
WHEELS (Fr / Rr) Continental 205/510 R13
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE Constant drive ratio
DIFFERENTIAL Electronic differential with Torque vectoring, Slip control
COOLING Air cooled
BRAKE SYSTEM 4-Disk system, self developed floating rotors with 220mm diameter, adjustable pedals
ELECTRONICS Electronic differential, Launch control, Traction control. Selfmade Data acquisition with telemetry.

NÜRNBERG

Georg-Simon-Ohm-Hochschule Nürnberg

Car 60 **Pit 17** **WRL 33** **Germany**

Strohm+Söhne–Noris Motorsport is t. FSE team of t. Nuernberg GSO UAS and was founded in 2011. We are competing this season w. our contender NoRa 4 - what is short f. Noris Racing. We are realising a RWD concept w. an engine from Schaeffler IDAM a. an inverter from Continental and CES. Introducing a carbon suspension and a T-Bar ARB on this car marks an important step f. us in developing t. suspension. We are also proud of our self-developed electrical devices like t. AMS and t. Smart Sensors.

FRAME CONSTRUCTION Steel tube space frame. Add. carbon braces for reducing weight and increasing stiffness.
MATERIAL 25CrMo4 f. t. main structure. Add. carbon braces w. unidirectional carbon tubes a. titan glands.
OVERALL L / W / H (mm) 2960 / 1495 / 1140
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1670 / 1280 / 1220
WEIGHT WITH 68kg DRIVER (Fr / Rr) 122 / 217
SUSPENSION Double unequal length A-Arm. Push rod actuated horizontally oriented mountainbike air damper
TYRES (Fr / Rr) 205/470 R13, Continental C16
WHEELS (Fr / Rr) 7Jx13, 22.0 mm offset, 1 pc Al Rim / 7Jx13, 22.0 mm offset, 1 pc Al Rim
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE Single stage planetary gearbox
DIFFERENTIAL Spur gear differential, electromechanical locking mechanism (10-70%)
COOLING single circuit system w. 4140cc volume f. t. engine + inverter. Left side mounted fanless radiator
BRAKE SYSTEM Light weighted 4-/2-piston ISR calipers, Brake force compensator for optimum brake performance
ELECTRONICS Multifunctional steering wheel, Smart Sensor concept, selfdesigned AMS, Fuse PCB, HV DCDC-Converter

OSNABRÜCK

University of Applied Sciences Osnabrück

Car 6 **Pit 15** **WRL 11** **Germany**

One of the biggest challenges this year has been to form an almost completely new team. We faced the challenge and the results are amazing. We are able to present a splendid car – the IR16 Honeybadger, manufactured by a kickass team which is willing to reach far on the upcoming FS-events.We are looking forward to see you at FSG!#honeybadger #prettybadass #firstlawofaerodynamicsdonttalkaboutaerodynamics #crazyhownaturedidthat #whatatimetobealife

FRAME CONSTRUCTION Full CFRP monocoque with tubular steel roll bars
MATERIAL Carbon fibre lay-up with structural foam core
OVERALL L / W / H (mm) 2984 / 1350 / 1180
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1600 / 1190 / 1150
WEIGHT WITH 68kg DRIVER (Fr / Rr) 124 / 146
SUSPENSION Double unequal length A-Arm. Push rod actuated horizontally oriented spring and damper
TYRES (Fr / Rr) Hoosier 18x6.0-10 R25B / Hoosier 18x6.0-10 R25B
WHEELS (Fr / Rr) 7x10, 3pc CFRP/Aluminum hybrid rim
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE 800mm x 50mm carbon drive belt
DIFFERENTIAL Limited slip differential
COOLING Water cooling. Rear mounted radiator
BRAKE SYSTEM 4-Disk system, 188mm rotor diameter, adjustable brake balance
ELECTRONICS Live-Telemetry, Traction Control, individually controlled rear wheel steering

Andreas Petz, Entwickler E-Maschinen bei Audi. Sein Anspruch ist, Höchstleistungen zu erzielen. Dies hat er einmal mehr mit dem Audi R8 e-tron bewiesen. Und nicht umsonst fließen die dadurch gewonnenen Erfahrungen nun auch in andere Modelle ein – wie etwa in den Audi e-tron quattro concept. Nur ein Beispiel von vielen, wie Vorsprung entstehen kann, wenn Arbeiten sich nicht wie Arbeit anfühlt.
Weitere elektrisierende Jobs unter **vorsprung-bei-audi.de**

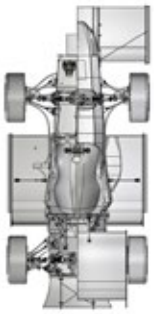
Aus Visionen Vorsprung machen.

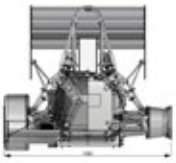
PADOVA

University of Padova

Car 185 **Pit 28** **Italy**

This is our first electric car, thus the aim of the project has been creating a solid, scalable baseline for future years. We decided to take two years to begin the electric project, spending the first year mainly to develop the most critical and time consuming parts like motor prototypes, inverter software/hardware, matlab vehicle models, preliminar CFD analysis and development of composite material prediction models. The second year we focused on the specific car design and manufacturing.





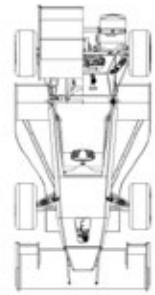
FRAME CONSTRUCTION One-piece CFRP monocoque
MATERIAL Sandwich structure with high-modulus UD carbon fibers and aluminum honeycomb core
OVERALL L / W / H (mm) 2874 / 1352 / 1174
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1535 / 1180 / 1140
WEIGHT WITH 68kg DRIVER (Fr / Rr) 137 / 130
SUSPENSION Double unequal A-Arm, push-rod actuated, adjustable dampers, anti-roll bar, ride height and toe
TYRES (Fr / Rr) 18x7.5 Hoosier R25B / 18x7.5 Hoosier R25B
WHEELS (Fr / Rr) 7.0x10, 30 mm offset, magnesium rim / 7.0x10, 30 mm offset, magnesium rim
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE Hub mounted planetary gearbox
DIFFERENTIAL Software
COOLING Twin side pod mounted radiators, oil cooling
BRAKE SYSTEM Floating AISI 420 steel disks, modified ap racing brake calipers
ELECTRONICS Self developed central unit. Multifunctional steering wheel with graphic interface

RAVENSBURG

Baden-Württemberg Cooperative State University Ravensburg

Car 4 **Pit 24** **WRL 5** **Germany**

GFR was formed in the 2009 season from the two FS teams of Oregon State University and DHBW Ravensburg. Students from both schools work collaboratively to design, build and test two vehicles each year. In 2016 we have built one combustion and one electric car with shared chassis, aerodynamics and suspension packages. The electric car will compete alongside our combustion car at FS Germany and FS Austria.



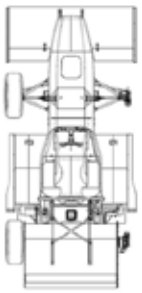
FRAME CONSTRUCTION CFRP/honeycomb monocoque
MATERIAL Toray
OVERALL L / W / H (mm) 2835 / 1335 / 1200
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1535 / 1145 / 1145
WEIGHT WITH 68kg DRIVER (Fr / Rr) 108 / 150
SUSPENSION unequal length, non-parallel a-arms, diract actuated shocks
TYRES (Fr / Rr) Hoosier
WHEELS (Fr / Rr)
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE
DIFFERENTIAL
COOLING rear mounted radiators, 9" fan
BRAKE SYSTEM Brembo / AP calipers, Tilton master cylinders, student designed rotors
ELECTRONICS MoTeC ADL3

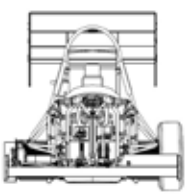
SANKT AUGUSTIN

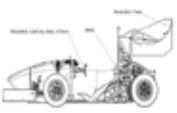
University of Applied Sciences Bonn-Rhein-Sieg

Car 45 **Pit 5** **WRL 36** **Germany**

BRS Motorsport is the FSE team of UAS Bonn-Rhein-Sieg with 60 students of all faculties, who share their love for designing, developing and manufacturing a single-seater racecar every year. We have built 4 combustion and 2 electric racecars so far. This year's racecar is a tribute to our fast 2015 car: a full CFRP monocoque with aerodynamics, 10 inch wheels & suspension, our new rear wheel steering for more agility and an overall focus on reliability - all combined in our new car, the G16e.







FRAME CONSTRUCTION full monocoque with 4 openings for maintenance
MATERIAL CFRP with ROHACELL IG-F core material
OVERALL L / W / H (mm) 2939 / 1414 / 1206
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1240 / 1220
WEIGHT WITH 68kg DRIVER (Fr / Rr) 120 / 158
SUSPENSION Double A-Arm, push rod actuated springs and dampers,torsion bending anti roll bar-sword design(rear)
TYRES (Fr / Rr) 18.0x6.0-10 R25B Hoosier
WHEELS (Fr / Rr) 18.0x6.0-10 R25B Hoosier
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE single stage chain drive,428VX DID Chain
DIFFERENTIAL cluth pack limited slip differnetial (GKN)
COOLING controller and motor liquid cooled, two cooling systems mounted outside
BRAKE SYSTEM 4-Disk system, self developed rotors with 176mm diameter, AP Racing calipers
ELECTRONICS 6self-developed ECUs, Rear Wheel Steering, Multifunctional Steering Wheel, Live-Telemetry

STUTTGART

Baden-Württemberg Cooperative State University Stuttgart

Car 8 | **Pit 22** | **WRL 12** | **Germany**

The eSleek4x4 has been designed under the general requirements of controllability for the driver, reliability and agility in order to compete well in all disciplines at FSE. A major innovation has been made by the implementation of a 4-wheel drive, wherefore modifications at the monocoque, the kinematic and the gearbox have been necessary. Where possible, working concepts of the last years vehicle have been integrated in the eSleek4x4 in order to ensure a high reliability of the car.

FRAME CONSTRUCTION Integral CFRP Monocoque
MATERIAL HM and HT Carbon Fibres, Aluminium honeycomb
OVERALL L / W / H (mm) 2918 / 1372 / 1149
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1550 / 1150 / 1150
WEIGHT WITH 68kg DRIVER (Fr / Rr) 138 / 129
SUSPENSION Double unequal length A-Arm with Push rod actuated spring and damper above monocoque
TYRES (Fr / Rr) Hoosier 18.0x7.5-10
WHEELS (Fr / Rr) 7.25x10, 37.5mm offset, 2pc Al-CFK / 3pc
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE Edrive, 4WD, one motor per wheel
DIFFERENTIAL electrical
COOLING twin sice pod mounted radiators from Rigi CH-6010-Kriens
BRAKE SYSTEM 4-Disk system, self developed rotors with loating, Aluminium Composite, 190mm outer dia, 100mm inner
ELECTRONICS Centralized E/E architecture with mature analysis functions for vehicle control and battery manageme

STUTTGART

University of Stuttgart

Car 26 | **Pit 40** | **WRL 4** | **Germany**

May we present: The E0711-7, the latest car made by GreenTeam Uni Stuttgart. This year's overall goal has been especially challenging: our 35 team members aimed for ‚Pfusch' at its finest. This has been achieved by the extensive use of gaffer and by colleagues asking questions like ‚Does this part even have a function or is it just an aerodynamic component?' The overwhelming result: A nonetheless amazing car full of intended and unintended special features, a year full of work and fun.

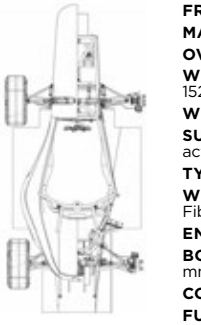
FRAME CONSTRUCTION one-piece monocoque with tubular steel main roll hoop and aluminium front roll hoop
MATERIAL CFRP and aluminium honeycomb sandwich
OVERALL L / W / H (mm) 2925 / 1399 / 1200
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1560 / 1160 / 1160
WEIGHT WITH 68kg DRIVER (Fr / Rr) 122 / 128
SUSPENSION Double unequal length A-Arm. Push rod actuated mono spring with U-ARB
TYRES (Fr / Rr) 18.0x7.5 R10, Hoosier R25B
WHEELS (Fr / Rr) 10x8.0, 2pc CFRP-Aluminium wheels
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE 2-stage planetary gearbox
DIFFERENTIAL electronic torque vectoring
COOLING sidepod mounted radiators for motors, inverters and accumulator
BRAKE SYSTEM self-developed rotors and adjustable pedalbox, adjustable brake balance
ELECTRONICS self-designed system electronics, wireless CAN and live video feed, model based drive control

TERRASSA

Escola Superior d'Enginyeries Industrial, Aeroespacial i Audiovisual de Terrassa (UPC)

Car 32 | **Pit 12** | **WRL 38** | **Spain**

In 2010, UPC ecoRacing introduced the first hybrid competition car designed and manufactured integrally in Spain, the ecoR2, and in 2015 it presented a pure electric vehicle, the ecoRZ. This season new ecoRZ has been designed to obtain a cost-effective, reliable and agile car. In addition, in line with the team's philosophy, all environmental effects have been considered, and so sustainable materials have been used in its construction.



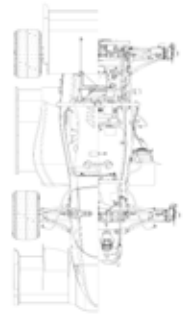
FRAME CONSTRUCTION Tubular Space Frame
MATERIAL Steel
OVERALL L / W / H (mm) 2880 / 1334 / 1110
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1525 / 1150 / 1100
WEIGHT WITH 68kg DRIVER (Fr / Rr) 139 / 139
SUSPENSION Double unequal length A-Arm, Push Rod actuated Spring and Self-developed damper
TYRES (Fr / Rr) Hoosier 6.0/18.0-10
WHEELS (Fr / Rr) Self-developed Hybrid Rims, Carbon Fiber Shell and Aluminium Center
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE Chain
DIFFERENTIAL Preloaded Clutch Pack Limited Slip Differential
COOLING Twin side pod mounted radiators on single loop circuit with motor and controller
BRAKE SYSTEM Self-developed, Floating, Drilled Cast Iron, Hub Mounted, 4 piston front / 2 piston rear
ELECTRONICS Reinforced wiring, Live-Telemetry System, Color LCD display, Self-developed LV control electronics

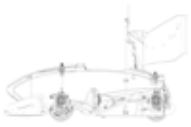
TRONDHEIM

Norwegian University of Science and Technology

Car 63 **Pit 7** **WRL 15** **Norway**

By creating the first four-wheel driven electric car in Scandinavia the Revolve NTNU team from Trondheim Norway continue the trend of creating increasingly technical cars each year. The team has completely redesigned the entire car from previous years, resulting in a new chassis, new aerodynamics, all new battery setup and more high tech and advanced electronics than ever before. The team consists of 55 students from different fields of engineering of the university.





FRAME CONSTRUCTION CFRP Monocoque
MATERIAL Tencate E745 and a combination of foam and aluminum honeycomb and foam center.
OVERALL L / W / H (mm) 2907 / 1413 / 1305
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1200 / 1170
WEIGHT WITH 68kg DRIVER (Fr / Rr) 114 / 129
SUSPENSION Uneven length double a-arm, push-rod actuated suspension.
TYRES (Fr / Rr) 18 x 7.5 - 10, R25B Hoosier / 18 x 7.5 - 10, R25B Hoosier
WHEELS (Fr / Rr) 10 x 7 Two piece CFRP rim
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE Hub mounted compound planetary gearbox
DIFFERENTIAL Electronic differential utilizing toque vectoring.
COOLING Water cooled motors and inverter. Air cooled accumlator.
BRAKE SYSTEM Self developed brakedisks, ISR 22-048, 4x25mm capliper and Tilton 77 series pistons.
ELECTRONICS Fully self developed electronics.

WIEN

Vienna University of Technology

Car 41 **Pit 18** **WRL 17** **Austria**

TUW Racing participates in Formula Student since 2008. We changed 2014 from combustion to electric drive. The edge8 is our third electric car and is an evolution of the edge7. We use our self-developed electric motors in the third generation, directly located in the upright. The edge8 has a lot of carbon fiber parts, e.g. wishbones, monocoque, bodywork, aeropackage, rims. We would like to thank every sponsor who helps us to realise this project.

FRAME CONSTRUCTION one piece CFRP monocoque
MATERIAL sandwich structure with aluminium honeycomb and rohacell core
OVERALL L / W / H (mm) 2845 / 1395 / 1118
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1575 / 1200 / 1160
WEIGHT WITH 68kg DRIVER (Fr / Rr) 107 / 117
SUSPENSION double unequal length A-Arm, Pull rod actuated horizontally oriented spring and damper
TYRES (Fr / Rr) 6.0/18.0-10
WHEELS (Fr / Rr) 7.0x10, 25mm offset, one piece CFRP rim
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE 1 spur & 1 planetary stage, at uprith
DIFFERENTIAL electric differential
COOLING radiator with electric fan, electric waterpump
BRAKE SYSTEM 4-Disk system, self designed brake discs, adjustable brake balance, AP calipers F/R,
ELECTRONICS TTC200 ECU with PDM Function, Live-Telemetry System, Dashboard with LED Display

WOLFENBÜTTEL

University of Applied Sciences Ostfalia

Car 35 **Pit 4** **WRL 21** **Germany**

The Team wob-racing is now in its 13th year. The Ostfalia University for Applied Science is located in Wolfsburg, Wolfenbüttel, Salzgitter and Suderburg. 2016 is the year of our new racecar, the WR-12. It has a completely new designed HV-battery and saved about 30 kg in comparison to its predecessor. We thank all of our sponsors and supporters!

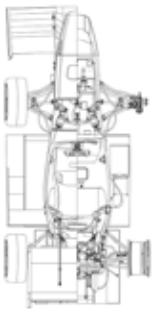
FRAME CONSTRUCTION tubular steel space frame
MATERIAL S355
OVERALL L / W / H (mm) 2710 / 1427 / 1060
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1540 / 1240 / 1220
WEIGHT WITH 68kg DRIVER (Fr / Rr) 124 / 134
SUSPENSION Double unequal length A-Arm. Push rod actuated horizontally oriented spring and damper (coil-over).
TYRES (Fr / Rr) 18 x 6 - 10 LC0 Hoosier
WHEELS (Fr / Rr) 6.0x10 6,35mm Offset 3pc Rim
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE three staged spur gear
DIFFERENTIAL electrical via software control
COOLING Twin side pod mounted radiators
BRAKE SYSTEM 4-Disk system, adjustable brake balance
ELECTRONICS self-designed AMS,

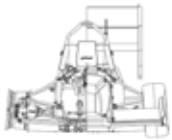
ZÜRICH

Swiss Federal Institute of Technology Zurich

Car 33 **Pit 32** **WRL 1** **Switzerland**

The AMZ Racing team was founded in 2006 by students of ETH Zurich. After three combustion cars, the AMZ switched to electric racing cars in 2010 and started an ongoing collaboration with the University of Lucerne. The active team counts approximately 35 people, backed by the crucial support of their alumni. In 2015 AMZ was able to defend its position at the top of FSE rankings but also grew up to the new challenge as „official" raclette (swiss molten cheese) provider of FSG, FSA and FSS.





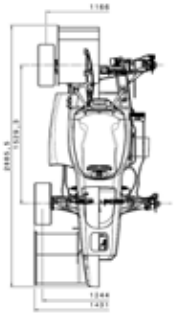
FRAME CONSTRUCTION CFRP one-piece monocoque
MATERIAL Intermediate and high modular CFRP-prepreg (twill and UD) with aluminium honeycomb core
OVERALL L / W / H (mm) 2943 / 1425 / 1149
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1220 / 1220
WEIGHT WITH 68kg DRIVER (Fr / Rr) 120 / 123
SUSPENSION Double A-Arm Pushrod actuated by spring with self developed air chamber and adaptive damper.
TYRES (Fr / Rr) 205/470 R13 - custom Continental tire
WHEELS (Fr / Rr) 205/470 R13 - custom Continental tire
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE planetary gear with staged planets
DIFFERENTIAL none
COOLING Single serial cooling circuit with two radiators actively cooled by two fans, mounted on the back
BRAKE SYSTEM Self developed rotors, callipers & pads, 190mm diameter floating rotors, adjustable brake balance
ELECTRONICS in-house optical BMS, live telemetry system, CAN communication via self developed mini can modules

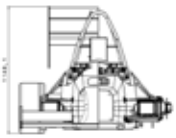
ZWICKAU

University of Applied Sciences Zwickau

Car 96 **Pit 37** **WRL 7** **Germany**

10 years of engineering „Made in Zwickau" – our eleventh car goes back to the roots. Again we are using a four-wheel drive but there are also some brand new features: the four-wheel-steering and a battery cooling system. As in the previous seasons we focused on building a reliable but also lightweight car. Thanks to whole body simulations we were able to revise our aerodynamic package and optimize it. Hopefully our „eRnst" can take up with the results from the previous years.





FRAME CONSTRUCTION CFRP one-to-one-piece Monocque
MATERIAL CFRP prepreg, epoxy matrix, aluminium honeycomb 5mm-20mm/ Fronthoop AL6060/ Mainhoop Cr 4130 Steel
OVERALL L / W / H (mm) 2870 / 1370 / 1185
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1524 / 1244 / 1166
WEIGHT WITH 68kg DRIVER (Fr / Rr) 132 / 132
SUSPENSION Double unequal lenght A-Arm. Push rod actuated horizontally oriented spring and damper.
TYRES (Fr / Rr) 18.0×6.0-10 LC0 Hoosier
WHEELS (Fr / Rr) 6,5'' wide, CFRP Shell and Aluminium Star
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT mm / mm / cylinders / cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE AWD, planetary gear
DIFFERENTIAL electrically
COOLING One Radiator Mounted in the Side Pot of each side of the car
BRAKE SYSTEM AP Racing brake calipers, inner ventilated steel brake disks.
ELECTRONICS safety material inside to seperate and isolate the cells of each other; accumulator cooling with PCM

Teamprofiles
Combustion

2000 students

75 teams

18 nations

ANN ARBOR

University of Michigan - Ann Arbor

Car 313 **Pit 59** **WRL 52** **United States**

We wouldn't be here if it wasn't for this country's delicious beer, Udo and the great city of Rüsselsheim.

FRAME CONSTRUCTION
MATERIAL
OVERALL L / W / H (mm)
WHEELBASE (mm) / TRACK (Fr / Rr) (mm)
WEIGHT WITH 68kg DRIVER (Fr / Rr)
SUSPENSION
TYRES (Fr / Rr)
WHEELS (Fr / Rr)
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE
DIFFERENTIAL
COOLING
BRAKE SYSTEM
ELECTRONICS

ARNHEM

HAN University of Applied Sciences Arnhem

Car 246 **Pit 121** **Netherlands**

The HAN Formula Student Team consist of about 40 students, who spent one year to build their first ever Formula Student car. Their goal was to built a reliable Formula Student vehicle that can complete all the events at Formula Student Germany. One nice feature of the car is the active suspension.

FRAME CONSTRUCTION Tubular Spaceframe
MATERIAL S235JR Steel
OVERALL L / W / H (mm) 2750 / 1440 / 1315
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1600 / 1260 / 1200
WEIGHT WITH 68kg DRIVER (Fr / Rr) 174 / 174
SUSPENSION Double unequal length A-Arm, direct acting spring and damper, active damping
TYRES (Fr / Rr) 18
WHEELS (Fr / Rr) 6x10 ET-5, -5mm offset, 1pc, Al Rim
ENGINE Yamaha R6
BORE / STROKE / CYLINDERS / DISPLACEMENT 65.5mm / 44.5mm / 4 cylinders / 600cc
COMPRESSION RATIO 12.4:1
FUEL SYSTEM Mikuni Fuel injection, Batch fire
FUEL 98 Octane
MAX POWER DESIGN 12500
MAX TORQUE DESIGN 12000
DRIVE TYPE 530 O-ring Chain
DIFFERENTIAL Quaife Limited Slip Chain Drive Differential
COOLING Side mounted radiator with 2 thermostatic controlled electric fans
BRAKE SYSTEM 3-Disk system, self developed front brake discs with AP Racing callipers. Rear R1 disc and calliper.
ELECTRONICS Built-in ECU 38 channel 4Mb data logging. Active Suspension. KMS CAN Display on steering wheel

ATHENS

National Technical University of Athens

Car 224 **Pit 104** **Greece**

Prom Racing team consists of 17 undergraduate students from the National Technical University of Athens. Having gained experience from previous years, the 2015-2016 team was able to design a vehicle from scratch, the P16, which is a significant improvement over its predecessor. The main features of P16 are: 10" wheels and tires, front and rear pull-rod suspension system, aluminum monocoque and steel spaceframe chassis / machined aluminum rear end, Yamaha YFZ R6 engine, full aero package.

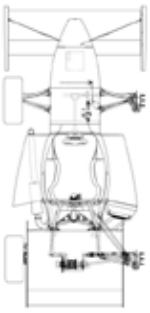
FRAME CONSTRUCTION Aluminum monocoque/ tubular steel rear spaceframe/ machined aluminum rear end
MATERIAL 6082-T6 1mm sheet, 20mm honeycomb core/ 4130 round tubing/ 7075-T6 aluminum
OVERALL L / W / H (mm) 2951 / 1435 / 1198
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1220 / 1150
WEIGHT WITH 68kg DRIVER (Fr / Rr) 135 / 153
SUSPENSION Double unequal length A-Arms. Pull rod actuated Öhlins TTX25 dampers. U bar adjustable arb
TYRES (Fr / Rr) 18.0 x 6.0-10, R25B, LC0 Hoosier / 18.0 x 7.5-10, R25B, Hoosier
WHEELS (Fr / Rr) 6.4x10, 44mm offset, 3 pc Al Keizer Rim / 7.1x10 45mm offset, 3 pc Al Keizer Rim
ENGINE YZF R6 engine, modified
BORE / STROKE / CYLINDERS / DISPLACEMENT 65,5mm / 45,5mm / 4 cylinders / 599cc
COMPRESSION RATIO 12,4
FUEL SYSTEM sequential injection and ignition system, OEM fuel rail injectors
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN 12000
MAX TORQUE DESIGN 9000
DRIVE TYPE Chain drive
DIFFERENTIAL Drexler ramp angle clutch type
COOLING 2x side mounted 2 core aluminum radiators , 2x 300 cfm fans mounted to chassis, at the end of the si
BRAKE SYSTEM 4-Disc system, ISR rotors with 178mm diameter, adjustable brake balance, ISR brake calipers
ELECTRONICS Student built controller, launch control, traction control, self designed data logger

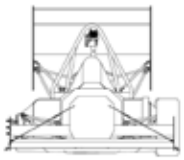
AUBURN

Auburn University

Car 211 **Pit 63** **WRL 107** **United States**

Auburn Formula SAE presents AU-2016, the 20th vehicle of a storied program. AU-2016 features a Yamaha R6 motor, hybrid monocoque, front and rear wing, and a custom muffler. None of this would be possible without our sponsors and community partners. A special thanks to Dr. Peter Jones, Auburn University Samuel Ginn College of Engineering, Walt & Ginger Woltosz, Dwight Wiggins, Gary Martin, National Instruments, Lockheed Martin, GKN Aerospace & the Boehm Family.War Eagle!





FRAME CONSTRUCTION Hybrid Monocoque, Woven and Uni Face sheets with aluminum core, TIG welded rear frame
MATERIAL Hexcel woven/uni CFRP, Hexcel aluminum honeycomb core. 4130 steel rear frame
OVERALL L / W / H (mm) 2968 / 1422 / 1200
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1562 / 1219 / 1193
WEIGHT WITH 68kg DRIVER (Fr / Rr) 120 / 130
SUSPENSION SLA
TYRES (Fr / Rr) Hoosier R25B 18x7.5 - 10
WHEELS (Fr / Rr) 7.0 x 10, 3 pc Al
ENGINE Modified Yamaha R6
BORE / STROKE / CYLINDERS / DISPLACEMENT 67mm / 42.5mm / 4 cylinders / 599cc
COMPRESSION RATIO 14.5:1
FUEL SYSTEM Returnless Fuel System, Sequential Port Injection, Fully Sequential Ignition
FUEL 93 Octane Unleaded
MAX POWER DESIGN 13000
MAX TORQUE DESIGN 9500
DRIVE TYPE Chain Drive
DIFFERENTIAL Drexler FSAE Salisbury LSD
COOLING Side-Mounted Single Core, Dual-Pass Radiator, 1350 CFM Fan
BRAKE SYSTEM 4 wheel floating disk
ELECTRONICS Motec M800/c185, Wireless telemetry

BARI

Polytechnic University of Bari

Car 287 **Pit 129** **WRL 307** **Italy**

We are a group of students moved by the same fiery passion and we understand that any teaching would be sterile if not been fulfilled. This is the idea behind the adventure started back in 2006 in Bari PT. The skills required, are very different and apply to all fields of engineering, with only one purpose: the construction of a vehicle, year after year, more efficient. The word „static" certainly does not belong to the vocabulary of the team: the challenge would otherwise be lost in departure.

FRAME CONSTRUCTION Tubolar steel space frame
MATERIAL 25CrMo4 (AISI 4130)
OVERALL L / W / H (mm) 3103 / 1480 / 1171
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1680 / 1250 / 1230
WEIGHT WITH 68kg DRIVER (Fr / Rr) 43 / 50
SUSPENSION Double unequal A-Arms. Front: Push-rod crosswise oriented - Rear:Pull-rod longitudinally oriented
TYRES (Fr / Rr) 180x510 R13 YGS Compound Bridgestone
WHEELS (Fr / Rr) 13"x8";0,25" offset;3 pc Mg-Al-rim
ENGINE Honda CBR 600 F4i Sport 2002
BORE / STROKE / CYLINDERS / DISPLACEMENT 67.0mm / 42.5mm / 4 cylinders / 599cc
COMPRESSION RATIO 13:1
FUEL SYSTEM Student des/built ,fuel injection, sequential
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN 12500
MAX TORQUE DESIGN 9000
DRIVE TYPE Chain (520)
DIFFERENTIAL Clutch pack limited slip, 35 Nm preload, 4 bias ratio
COOLING Left sided pod-mounted radiator with thermostatic controlled 643 cfm electric fan
BRAKE SYSTEM 4 disk Floating, Tempered stainless steel, hub mounted 218mm.Tilton balance bar.AP Racing calipers
ELECTRONICS Student made telemetry, datalogger, gps tracking, 7" TFT color display multifunctional dig dashboard

BERLIN

Technische Universität Berlin

Car 303 **Pit 101** **WRL 40** **Germany**

The FT2016 is the newest single-seater FS racing car from FaSTTUBe, the 11th vehicle in the team's history. More of an evolutionary rather than a revolutionary model, it retains the reliable single-cylinder turbocharged BMW engine, which has been optimized during a period of 4 years. The main goal was to lower mass, increase power and squeeze even more efficiency from the all-round package. A better correlation between CAD and simulation, manufacturing and assembly has also been achieved.

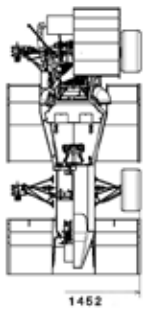
FRAME CONSTRUCTION Tubular Steel Frame
MATERIAL Alloyed heat treatable steel 25CrMo4
OVERALL L / W / H (mm) 2942 / 1442 / 1178
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1575 / 1200 / 1150
WEIGHT WITH 68kg DRIVER (Fr / Rr) 133 / 134
SUSPENSION Double unequal length A-Arm. Push rod (Fr) and Pull rod (Rr) actuated spring and damper.
TYRES (Fr / Rr) 18.0x7.5-10 Hoosier R25B
WHEELS (Fr / Rr) Custom built 7.5x10, 25mm offset, Keizer Wheel Al Rim
ENGINE 2007 BMW G 450 X
BORE / STROKE / CYLINDERS / DISPLACEMENT 98mm / 59.6mm / 1 cylinders / 449cc
COMPRESSION RATIO 12,5:1
FUEL SYSTEM Self build aluminium tank, external fuel pump, two injectors, pressure regulator
FUEL E85
MAX POWER DESIGN 7500
MAX TORQUE DESIGN 7000
DRIVE TYPE Chain drive, original gearbox
DIFFERENTIAL Drexler differential, limited slip
COOLING Self build water-intercooler and cooler in the side box with fan mounted on cooling hood
BRAKE SYSTEM 4-Disk system, self developed and optimized rotors, ISR Calipers, Cockpit adjustable brake balance
ELECTRONICS Multifunctional steering wheel, electronic throttle, electronic wastegate, telemetry and many more..

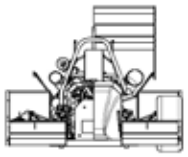
BERLIN

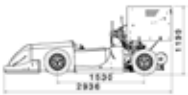
University of Applied Sciences Berlin

Car 300 **Pit 52** **WRL 185** **Germany**

Seven students of the UAS Berlin had the dream of a FSAE Car in 2005, this year we built the 10th Berlin Race Car, the BRC16. Our new team with many commited members worked on a lightweight concept - the result was our Beluga. Despite its looks we reduced the weight of our second hybrid-monocoque with aerodynamic package. Our Beluga is driven by a naturally aspirated single cylinder engine. Last year a beer barrel was part of the concept. Check out what we got this year! #300thisisBerlin







FRAME CONSTRUCTION Hybrid Monocoque: Front CFRP Monocoque / Rear Steel Tube Frame
MATERIAL
OVERALL L / W / H (mm) 2936 / 1421 / 1199
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1250 / 1250
WEIGHT WITH 68kg DRIVER (Fr / Rr) /
SUSPENSION Front: unequal A-Arms, pullrod; Rear:unequal A-Arms, pushrod
TYRES (Fr / Rr)
WHEELS (Fr / Rr) 7x10, 12mm offset
ENGINE KTM SX-F 505
BORE / STROKE / CYLINDERS / DISPLACEMENT 100mm / 60.8mm / 1 cylinders / 477cc
COMPRESSION RATIO
FUEL SYSTEM
FUEL E85
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE
DIFFERENTIAL Same procedure as last year
COOLING
BRAKE SYSTEM 4-Disk system
ELECTRONICS student designed wiring harness, adjustable brake balance, telemetric system

BOCHUM

Ruhr University Bochum

Car 248 **Pit 64** **WRL 109** **Germany**

We are RUB Motorsport, the Formula Student Team from Ruhr University in Bochum, Germany. For the season 2016 we decided to build a racecar with an all-encompassing aerodynamic package, which harmonizes with the cars suspension to ensure an overall great driving behavior. Together with the new engine concept we make sure to have an competetive package this season. We would like to thank all of our sponsors as well as university for their support, because this wouldn't be possible without them.

FRAME CONSTRUCTION Tubular Steel Spaceframe
MATERIAL 25CrMo4
OVERALL L / W / H (mm) 3020 / 1485 / 1190
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1540 / 1235 / 1200
WEIGHT WITH 68kg DRIVER (Fr / Rr) 121 / 122
SUSPENSION Double unequal length A-Arm. Pull rod actuated horizontally oriented spring and damper (coil-over).
TYRES (Fr / Rr) Hoosier 18.0 x 6.0 - 10 R25B
WHEELS (Fr / Rr) 10" 3-piece Keizer Rim, 7" wide
ENGINE KTM 450 SXF
BORE / STROKE / CYLINDERS / DISPLACEMENT 95mm / 63.4mm / 1 cylinders / 449cc
COMPRESSION RATIO 12.6:1
FUEL SYSTEM BOSCH MS3 Sport sequential injection and single coil ignition system
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN 9000
MAX TORQUE DESIGN 7500
DRIVE TYPE #428 Chaindrive, 4spd sequential gearbox
DIFFERENTIAL Drexler limited slip differential (FS2010 V.2), Preload 30Nm, 50% Locked
COOLING two side mounted radiators, single fan
BRAKE SYSTEM 4/2 piston ISR calipers, 196mm/182mm self developed rotors, cockpit-adjustable brake balance bar
ELECTRONICS Custom built wiring harness with automotive sealed connectors and electric shift and clutch system

BRNO

Technical University of Brno

Car 299 **Pit 49** **WRL 48** **Czech Republic**

In 2016 TU Brno Racing enters its sixth season. Team moto „one heart one cylinder one team“ explains team philosophy. This year team focused on details. Nearly 50 students developed and built formula which has power to weight ratio 0,465 PS/kg and is 25kg lighter then previous model. Car was designed from the scratch and built in 7 months - was released on 15th April 2016! Custom turbocharger made by rapid prototyping, new gearbox, tire switch, overall mass 175kg are the highlights of Dragon 6.

FRAME CONSTRUCTION Steel spaceframe with CFRP bodywork
MATERIAL steel tubes
OVERALL L / W / H (mm) 2904 / 1420 / 1117
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1527 / 1210 / 1180
WEIGHT WITH 68kg DRIVER (Fr / Rr) 119 / 124
SUSPENSION Double A-Arm, pull rod actuated longitudinally oriented spring and adjustable damper
TYRES (Fr / Rr) 205/470 R13 C16 Continental
WHEELS (Fr / Rr) 205/470 R13 C16 Continental
ENGINE Turbocharged Husqvarna FE 501
BORE / STROKE / CYLINDERS / DISPLACEMENT 95mm / 72mm / 1 cylinders / 510cc
COMPRESSION RATIO 9.5:1
FUEL SYSTEM CFRP fuel tank, port fuel injection using Bosch injectors (EV12 353g/min 2-Spray and EV14 765g/min)
FUEL E85
MAX POWER DESIGN 10000
MAX TORQUE DESIGN 7000
DRIVE TYPE chain DID MX 520, sprocket and pinion
DIFFERENTIAL Torque sensitive limited slip
COOLING Right sidepod mounted 420x217mm core U-flow radiator , 590 cfm fan mounted to fan ducting
BRAKE SYSTEM 4-Disk system, self developed rotors, adjustable brake balancer
ELECTRONICS Wi-Fi ECU telemetry, LifeRacing F88 ECU and Exp box X10; 50 in, 38 out

CHENNAI

SRM University

Car 234 **Pit 77** **WRL 438** **India**

Camber Racing: FS Combustion Team of SRM University,India incepted in 2009,comprises of 35 undergraduate motorsport zealots with the goal of designing and manufacturing a premier racing machine with cutting edge technology which suffices the desideratum of a superior racing thrill and passion for performance. Achieved 18 awards in tally on various national platforms including 2 national championships.In depth knowledge and team spirit is reflective of our motto-“Building people,not just cars“

FRAME CONSTRUCTION Tubular steel space frame, Tig welded
MATERIAL SAE 4130 and AISI 1020
OVERALL L / W / H (mm) 2893 / 1360 / 1154
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1540 / 1140 / 1120
WEIGHT WITH 68kg DRIVER (Fr / Rr) 121 / 121
SUSPENSION Double unequal length A-Arm. Front-Direct acting spring damper, Rear-Pushrod actuated spring damper
TYRES (Fr / Rr) 18.0 x 6.0 R10 Hoosier R25B
WHEELS (Fr / Rr) 7 x 10, +35 mm offset, single piece braid
ENGINE 2014 KTM Duke 390
BORE / STROKE / CYLINDERS / DISPLACEMENT 89mm / 60mm / 1 cylinders / 373cc
COMPRESSION RATIO 12.5:1
FUEL SYSTEM Fuel injection, Semi-sequential
FUEL Gasoline
MAX POWER DESIGN 8000
MAX TORQUE DESIGN 5500
DRIVE TYPE Chain type driven differential
DIFFERENTIAL Clutch pack limited slip, Salisbury type, 25 Nm preload
COOLING Single Radiator mounted on the right side, cooling fans controlled by ECU
BRAKE SYSTEM 4-Disk system, self developed rotors with 173 mm dia, Two piston fixed caliper
ELECTRONICS Custom designed wiring harness, paddle shifter, launch control, Multi functionl Dashboard

COBURG

University of Applied Sciences Coburg

Car 270 **Pit 114** **WRL 27** **Germany**

The Karakal is a medium-sized wild cat living in Africa. The coat is uniformly reddish tan or sandy, while the ventral parts are lighter with small reddish markings. The caracal is characterized by a robust build, long legs, a short face, long tufted ears, and long canine teeth. It is also the 9th formula student car of CAT-Racing, UAS Coburg. You are very welcome to visit the habitat of the Karakal in our pit or its drinking trough at the campside. See you there!

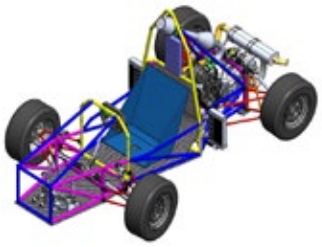
FRAME CONSTRUCTION rear tubular steel space frame, front monocoque with aluminium sandwich
MATERIAL PCGA-XR2 3003 Aluminium Honeycomb
OVERALL L / W / H (mm) 2960 / 1336 / 1192
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1555 / 1134 / 1134
WEIGHT WITH 68kg DRIVER (Fr / Rr) 40% / 60%
SUSPENSION double unequal length A-Arm, pull rod actuated spring and damper, adjustable ARB
TYRES (Fr / Rr) 18x6 - 10 LC0 - Hoosier
WHEELS (Fr / Rr) 18x6 - 10 LC0 - Hoosier
ENGINE Yamaha R6 RJ09
BORE / STROKE / CYLINDERS / DISPLACEMENT 65,5mm / 44,5mm / 4 cylinders / 599cc
COMPRESSION RATIO 13:1
FUEL SYSTEM air-,coolant- and fuel temp., throttle pos., RPM, map switch, fuel pressure
FUEL ROZ98
MAX POWER DESIGN 11500
MAX TORQUE DESIGN 8500
DRIVE TYPE 520 Roller-Chain Drive
DIFFERENTIAL limited slip differential, preload 30Nm - TBR = 4.00
COOLING single, right side pod mounted aluminum radiator, electr. controlled suction fan
BRAKE SYSTEM floating 4-disk-system, inside ventilated disk in the front, 148/170mm OD, adjustable brakebalance
ELECTRONICS information circuit board, live-telemetry system, launch&traction control, electropneumatic shifting

COIMBATORE

PSG College of Technology

Car 232 **Pit 113** **India**

PEGASUS RACING, team representing PSG TECH, Coimbatore is a well-knit team comprising of multi-talented students, strongly believing that racing machines built with passion can be a wonderful learning experience. Our chase for attaining perfection and excellence began with our first car built in 2009 .Further improvements in 2011 helped us achieve the second spot nation-wide. We are a team with unconditional desire for racing. We dream, we build, we race. We are Pegasus racing.



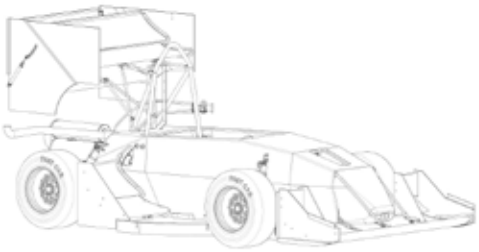
FRAME CONSTRUCTION Complete mild steel tubular frame structure
MATERIAL Mild Steel AISI 1020 tubings
OVERALL L / W / H (mm) 2640 / 1330 / 1140
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1550 / 1200 / 1130
WEIGHT WITH 68kg DRIVER (Fr / Rr) 99 / 149
SUSPENSION Double unequal length A-Arm, Pull rod/push rod actuated spring and damper
TYRES (Fr / Rr) 152x67 R10/191x53 R10,Hoosier R25B 152x67 R10/152x67 R10, Hoosier WET
WHEELS (Fr / Rr) 6.0x10, 5mm offset, 3 pc Al Rim/ 6.5x10, 20mm offset, 3 pc Al Rim
ENGINE 2013 KTM 530 EXC
BORE / STROKE / CYLINDERS / DISPLACEMENT 95mm / 72mm / 1 cylinders / 510cc
COMPRESSION RATIO 11.8:1
FUEL SYSTEM Keihin, sequential injection and single coil wasted spark system ignition
FUEL 95 octane unleaded gasoline
MAX POWER DESIGN 8600
MAX TORQUE DESIGN 6400
DRIVE TYPE 520 grade X ring
DIFFERENTIAL Clutch type limited slip differential, 30-35 Nm preload
COOLING twin side pod mounted radiator with electric fan controlled by thermistor
BRAKE SYSTEM 4-Disk system, self developed rotors with 153mm diameter, adjustable brake balance
ELECTRONICS Multi-functional Steering Wheel, Electronic Shifting System, Telemetry System, Custom Interpreter

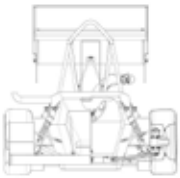
CORVALLIS

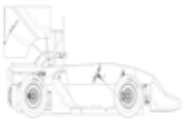
Oregon State University

Car 201 **Pit 60** **WRL 1** **United States**

Global Formula Racing is an internationally collaborative FSAE team from Oregon State University and DHBW Ravensburg. Together we build two cars, one combustion, one electric, every year, sharing chassis, aerodynamics and suspension packages. We are looking forward to seeing you in Hockenheim and we are pleased to answer any of your questions about our team and the car so stop by our pit!







FRAME CONSTRUCTION CFRP monocoque
MATERIAL Torray T700
OVERALL L / W / H (mm) 2835 / 1345 / 1200
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1535 / 1125 / 1125
WEIGHT WITH 68kg DRIVER (Fr / Rr) 95 / 120
SUSPENSION Direct acting shocks
TYRES (Fr / Rr) Hoosier
WHEELS (Fr / Rr) Hoosier
ENGINE Honda CRF450X
BORE / STROKE / CYLINDERS / DISPLACEMENT 96.0mm / 62.1mm / 1 cylinders / 449cc
COMPRESSION RATIO 13,5:1
FUEL SYSTEM Honda CRF450R injector
FUEL 98 octane
MAX POWER DESIGN 10000
MAX TORQUE DESIGN 8000
DRIVE TYPE Chain drive
DIFFERENTIAL Spool
COOLING Rear mounted oil and water coolers / 625 cfm 9
BRAKE SYSTEM Brembo AP calipers, Tilton master cylinders, student designed rotors
ELECTRONICS Motec

DARMSTADT

University of Applied Sciences Darmstadt

Car 242 **Pit 65** **WRL 243** **Germany**

„Evolution instead of revolution“ - the motto of this year‘s racecar engineered and built by FaSTDa Racing. Our new F16 is based on its predecessor and packed with a bunch of technical highlights. Our main goal for 2016 was to improve existing designs rather than to reinvent them. With better aerodynamics, an improved suspension and our modified single-cylinder engine we plan to race with the best!A special thanks goes to our sponsors and supporters, who make this amazing experience possible!

FRAME CONSTRUCTION Tubular space frame
MATERIAL E235
OVERALL L / W / H (mm) 2940 / 1430 / 1170
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1550 / 1205 / 1205
WEIGHT WITH 68kg DRIVER (Fr / Rr) 136 / 126
SUSPENSION Double unequal length A-Arm, actuation via push rods, adjustable dampers, anti-roll bar
TYRES (Fr / Rr) 18 x 8,5 R10 Hoosier R25B/18 x 8,5 R10 Hoosier R25B
WHEELS (Fr / Rr) Three-piece aluminium rim
ENGINE KTM SX-F 450 (modified)
BORE / STROKE / CYLINDERS / DISPLACEMENT 95mm / 72mm / 1 cylinders / 510cc
COMPRESSION RATIO 14,3:1
FUEL SYSTEM Dual injection (1x port, 1x inside plenum), dash fittings
FUEL E85
MAX POWER DESIGN 9500
MAX TORQUE DESIGN 7000
DRIVE TYPE Sequential 6 speed gear box, 428 chain
DIFFERENTIAL Drexler Limited Slip Differential, custom made preload adjustment
COOLING Side mounted radiator, thermostatic controlled electric fan
BRAKE SYSTEM 4 disk system, self-developed floating rotors, adjustable brake balance
ELECTRONICS 4,2" touch display, self-developed FPGA board and CAN measurement system

DUBAI

Birla Institute of Technology

Car 225 **Pit 126** **United Arab Emirates**

Formula6 Racing is the brainchild of a bunch of friends, enrolled into our undergraduate studies in Engineering, at BITS Pilani Dubai Campus. With a common passion for automobiles,machines and motorsports, we decided to take our passion to the next level by forming a racing team and competing at Formula Student Germany 2016. This year's competition is a first for Formula6 Racing, but that will not stop us from giving it all we've got, and learning from the experience.

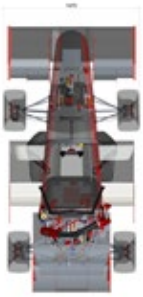
FRAME CONSTRUCTION Tubular Space Frame
MATERIAL Mild Steel 1020, 1inch OD
OVERALL L / W / H (mm) 2760 / 1400 / 1200
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1550 / 1300 / 1350
WEIGHT WITH 68kg DRIVER (Fr / Rr) 100 / 130
SUSPENSION Double unequal length A-Arm.Push-rod to Rocker/Damper. Adj. compression and rebound
TYRES (Fr / Rr) 183x49 R13, Avon Tires
WHEELS (Fr / Rr) 6.2in wide, 1 pc Al Rim, 30mm offset
ENGINE 2012 Yamaha YFZ450R
BORE / STROKE / CYLINDERS / DISPLACEMENT 95mm / 62mm / 1 cylinders / 440cc
COMPRESSION RATIO 11.9:1
FUEL SYSTEM Returnless fuel injection, high pressure, AEM Piggyback
FUEL 98 octane
MAX POWER DESIGN 8000
MAX TORQUE DESIGN 7500
DRIVE TYPE Chain Driven
DIFFERENTIAL Torsen LSD with preload adjustment
COOLING 1150cc Aluminum Radiator with cooling fan
BRAKE SYSTEM Four 8in Disk brake with wilwood caliper, Adjustable wilwood balance bar and pedal
ELECTRONICS Mitsubishi ECU with AEM Piggyback, Live Telemetry

ERLANGEN

Friedrich-Alexander-Universität Erlangen-Nürnberg

Car 358 **Pit 54** **WRL 26** **Germany**

We decided at the beginning of the season that we do not want to optimize our last years car with small adjustments and improvements, but rather to completely rethink every individual part of it. Therefore we started the design phase with a blank paper and achieved major innovations in every area of our racecar, the FAUmax iota. We want to thank our sponsors for their support and for making this amazing journey possible!



FRAME CONSTRUCTION Monocoque driver's cell with tubular steel rear frame
MATERIAL CFRP Monocoque with Aluminium-Core; S355 Steel-Tubings in various dimensions
OVERALL L / W / H (mm) 2879 / 1445 / 1198
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1240 / 1150
WEIGHT WITH 68kg DRIVER (Fr / Rr) 111 / 125
SUSPENSION Double unequal length A-Arm, push rod actuated spring /damper, third spring concept
TYRES (Fr / Rr) 18x7.5-10 Hoosier R25B/18x6.0-10 Hoosier LC0
WHEELS (Fr / Rr) 6.0x10, 50.3mm offset, 1pc CFRP / 6.0x10, 50.3mm offset, 1pc CFRP
ENGINE Aprilia SXV550 V2
BORE / STROKE / CYLINDERS / DISPLACEMENT 80mm / 55mm / 2 cylinders / 553cc
COMPRESSION RATIO 16,1:1
FUEL SYSTEM Bosch ev 14, sequential
FUEL E85
MAX POWER DESIGN 10000
MAX TORQUE DESIGN 8000
DRIVE TYPE bevel gear drive with claw coupling
DIFFERENTIAL Self designed differential housing for Drexler FSAE or self designed stiff axle drive
COOLING Twin side pod mounted alu. radiators, two 350 cfm fans mounted to radiator cores
BRAKE SYSTEM Self-made master cylinders, student designed stainless steel floating rotors
ELECTRONICS Self-developed Telemtry system, dezentralized control units, custom Vehicle Information System

ESSLINGEN

University of Applied Sciences Esslingen

Car 294 **Pit 47** **WRL 50** **Germany**

In 2006 the first building blocks for the foundation of the Rennstall Esslingen were placed at the UAS Esslingen. Meanwhile, it is the largest project at the university. The development of the Stallardo ,16 started with the slogan: Evolution instead of Revolution! We focused on reducing weight and increasing efficiency. For instance we improved the design and manufacturing process of the monocoque and advanced the aerodynamics and drivetrain.

FRAME CONSTRUCTION CFRP one piece monocoque with integrated front hoop and tubular steel rear frame
MATERIAL CFRP prepregs, aluminium honeycomb, steel tubes
OVERALL L / W / H (mm) 2988 / 1415 / 1194
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1600 / 1208 / 1148
WEIGHT WITH 68kg DRIVER (Fr / Rr) 118 / 140
SUSPENSION SLA with pushrod actuated. 3 Damper system
TYRES (Fr / Rr) 18x7.5 Hoosier R25B
WHEELS (Fr / Rr) 8x10 Al Rim
ENGINE Modified Honda CBR600RR (PC37)
BORE / STROKE / CYLINDERS / DISPLACEMENT 67.5mm / 42.5mm / 4 cylinders / 608cc
COMPRESSION RATIO 14.1:1
FUEL SYSTEM fuel injection, one injectior per cylinder
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN 10000
MAX TORQUE DESIGN 8000
DRIVE TYPE 520 chain, custom 4 speed gearbox
DIFFERENTIAL Drexler clutch pack limited slip, adjustable preload and bias ratio
COOLING custom water and oil radiator mounted on the left side
BRAKE SYSTEM self developed rotors and adjustable brake balance
ELECTRONICS multifunctional Steering Wheel with electrical Shifting System, data logging and Live-Telemetry

GIESSEN

Technische Hochschule Mittelhessen UAS

Car 221 **Pit 122** **WRL 41** **Germany**

THM-Motorsport is made up of 15 students from different faculties.Our entry into FSG 2016 represents an improved version of the very successful concept from 2015.The car features a modified Honda CBR 600 PC40 engine and has a three speed gearbox to suit formula student needs.Our frame was rebuilt and the bodywork has been optimized.Many thanks to our sponsors, especially Technische-Hochschule-Mittelhessen, Schunk-Group, Volk GmbH, Bosch GmbH, Poppe GmbH and Adam Opel AG.

FRAME CONSTRUCTION One piece tubular spaceframe
MATERIAL S355 steel round tubing, 14 to 25 mm diameter
OVERALL L / W / H (mm) 2725 / 1360 / 1150
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1550 / 1200 / 1150
WEIGHT WITH 68kg DRIVER (Fr / Rr) 134 / 145
SUSPENSION double unequal length A-Arm, Push rod actuated spring / damper, adjustable Roll bar
TYRES (Fr / Rr) 20 x 7.5 - 13 R25B Hoosier / 20 x 7.5 - 13 R25B Hoosier
WHEELS (Fr / Rr) 7 x 13, one piece, aluminium / 7 x 13, one piece, aluminium
ENGINE modified Honda CBR600RR (PC40)
BORE / STROKE / CYLINDERS / DISPLACEMENT 67mm / 45.5mm / 4 cylinders / 642cc
COMPRESSION RATIO 13,4:1
FUEL SYSTEM sequential fuel injection
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN 11500
MAX TORQUE DESIGN 9500
DRIVE TYPE modified original gearbox
DIFFERENTIAL Drexler formula student differential
COOLING Side mounted 31 core water-cooled radiator, 26 cfm fan mounted to shroud
BRAKE SYSTEM self designed 4-Disk system with adjustable break balance; diameters: front 232mm, rear 210mm
ELECTRONICS wiring harness SPEC 55, multifunctional steering wheel, 5.7" driver display, live-telemetry system

GIZA

Cairo University

Car 236 **Pit 123** **WRL 384** **Egypt**

Cairo Uni. Racing Team – Formula Student is a group of more than 20 students from Mechanical & Electrical Departments in Cairo University Faculty of Engineering with one goal of best representation Cairo University at the Formula Student Germany Competition. Our strength comes from our ability to build simple, Reliable and Cheap Formula Student vehicles.

FRAME CONSTRUCTION One piece tubular spaceframe
MATERIAL AISI1020
OVERALL L / W / H (mm) 2440 / 1606 / 1220
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1600 / 1200 / 1180
WEIGHT WITH 68kg DRIVER (Fr / Rr) 92 / 155
SUSPENSION Double Wishbones/Direct Actuated.
TYRES (Fr / Rr) 18.0X6.0-10-R25B Hoosier /18.0X6.0-10-R25B Hoosier
WHEELS (Fr / Rr) Kiezer 8X10, 25.4mm offset / Kiezer 8X10, 25.4mm offset
ENGINE 2012 KTM 450 EXC
BORE / STROKE / CYLINDERS / DISPLACEMENT 95mm / 63.4mm / 1 cylinders / 449cc
COMPRESSION RATIO 11.8
FUEL SYSTEM Keihin Injectors of 2012 KTM 450 EXC Fuel Injection System - Port Injectors
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN 8500
MAX TORQUE DESIGN 6500
DRIVE TYPE Chain(520)
DIFFERENTIAL Spool (No Differential)
COOLING 3.15 litres core louvered fins radiator, 1000 cfm fan mounted next to the M.H
BRAKE SYSTEM 4-Disk system, self developed rotors with 180mm diameter, adjustable brake balance,PS-1 Calipers
ELECTRONICS SD Card Data logging (MS3X), 1 KM range Student built Telemetry system.

GLASGOW

University of Strathclyde

Car 215 **Pit 128** **WRL 118** **United Kingdom**

In our 16th year, USM brings together undergraduate students from the Engineering and Business faculties. For USM 16, the team is focusing on vehicle dynamics and validation of our current design techniques and processes. The car features composites that have been made in-house with improved manufacturing techniques and a brand new National Instruments DAQ system.

FRAME CONSTRUCTION Tubular Spaceframe, Student TIG welded
MATERIAL Mild + T45 steel
OVERALL L / W / H (mm) 2900 / 1390 / 1200
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1535 / 1200 / 1180
WEIGHT WITH 68kg DRIVER (Fr / Rr) 119 / 119
SUSPENSION Unequal length A-arms. Front pull rod/rear push rod actuated spring-damper units.
TYRES (Fr / Rr) Hoosier LCO 6.0/18-10
WHEELS (Fr / Rr) Hoosier LCO 6.0/18-10
ENGINE Suzuki LT-R450 2006
BORE / STROKE / CYLINDERS / DISPLACEMENT 95.5mm / 62.8mm / 1 cylinders / 450cc
COMPRESSION RATIO 11.7
FUEL SYSTEM DTA S80 PRO ECU, Wasted spark ignition
FUEL 98 RON unleaded
MAX POWER DESIGN 9000
MAX TORQUE DESIGN 8000
DRIVE TYPE Single 520 chain
DIFFERENTIAL Drexler Formula Student LSD, clutch type
COOLING Sidepod mounted single core aluminium radiator, stock fan mounted to rear of rad
BRAKE SYSTEM Fully-floating cast iron rotors, Ø184mm, drilled, ISR 22-048/Wilwood PS-1 front/rear calipers
ELECTRONICS Custom DAQ sensor nodes, NI logger, custom dash

GRAZ

Graz University of Technology

Car 253 **Pit 58** **WRL 6** **Austria**

TU Graz Racing Team is a team that is rich in tradition. Every year, we build on the excellent cars from the past and try to continuously improve. This year, like every year we are trying to build a car that maintains or exceeds the performance compared to past cars. We try to meet the challenges of a Formula Student season by clearly dividing the upcoming work into 7 different modules. The heads of the respective modules act as connectors and coordinators.

FRAME CONSTRUCTION one-piece CFRP monocoque
MATERIAL carbon fibre prepregs, nomex and aluminium honeycombs, structural foam, cfrp and titanium inserts
OVERALL L / W / H (mm) 2900 / 1460 / 1195
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1550 / 1197 / 1167
WEIGHT WITH 68kg DRIVER (Fr / Rr) 110 / 113
SUSPENSION double unequal lengh A-Arm, pullrod actuated horizontal orientated spring and damper
TYRES (Fr / Rr) 18 / 6 - 10 Hoosier Lc0 / 18 / 6 - 10 Hoosier Lc0
WHEELS (Fr / Rr) CFRP
ENGINE KTM 500 EXC
BORE / STROKE / CYLINDERS / DISPLACEMENT 95mm / 72mm / 1 cylinders / 510cc
COMPRESSION RATIO 12.9:1
FUEL SYSTEM inlet manifold injection
FUEL 98 octane petrol
MAX POWER DESIGN 9500
MAX TORQUE DESIGN 7000
DRIVE TYPE Single 520 chain
DIFFERENTIAL limited slip differential
COOLING single side mounted aluminum core WP radiator, 413 cfm fan mounted to suction side
BRAKE SYSTEM stainless steel, hub mounted, dia. 190mm drilled
ELECTRONICS 3.2" display, multifunctional steering wheel, electric clutch actuation, live telemetry

GRAZ

University of Applied Sciences Joanneum Graz

Car 216 **Pit 67** **WRL 9** **Austria**

joanneum racing graz and its members - also called „The Weasels" - are building FSAE racecars since 2003. The team consists of students of the U.A.S. JOANNEUM in Graz, Austria, who are alternating every year. Their cars have always been super- or turbocharged. Since their foundation they achieved more and more, finally reached the 5th place in the WRL in May ‚16. The „jr16" implements a self-developed engine in a hybrid CFRP chassis with optimized suspension and aerodynamics for the 2016 season

FRAME CONSTRUCTION CFRP monocoque sandwich construction with CFRP rear space frame
MATERIAL High-tensile-strength carbon fibre prepregs, Rohacell and aramid honeycomb core
OVERALL L / W / H (mm) 3000 / 1434 / 1200
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1580 / 1220 / 1180
WEIGHT WITH 68kg DRIVER (Fr / Rr) 131 / 142
SUSPENSION Double unequal length A-Arm, Pull rod actuated spring/damper (Öhlins TTX25), Adj. Roll bar
TYRES (Fr / Rr) Continental 205/470 R13 - 34M
WHEELS (Fr / Rr) 7 inch wide, one piece handlaminated CFRP Rim
ENGINE Student designed engine
BORE / STROKE / CYLINDERS / DISPLACEMENT 83mm / 55mm / 2 cylinders / 595cc
COMPRESSION RATIO 10,1:1
FUEL SYSTEM High pressure direct injection with piezoelectric injectors (Bosch)
FUEL 100 octane unleaded gasoline
MAX POWER DESIGN 5500
MAX TORQUE DESIGN 4500
DRIVE TYPE via gearwheels, integrated in gearbox
DIFFERENTIAL 2010 DREXLER limited slip differential with tailor-made housing, integrated in gearbox
COOLING two sidewing mounted one core 52,800 mm² radiators, 413 cfm fan mounted to each sidepod
BRAKE SYSTEM 4-Disk system, floating, heat-treated laser cut rotors with 240 and 210 mm diam., aluminium calipers
ELECTRONICS Multifunctional steering wheel with display, Motorsport ABS, Electropneumatic Shifting System

GYŐR

Széchenyi István University Györ

Car 279 **Pit 44** **WRL 62** **Hungary**

Arrabona Racing Team was established in 2014 in Széchenyi István University of Győr, Hungary.We really believe that the key points of our success were the ambitious, A-class team and the compact designed racing cars so far.Beside some significant improvements of the ART_03, this year we are having a special cooperation with an engine development team inside our university, therefore we will use their custom modified engine for the first time!

FRAME CONSTRUCTION Tubular steel spaceframe
MATERIAL S355
OVERALL L / W / H (mm) 2878 / 1393 / 1153
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1550 / 1200 / 1150
WEIGHT WITH 68kg DRIVER (Fr / Rr) 119 / 115
SUSPENSION Double unequal length A-Arm, Pull/push rod actuated vertically oriented coilover
TYRES (Fr / Rr) Hoosier 20.5x7 R13 R25B
WHEELS (Fr / Rr) Hoosier 20.5x7 R13 R25B
ENGINE SZEngine EVO 4
BORE / STROKE / CYLINDERS / DISPLACEMENT 95mm / 72mm / 1 cylinders / 510cc
COMPRESSION RATIO 13.58:1
FUEL SYSTEM Student built, dual fuel injection
FUEL RON 100 gasoline
MAX POWER DESIGN 9200
MAX TORQUE DESIGN 6800
DRIVE TYPE Chain
DIFFERENTIAL Clutch type limited
COOLING Water cooling system, 1 radiator
BRAKE SYSTEM 4 Floating, steel, hub mounted rotors
ELECTRONICS Multifunctional Steering Wheel, Electropneumatic Shifting System, Telemetry System

HAMBURG

University of Applied Sciences Hamburg

Car 369 | **Pit 41** | **WRL 12** | **Germany**

HAWKS Racing 2016 - the H12 aka „Hidaya" is born and became a new member of „la familia". Each of our racecars is a little bit different, but two things are always the same: They are one of the most beautiful racecars in the Formula Student and they are built in the most beautiful city, Hamburg. We´re proud to present you our new car at FSG 2016 and are very happy to meet you - the Formula Student Family - in HAWKenheim! 69...HAWKS! #69HAWKS #HAWKSRacing #Hidaya

FRAME CONSTRUCTION full body CFRP monocoque
MATERIAL E201 prepreg, HRH 10 aramide honeycomb, IG-F foam
OVERALL L / W / H (mm) 3030 / 1380 / 1194
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1635 / 1200 / 1200
WEIGHT WITH 68kg DRIVER (Fr / Rr) 115 / 115
SUSPENSION double unequal length A-Arm with pull rod actuaded, vertically oriented spring and damper (front)
TYRES (Fr / Rr) 20 x 7.0 - R13 (Continental)
WHEELS (Fr / Rr) 7x13 - 22mm offset, 1pc Mg Rim
ENGINE Kawasaki ZX6R 636B (2004/2005)
BORE / STROKE / CYLINDERS / DISPLACEMENT 66mm / 43.8mm / 4 cylinders / 599cc
COMPRESSION RATIO 13.5:1
FUEL SYSTEM student built, port fuel injection, one injector per runner
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN 10000
MAX TORQUE DESIGN 8500
DRIVE TYPE DID Racing Chain 520ERS2
DIFFERENTIAL limited slip differenzial (Drexler), acc. 40° -> 60%, deceleration 50° -> 42%
COOLING side mounted radiator (380mm x 240mm), 2 fans (150mm dia.), self designed
BRAKE SYSTEM 4 disc system, self designed calipers (27mm) with 4 pistons (front)/2 pistons (rear), 230mm dia.
ELECTRONICS self designed power hubs, current measurement and digital fuses, live telemetry, WLAN, 2 CAN busses

HATFIELD

University of Hertfordshire

Car 207 | **Pit 100** | **WRL 110** | **United Kingdom**

UH Racing is further extending their renowned history with it's 19th combustion car UH19. Building on the success of a top 10 finish at FSG2015, UH19 has many innovative changes including student designed brake calipers, a new Honda powertrain, and an optimised aero package. UH Racing has a 35 strong team from various backgrounds who have designed and built a car focussing on reliability, quality, and overall performance. We have one motto in which the team religiously follows - #KnowYourLimits

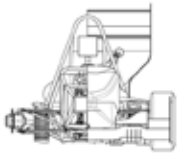
FRAME CONSTRUCTION Tubular Space Frame Chassis with a Rear Aluminium Bulkhead and Bonded Composite Floor
MATERIAL Mild steel (E235 & T45)
OVERALL L / W / H (mm) 2944 / 1400 / 1150
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1580 / 1200 / 1140
WEIGHT WITH 68kg DRIVER (Fr / Rr) 90 / 100
SUSPENSION Double A-arms. Pull and Pull rod actuated spring and coil over dampers with adjustable ARB.
TYRES (Fr / Rr) Hoosier R25B 18.0x6.0 - 10"
WHEELS (Fr / Rr) 7x10, 3 pcs aluminium rim
ENGINE Honda CBR 500
BORE / STROKE / CYLINDERS / DISPLACEMENT 67mm / 66.8mm / 2 cylinders / 471cc
COMPRESSION RATIO 10.7
FUEL SYSTEM OEM Honda Multi-point fuel injection
FUEL 98 Octane Unleaded Gasoline
MAX POWER DESIGN 8500
MAX TORQUE DESIGN 7000
DRIVE TYPE 520 Single Chain
DIFFERENTIAL Salisbury Clutch type differential with custom housing and internal preload adjustment
COOLING Angle mounted 833cm^2 core single pass downflow radiator , 2, 329 cm^2 fans mounted to radiator
BRAKE SYSTEM 191mm floating hydro cut 304SS discs with adjustable bias and custom designed calipers
ELECTRONICS Life Racing PDU-16, Life Racing F88 ECU, Life Racing GPS Module AG-50, Cosworth Omega L2 Data Logger

HEILBRONN

Heilbronn University

Car 239 | **Pit 78** | **WRL 431** | **Germany**

HHN Racing is the redesigned Formula Student team of the UAS Heilbronn. Thanks to all sponsors and our university. Our goal was to build a car that is easy to understand. Every newbie should easily understand the technic. With this priority we optimised the service ability.



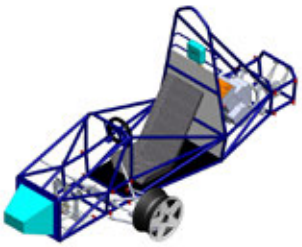
FRAME CONSTRUCTION Tubular steel space frame with aluminium endplate
MATERIAL E355 / EN-AW 7075
OVERALL L / W / H (mm) 2874 / 1368 / 1180
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1525 / 1200 / 1200
WEIGHT WITH 68kg DRIVER (Fr / Rr) 128 / 157
SUSPENSION Double unequal length A-Arm. (Fr) Pull rod (Rr) Push rod actuated. Fully adj. Damper. Adj. ARB
TYRES (Fr / Rr) 18.0
WHEELS (Fr / Rr) Keizer Wheels, 3pc Al-Mg 7
ENGINE 2008 Husqvarna TE 510
BORE / STROKE / CYLINDERS / DISPLACEMENT 100mm / 67.8mm / 1 cylinders / 533cc
COMPRESSION RATIO 14:1
FUEL SYSTEM Bosch fuel injection valve in student designed housing in manifold
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN 9200
MAX TORQUE DESIGN 6500
DRIVE TYPE 520 motorcycle chain
DIFFERENTIAL Drexler FS limited slip differential
COOLING side mounted radiators with fans
BRAKE SYSTEM 4-Disk system, self developed rotors with 194mm wave design, adj. brake balance
ELECTRONICS MoTeC ECU & PDM, Vector CANCase, electropneumatic Shifting System

ISLAMABAD

Pakistan Institute of Engineering & Applied Sciences

Car 214 **Pit 127** **Pakistan**

The evolution of Automotive culture and immense support of PIEAS lead to the development of our team. After achieving respectable positions and recognitions in numerous National and International competitions, most of the experienced students gathered at one point to improvise the talent in Formula Student Germany.Team Formula Sprinters is highly motivated to secure good position at Formula Student Germany 2016.



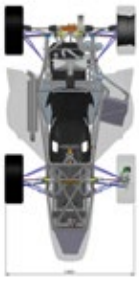
FRAME CONSTRUCTION Tubular Steel Space frame
MATERIAL AISI 1020
OVERALL L / W / H (mm) 3100 / 1480 / 1375
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1800 / 1300 / 1250
WEIGHT WITH 68kg DRIVER (Fr / Rr) 105 / 195
SUSPENSION Unequal, Non-parallel, Double Wishbone, Direct acting at front, push rod at rear
TYRES (Fr / Rr) 20.5x7.0-13, Hoosier, R25A/20.5x7.0-13, Hoosier, R25A
WHEELS (Fr / Rr) 6x13, 1.5" offset, 1 pc Alloy steel/6x13, 1.5" offset, 1 pc Alloy steel
ENGINE 2006 Suzuki GSX R600
BORE / STROKE / CYLINDERS / DISPLACEMENT 67mm / 42.5mm / 4 cylinders / 599cc
COMPRESSION RATIO 12.5:1
FUEL SYSTEM Mikuni Fuel Injection
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN 13000
MAX TORQUE DESIGN 10500
DRIVE TYPE "RK525SMOZ7Y Chain drive
DIFFERENTIAL Clutch pack limited Slip 60 Nm Preload 2.2:1
COOLING Side mounted 800cc radiator
BRAKE SYSTEM 4 disc brakes, Fixed, Stainless Steel, Hub Mounted, Outer Diameter 220mm, Thickness 4.7mm
ELECTRONICS N/A

ISTANBUL

Yıldız Technical University

Car 340 **Pit 71** **WRL 461** **Turkey**

YTU Racing has founded in 2011. The team has a three years of Formula Student experience and it is it's maiden year on FSG competition. We have a desire for simplicity and reliability. We set two main goals for this season: Weight reduction and to see the chequered flag on endurance. With our third car YTR03, we we did not try to make giant steps but instead choose to achieve a steady progress with slower pace. The car stands out with its lightweight 'made-in-garage'carbonfibre parts



FRAME CONSTRUCTION One piece tubular steel spaceframe
MATERIAL Non Alloy Steel
OVERALL L / W / H (mm) 2724 / 1400 / 1270
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1600 / 1200 / 1200
WEIGHT WITH 68kg DRIVER (Fr / Rr) 156 / 162
SUSPENSION Double unequal unparallel wishbone. Pus-hrod actuated horizontally orianted spring and damper
TYRES (Fr / Rr) 180x530 R13 Pirelli DM / 180x530 R13 Pirelli DM
WHEELS (Fr / Rr) 7x13, 25mm Offset, 1 pc Al Rim / 7x13, 25mm Offset, 1 pc Al Rim
ENGINE 2008 Honda CBR600RR
BORE / STROKE / CYLINDERS / DISPLACEMENT 67mm / 42.5mm / 4 cylinders / 599cc
COMPRESSION RATIO 12.2:1
FUEL SYSTEM Student design ,fuel injection, full sequential
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN 13000
MAX TORQUE DESIGN 9000
DRIVE TYPE Sequential GearBox
DIFFERENTIAL Drexler Limited Slip Differential, 30 Nm preload
COOLING Left side pod mounted radiators with electronic controlled electric fans
BRAKE SYSTEM 4-Disk system, self developed rotors with ont 240mm, rear 210mm diameter, adjustable brake balancefr
ELECTRONICS Wiring harness, Steering Wheel

KARLSRUHE

Karlsruhe Institute of Technology

Car 316 **Pit 55** **WRL 58** **Germany**

Founded by students of the Karlsruhe Institute of technology in 2006, KA-RaceIng® built the 16th and 17th car for the formula student competition in this season. 70 students designed two cars with self-developed drivetrains - one powered by a combustion engine, the other by an electric powertrain. The KIT16c stands out with its self-developed turbocharged engine, outstanding vehicle dynamics with state of the art rear wheel steering, attention on data acquisition and effective use of testtime.

FRAME CONSTRUCTION Hybrid chassis assembled from a CFRP monocoque front module and a tubular space frame
MATERIAL HT and HM fibres, twill unidirectional plies, kevlar-carbon hybrid twill
OVERALL L / W / H (mm) 2910 / 1455 / 1171
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1220 / 1150
WEIGHT WITH 68kg DRIVER (Fr / Rr) 117 / 147
SUSPENSION Double unequal length A-Arm. Pull-Rod actuated horizontalle oriented ZF Damper with coil spring
TYRES (Fr / Rr) Hoosier 18.0x7.5-10 R25B
WHEELS (Fr / Rr) Student design CFRP-Rim 7.5" wide, spokes integrated in wheel hub
ENGINE Self-developed AMG FS133
BORE / STROKE / CYLINDERS / DISPLACEMENT 83mm / 55mm / 2 cylinders / 595cc
COMPRESSION RATIO 12
FUEL SYSTEM Bosch piezo direct injection system
FUEL E85
MAX POWER DESIGN 6500
MAX TORQUE DESIGN 5000
DRIVE TYPE Gearbox with spur gear stage
DIFFERENTIAL Limited slip differential, preload 25Nm, bias ratio drive 88%
COOLING Side pod mounted 1 core air-water radiator, 1 electrical fan with 400 cfm maximum flow
BRAKE SYSTEM 4-Disk system, self developed rotors (188mm(front)/170mm(rear)) diameter, adjustable brake balance
ELECTRONICS Multifunctional steering wheel, electropneumatic shifting system, electronic clutch actuation

KARLSRUHE

University of Applied Sciences Karlsruhe

Car 399 **Pit 102** **WRL 209** **Germany**

High Speed Karlsruhe, founded in 2006, is entering its 10th season in the Formula Student combustion competition. About 50 students of the UAS Karlsruhe have been working together to build the new racecar, named F-110. As a new highlight the F-110 comes up with CFRP Rims, self made brake calipers and a new ECU. We are looking forward to the FSG, FSA and FSS competitions.

FRAME CONSTRUCTION Full CFRP monocoque
MATERIAL Carbon with rohacell and aramid honeycomb core
OVERALL L / W / H (mm) 2869 / 1352 / 1197
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1570 / 1140 / 1140
WEIGHT WITH 68kg DRIVER (Fr / Rr) 104 / 118
SUSPENSION Double unequal length A-Arm. Pull rod actuated spring/damper
TYRES (Fr / Rr) Hoosier 155/67 R10 LC0
WHEELS (Fr / Rr) 6.0x10, 4mm offset, 2pc self developed CFRP Rims
ENGINE 2011 Suzuki Rmz 450 1 cylinder
BORE / STROKE / CYLINDERS / DISPLACEMENT 96.0mm / 62.1mm / 1 cylinders / 450cc
COMPRESSION RATIO 12.2:1
FUEL SYSTEM Student des./built system, fuel injection, 1 injectors, full sequential
FUEL 98 octane
MAX POWER DESIGN 9800
MAX TORQUE DESIGN 9000
DRIVE TYPE Chain 520MZU with U-Ring
DIFFERENTIAL clutch pack limited slip, 10 Nm preload, adjustable ratios
COOLING in flow optimised sidepod mounted radiator with fan
BRAKE SYSTEM 4 floating Disks, self developed brake 2-piston calipers (FA & RA), adjaustable brake balance
ELECTRONICS self designed control units and telemetry system with wifi connection

KASSEL

University of Kassel

Car 280 **Pit 115** **WRL 42** **Germany**

Established in 2009 at the University of Kassel, the Herkules Racing Team comprises 50 students from different areas of studies. Up to today, we have designed six cars - the HRT 16 being the latest in our team's history. Aiming for continuous improvement, we revolutionised our last year's car with a new concept, which places a strong emphasis on simplicity, reliability and innovation. Special features include a removable third spring damper unit and wings with profiles made of wood among others.

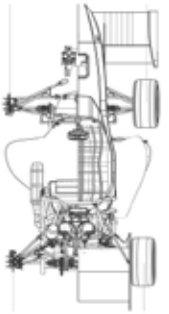
FRAME CONSTRUCTION Tubular steel spaceframe with stiffening anti-torsion crosses
MATERIAL E235, 25CrMo4
OVERALL L / W / H (mm) 2815 / 1395 / 1200
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1540 / 1200 / 1160
WEIGHT WITH 68kg DRIVER (Fr / Rr) 129 / 129
SUSPENSION Double A-arm suspension, push rod linked on the lower A-arm, third element
TYRES (Fr / Rr) 205/470 R13, C16, Continental
WHEELS (Fr / Rr) 205/470 R13, C16, Continental
ENGINE Suzuki GSX-R 600 L1
BORE / STROKE / CYLINDERS / DISPLACEMENT 67mm / 42,5mm / 4 cylinders / 599cc
COMPRESSION RATIO 13,6:1
FUEL SYSTEM MegaSquirt ECU system with semi-sequential injection and wasted spark ignition
FUEL 98 octane
MAX POWER DESIGN 10500
MAX TORQUE DESIGN 7800
DRIVE TYPE chain drive
DIFFERENTIAL Drexler Limited Slip Differential V2
COOLING Oil-water heat exchanger, left mounted water cooler with custom cooling fan
BRAKE SYSTEM 4-Disk system, floated disc, fixed calipers, driver adjustable brake balance
ELECTRONICS 2 CAN-Bus Systems, 2 Live-Telemetry Systems, In-wheel sensors

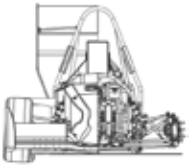
KEMPTEN

University of Applied Sciences Kempten

Car 323 **Pit 72** **WRL 169** **Germany**

We are Infinity Racing!Our relatively small team from Kempten, Bavaria is a group of students which have a lot of fun to built our race car year by year. The atmosphere on our campus is the same like in our team, namely casual and friendly. It's our local lifestyle.Our current race car TOMSOI VIII is a high end racing car for Formula Student. It's main features are the 4-cylinder engine, aerodynamik package, the new low profile tyres and the enhanced concept and dynamic. We are proud of it!





FRAME CONSTRUCTION Hybrid Monocoque; Front: Composite Monocoque; Rear: Steel Spaceframe
MATERIAL carbon-fibre composite; E235+C1 steel round tubing
OVERALL L / W / H (mm) 3008 / 1390 / 1160
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1540 / 1220 / 1156
WEIGHT WITH 68kg DRIVER (Fr / Rr) 141 / 146
SUSPENSION Double unequal length A-Arm Push rod rear, Pull rod front actuated vertically oriented spring/damper
TYRES (Fr / Rr) 205/470 R13 Continental 2016
WHEELS (Fr / Rr) OZ Magnesium Rims, 7"x13", ET+30
ENGINE 2005 Yamaha R6 RJ 09 4 cylinder DOHC
BORE / STROKE / CYLINDERS / DISPLACEMENT 65.5mm / 44.4mm / 4 cylinders / 599cc
COMPRESSION RATIO 12,4
FUEL SYSTEM Student built ,fuel injection, sequential
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN 11000
MAX TORQUE DESIGN 10000
DRIVE TYPE chain drive chain typ: Enuma 520MRD6
DIFFERENTIAL Drexler clutch pack limited slip FS 2010,10Nm preload, 1200Nm maximum torque
COOLING
BRAKE SYSTEM 4-Disk system, rotors with 200mm diameter, adjustable brake balance
ELECTRONICS Multifunctional Steering Wheel, Electropneumatic Shifting System, selfdesigned Live-Telemetry System

KONSTANZ

University of Applied Sciences Konstanz

Car 343 **Pit 70** **WRL 117** **Germany**

After a challenging year with failures in four endurances in 2015 but also seven TOP3 finishes, we are back with a car that has improved in all sectors. A huge aero package is designed to generate the absolute maximum downforce for high cornering speed. The powerful four cylinder engine allows fast acceleration and durability. We lowered the center of gravity and reduced the weight by more then 25 kilogram.Big thanks to the HTWG Konstanz and all of our sponsors for their ongoing support!

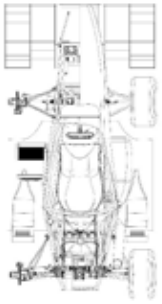
FRAME CONSTRUCTION turbular space frame made of 25CrMo4 (SAE 4130) round tubing
MATERIAL 25CrMo4 (SAE 4130) round tubing
OVERALL L / W / H (mm) 2950 / 1410 / 1187
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1210 / 1150
WEIGHT WITH 68kg DRIVER (Fr / Rr) 139 / 139
SUSPENSION Double unequal length and equal tube diameter CFK A-Arm with pull rod actuation
TYRES (Fr / Rr) Continental 205/470R13 34M
WHEELS (Fr / Rr) 7x13, Mg Rim, OZ S.p.A.
ENGINE Suzuki GSX-R 600 K8
BORE / STROKE / CYLINDERS / DISPLACEMENT 67.0mm / 42.5mm / 4 cylinders / 599cc
COMPRESSION RATIO 13:1
FUEL SYSTEM custom fuel rail, sequential fuel injection
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN 11000
MAX TORQUE DESIGN 8000
DRIVE TYPE Suzuki original gearbox 4 gears
DIFFERENTIAL Drexler LSD - Formula Student, 25-30Nm preload, TBR: drive 4/3.08/15.68; brake 2
COOLING one mounted 2 core aluminum radiator, 623.98 cfm fan mounted to the radiator no modifications
BRAKE SYSTEM 4-Disk system, self developed rotors with 220mm diameter, one caliper btake system front and rear
ELECTRONICS student designed power distribution module, student designed sensor module and livetelemetry

LEMGO

University of Applied Sciences Ostwestfalen-Lippe

Car 398 **Pit 82** **WRL 166** **Germany**

The OWL 1.6 is the seventh car of the OWL Racing-Team since its founding in 2008. As the third car with an aerodynamic package it generates the most downforce of all our cars. After the good results in 2015 we are looking forward to our three events in 2016. Over the season our small team grew into a well cooperating family.



FRAME CONSTRUCTION Steel tube space frame
MATERIAL E355 JR+N
OVERALL L / W / H (mm) 3020 / 1396 / 1180
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1630 / 1200 / 1170
WEIGHT WITH 68kg DRIVER (Fr / Rr) 147 / 139
SUSPENSION Double unequal length A-Arm with carbon fibre pushrod
TYRES (Fr / Rr) 18x7.5 R25B Hoosier
WHEELS (Fr / Rr) 18x7.5 R25B Hoosier
ENGINE Suzuki GSX-R 600 K7
BORE / STROKE / CYLINDERS / DISPLACEMENT 67.0mm / 42.5mm / 4 cylinders / 599cc
COMPRESSION RATIO 12,5:1
FUEL SYSTEM Student design multipoint injection system using MegaSquirt ECU
FUEL 98 octane
MAX POWER DESIGN 11000
MAX TORQUE DESIGN 10000
DRIVE TYPE 520 DID chain, 4-speed gearbox
DIFFERENTIAL Drexler limited slip differential
COOLING Left side pod mounted student design cross flow heat exchanger. Fan mounted to air duct
BRAKE SYSTEM 4-Disk system, self developed, floating rotors, d200 front, d190 rear
ELECTRONICS Mechatronic clutch and shifting system, live telemetry system, ASR, Launch Control, Central e-box

LIVERPOOL

University of Liverpool

Car 241 **Pit 118** **WRL 263** **United Kingdom**

The University of Liverpool Formula Student Team began competitive life in 2005 and are this year showcasing their tenth race car. ULM Racing is built upon evolutionary improvement and advances are embodied in the design of the new vehicle: a car which is based upon performance, driveability, and reliability.The team, comprising primarily of third and fourth year mechanical engineering students, have focused their efforts in the areas of mass reduction, powertrain and drivetrain.

FRAME CONSTRUCTION Tubular Steel Spaceframe
MATERIAL Mild Steel AISI 1020 (EN3B)
OVERALL L / W / H (mm) 3057 / 1395 / 1200
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1550 / 1200 / 1150
WEIGHT WITH 68kg DRIVER (Fr / Rr) 150 / 148
SUSPENSION Double, unequal A-Arm, pull-rod / push-rod actuated Ohlins shock absorbers
TYRES (Fr / Rr) 20.0 x 7.2 – R13 A92 Avon
WHEELS (Fr / Rr) 13
ENGINE 008 Yamaha YZF-R6 four stroke in line four
BORE / STROKE / CYLINDERS / DISPLACEMENT 67mm / 42.5mm / 4 cylinders / 599cc
COMPRESSION RATIO 13.1:1
FUEL SYSTEM Port injection system with Cosworth SQ6 ECU
FUEL 98 RON unleaded
MAX POWER DESIGN 11500
MAX TORQUE DESIGN 11000
DRIVE TYPE Single 520 chain
DIFFERENTIAL 2010 FSAE Drexler LSD
COOLING Rear mounted dual pass radiator with EWP80 electric water pump
BRAKE SYSTEM Hub mounted 220mm dia. AP Racing, double pot front / single pot rear
ELECTRONICS Wiring harness sealed to IP67, Cosworth SQ6 ECU and integrated CompactDAQ

MADRID

Technical University of Madrid (UPM)

Car 219 **Pit 51** **WRL 306** **Spain**

Since 2002, UPM Racing has competed with 12 different combustion vehicles. This year, we proudly present the UPM13C. The uninterrupted participation, and continuous improvement has led us to develop our best vehicle so far.UPM13C includes some major new features: a microprocessor for PWM control of the cooling and oil system, and a modification in the original gearbox must be highlighted.We would like to thank all of our sponsors, and we are looking forward to do our best in FSG 2016!

FRAME CONSTRUCTION Tubular space frame / Carbon fiber and honeycomb floor / Aluminium Backplate
MATERIAL AISI 4130 Alloy Steel / Carbon fibre / 7075 T6 Aluminum
OVERALL L / W / H (mm) 2926 / 1360 / 1145
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1535 / 1160 / 1150
WEIGHT WITH 68kg DRIVER (Fr / Rr) 137 / 148
SUSPENSION Double unequal length A-Arm. Push rod actuated. Springs and revalved dampers Öhlins TTX25
TYRES (Fr / Rr) 20.5x7 R13 Hoosier R25B
WHEELS (Fr / Rr) 7.0x13, -13mm offset, 3 pc Al&Mg Rim
ENGINE 2003 Yamaha R6
BORE / STROKE / CYLINDERS / DISPLACEMENT 65.5mm / 44.5mm / 4 cylinders / 600cc
COMPRESSION RATIO 12.4 :1
FUEL SYSTEM TPS,Air-Fuel-Oil-Coolant Temp& Pres, Lambda,Crank & Cam Position, Exhaust temp,
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN 11000
MAX TORQUE DESIGN 10000
DRIVE TYPE 520 roller chain
DIFFERENTIAL Drexler Limited Slip Differential (LSD) 30 Nm preload
COOLING Vertical crossflow one step radiator with thermostatic controlled by electricfan
BRAKE SYSTEM 4-Disk system self developed rotors. Different sizes in rear and front. Adjustable brake balance
ELECTRONICS Electropneumatic shifter, traction control, AIM EVO 4, student built telemetry system.

MANIPAL

Manipal University

Car 296 **Pit 73** **WRL 327** **India**

Formula Manipal, the official FSAE team of Manipal University is one of the top Formula Student teams from India. With a second placed finish in the latest competition, Formula Design Challenge 2015 and a podium finish at FSG 2013, Formula Manipal is a proven name in the International FSAE circuit. With the aim of teaching intricacies of Racecar to young engineers, Formula Manipal has come up with the latest car that can compete amongst the top teams at FSG 2016. Watch out for the FMX6 at FSG!

FRAME CONSTRUCTION Tubular Steel Space frame with carbon fibre reinforced side impact structure
MATERIAL AISI 1018 Steel, Round tubing, Dia:16mm to 25.4mm, Rectangular section:40x20mm
OVERALL L / W / H (mm) 2994 / 1441 / 1180
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1540 / 1200 / 1150
WEIGHT WITH 68kg DRIVER (Fr / Rr) 115 / 165
SUSPENSION Double unequal wishbone, pullrod actuated spring-damper, with blade adjustable anti roll bar
TYRES (Fr / Rr) 18.0x7.5-10 Hoosier R25B / 18.0x7.5-10 Hoosier R25B
WHEELS (Fr / Rr) 7x13, 3 pc Al, 100mm offset / 7x13, 3 pc Al, 75mm offset
ENGINE Honda CBR 600RR, 2006
BORE / STROKE / CYLINDERS / DISPLACEMENT 67mm / 42.5mm / 4 cylinders / 599cc
COMPRESSION RATIO 12
FUEL SYSTEM Single Stage Multi port fuel Injection, Sequential
FUEL Gasoline
MAX POWER DESIGN 8000
MAX TORQUE DESIGN 8000
DRIVE TYPE Chain drive, DID 520 ERV3 X-ring chain
DIFFERENTIAL Drexler clutch type LSD, preload 31 Nm, ramp angles 45 and 60 degrees
COOLING Horizontal mounted 1" Single core Dual Pass radiator,410cfm fan mounted to duct
BRAKE SYSTEM 4-Disk system, floating rotors, adjustable brake balance, ISR CP 22-048(front) Wilwood PS1(rear)
ELECTRONICS Traction Control, Launch Control, Button Shifters, MoTeC M400, NI MyRIO, AiM EVO 4 for data logging

MARIBOR

University of Maribor

Car 235 **Pit 125** **WRL 114** **Slovenia**

Uni Maribor Grand Prix Engineering has successfully made a sixth car in a row! We will be willing to compete in Germany and Hungary this year, with new equipment in our arsenal. With a strong, but very light body, carbon fiber monocoque, we were confident enough to make significant changes on the muscles - engine. This year we are running turbocharged KTM 450 SX-F. Also aerodynamics got our attention, so we are using full aero-package with DRS system. And we still have many aces in our sleeves!

FRAME CONSTRUCTION single monocoque
MATERIAL carbon fiber, kevlar fabric, Nomex and alu honeycombe, delta preg epory DT 120
OVERALL L / W / H (mm) 2760 / 1370 / 1165
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1550 / 1200 / 1200
WEIGHT WITH 68kg DRIVER (Fr / Rr) 110 / 113
SUSPENSION Double A-arm. Pull rod actuated horizontally oriented spring, damper and anti-roll bar
TYRES (Fr / Rr) Hoosier 18x6 R10 LC0
WHEELS (Fr / Rr) 7x10, 53mm offset, Carbon fiber Rim
ENGINE Turbocharged 2011 KTM 450SX-F with 478cc kit
BORE / STROKE / CYLINDERS / DISPLACEMENT 100mm / 60.8mm / 1 cylinders / 478cc
COMPRESSION RATIO 12.5:1
FUEL SYSTEM self designed port injection using Bosch EV14 injectors
FUEL ethanol (E85)
MAX POWER DESIGN 9000
MAX TORQUE DESIGN 6800
DRIVE TYPE Chain drive width:5/8 serial KTM gear b
DIFFERENTIAL Drexler limited slip
COOLING Side mounted single core Oil and Water radiator, 315 cfm fan on Water radiator
BRAKE SYSTEM 4 Disk system, self developed, rotor with 194mm diameter
ELECTRONICS Electric driven fuel pump, dual fan for water cooling, DEWEsoft data-loggers

MELBOURNE

Monash University

Car 266 **Pit 43** **WRL 3** **Australia**

Monash Motorsport is based at Monash University in Melbourne, Australia. The team has competed in FSAE since 2000 with a strong belief in the importance of points simulation, early testing and vehicle tuning. Our latest concept, the M15, showcases a new turbocharged KTM 500, a unique suspension layout and our most highly integrated aerodynamics package yet. Newly developed carbon fibre wheels alongside CSIRO's titanium printed outboard help make this Monash's lightest entry to date.

FRAME CONSTRUCTION Steel tube spaceframe with bonded composite sandwich panels, aluminium rear bulkhead
MATERIAL 1020 mild steel, 4130 chromoly (roll hoops), carbon fibre and nomex honeycomb core
OVERALL L / W / H (mm) 3220 / 1340 / 1200
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1550 / 1110 / 1050
WEIGHT WITH 68kg DRIVER (Fr / Rr) 135 / 135
SUSPENSION Double Unequal length A-Arm, push rod actuation, monoshock and hydraulic anti roll system
TYRES (Fr / Rr) 18x7.5-10 R25B Hoosier
WHEELS (Fr / Rr) 8
ENGINE 2015 KTM 500EXC
BORE / STROKE / CYLINDERS / DISPLACEMENT 95mm / 72mm / 1 cylinders / 510cc
COMPRESSION RATIO 11.8:1
FUEL SYSTEM MoTec M400 ECU, single injection
FUEL E85
MAX POWER DESIGN 7500
MAX TORQUE DESIGN 5500
DRIVE TYPE Single reduction 428 chain
DIFFERENTIAL Drexler clutch pack limited slip, 25Nm preload, 30deg ramp angle on power side
COOLING dual side mounted 26mm core single pass radiator, 620 cfm fan mounted to radiator shroud
BRAKE SYSTEM Wilwood GP320, 4 pot opposing pistons (1.25")/Wilwood PS1, twin pot opposing pistons (1.0")
ELECTRONICS Wiring harness, Launch control, One way telemetry,

MILANO

Polytechnic University of Milan

Car 397 **Pit 130** **WRL 159** **Italy**

Dynamis PRC, Politecnico di Milano racing team, for the second time takes part to the FSG. This year we present the DP8, a prototype that embodies the evolution of concepts and project philosophy of its predecessor. Key features designed to improve performance are custom developed tires, a complete aero package and engine fine tuning. Unique elements are the carbon fiber monocoque chassis and our student designed electro-actuated system for clutch and gearshift management

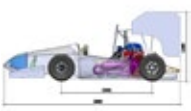
FRAME CONSTRUCTION Carbon fiber reinforced polymer monocoque
MATERIAL High strenght carbon fiber, epoxy resin, Nomex®, Al honeycomb
OVERALL L / W / H (mm) 3019 / 1380 / 1190
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1600 / 1200 / 1160
WEIGHT WITH 68kg DRIVER (Fr / Rr) 129 / 129
SUSPENSION Double Carbon Fiber Wishbone, Pull-Rod, Double Horizontal Shock Absober, Adjustable Titanium ARB
TYRES (Fr / Rr) 180 - 530 R13, Pirelli 5Z791 / 180 - 530 R13, Pirelli 5Z791
WHEELS (Fr / Rr) 7.0x13, 30 mm offset, Mg Alloy / 7.0x13, 30 mm offset, Mg Alloy
ENGINE Modified Aprilia RXV 550
BORE / STROKE / CYLINDERS / DISPLACEMENT 80mm / 55mm / 2 cylinders / 553cc
COMPRESSION RATIO 13.5:1
FUEL SYSTEM Student Designed and Built, Full Sequential Fuel Injection
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN 10250
MAX TORQUE DESIGN 9000
DRIVE TYPE Chain drive
DIFFERENTIAL Drexler Formula Student LSD. Lock-up 88% power, 51% coast, 25 Nm preload
COOLING One side pod mounted radiator with thermostatic controlled electric fan
BRAKE SYSTEM F: Brembo P4.24 CNC calipers, 230mm steel disks/R: Brembo P2.24 CNC calipers, 190mm steel disks/EBB
ELECTRONICS LC, TC, EBB, Telemetry, Multifuncional Steering Wheel with LCD, Electronic Gear Shifting and Clutch

MODENA

University of Modena and Reggio Emilia

Car 237 **Pit 62** **WRL 115** **Italy**

MoRe Modena Racing was founded in 2003, in the heart of the Italian Motor Valley. Today the team includes more than 50 students, that everyday draw inspiration of this land and turn it into motivation. We are proud to present the M16-L, a car with an unique design, which includes a mould free carbon panel monocoque and an high performance longitudinal engine with bevel gear transmission combined with in-house produced aeropack, bodyshell and electronic elements.



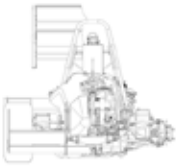
FRAME CONSTRUCTION mold free composite monocoque made by customized flat panels
MATERIAL Carbon fiber and polymeric foam core material
OVERALL L / W / H (mm) 2998 / 1430 / 1185
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1541 / 1222 / 1194
WEIGHT WITH 68kg DRIVER (Fr / Rr) 141 / 153
SUSPENSION Double wishbone layout. Front Pullrod /Rear Pushrod. T-design ARB. CFRP Arms and rods.
TYRES (Fr / Rr) 457 x 152-254 R25B/LC0 Hoosier / 457 x 152-254 R25B Hoosier
WHEELS (Fr / Rr) 178mm wide, Mg Alloy Rim / 178mm wide, Mg Alloy Rim
ENGINE Modified Suzuki GSX R 600
BORE / STROKE / CYLINDERS / DISPLACEMENT 67mm / 42.5mm / 4 cylinders / 599cc
COMPRESSION RATIO 12,5
FUEL SYSTEM Indirect Fuel Injection, dual rail with two injectors per cylinder
FUEL 98 octane
MAX POWER DESIGN 11500
MAX TORQUE DESIGN 9000
DRIVE TYPE hypoid bevel gear
DIFFERENTIAL Drexler FS2010 LSD
COOLING chassis right-side mounted 2 core aluminum radiator , 1270 cfm fan mounted behind radiator
BRAKE SYSTEM Stainless Steel. Floating Discs on Hub. 190mm dia. Laser Cutted
ELECTRONICS power wiring self-made;Electropneumatic actuation; traction, launch, electric gear shift control

MONTRÉAL

McGill University

Car 217 **Pit 117** **WRL 200** **Canada**

The vehicle targets were based on a point mass lap time simulation. As a result, the MRT17 features a CFRP monocoque, an improved aerodynamics package (front, mid, and rear wings),and an E85-powered naturally aspirated single cylinder engine. Alongside vehicle development, the McGill Racing Team focuses on increasing documentation of the design process including simulation, analysis, and testing, as well as improving project management and team communication.



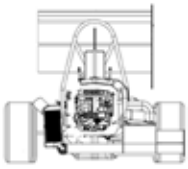
FRAME CONSTRUCTION CFRP monocoque chassis with integral joint layup, tubular steel roll bars.
MATERIAL Textreme Plain Weave/Unidirectional Tape, Aluminum/Nomex/Polyurethane foam core
OVERALL L / W / H (mm) 2917 / 1328 / 1181
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1550 / 1118 / 1118
WEIGHT WITH 68kg DRIVER (Fr / Rr) 103 / 126
SUSPENSION Double Unequal A-Arm F/R, Pullrod F, Pushrod R, Coilover Double-Adjustable Damper, ARB F/R
TYRES (Fr / Rr) 18x6-10 Hoosier LC0 F/R
WHEELS (Fr / Rr) 7x13, 3 pc Aluminum
ENGINE BRP-Rotax GmbH, Type 449
BORE / STROKE / CYLINDERS / DISPLACEMENT 97mm / 60.8mm / 1 cylinders / 449cc
COMPRESSION RATIO 13.6:1
FUEL SYSTEM Port Injection, Manifold-Pressure Regulated, TPS, MAP, IAT, ECT, EGT, AFR
FUEL E85 Ethanol
MAX POWER DESIGN 9000
MAX TORQUE DESIGN 8000
DRIVE TYPE 5-speed sequential
DIFFERENTIAL Drexler limited slip, fixed preload, adjustable ramp angles
COOLING 2x Side mounted 25mm core aluminum radiator, oil cooler, 2x 200CFM box fans
BRAKE SYSTEM Front 4-piston calipers, rear 2-piston calipers, AP racing calipers & master cylinders
ELECTRONICS Traction control, Shift-without-lift, Launch-Control and Auto-up shift, Motec ECU and Dash Logger

MONTRÉAL

University of Québec - ETS

Car 301 **Pit 45** **WRL 23** **Canada**

The team from ETS has always had one goal, victory. Every car that comes out of our facilities reflects our mentality. We pay special attention to design and details to ensure that the car reaches its peak performance. For those reasons, the Formula team from ETS is perceived as one of the leaders in their field, which allows them to promote Engineering excellence from Quebec around the world.



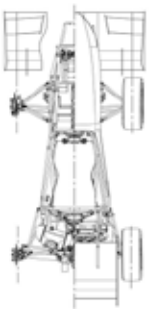
FRAME CONSTRUCTION
MATERIAL
OVERALL L / W / H (mm)
WHEELBASE (mm) / TRACK (Fr / Rr) (mm)
WEIGHT WITH 68kg DRIVER (Fr / Rr)
SUSPENSION
TYRES (Fr / Rr)
WHEELS (Fr / Rr)
ENGINE
BORE / STROKE / CYLINDERS / DISPLACEMENT
COMPRESSION RATIO
FUEL SYSTEM
FUEL
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE
DIFFERENTIAL
COOLING
BRAKE SYSTEM
ELECTRONICS

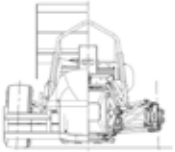
MOSCOW

Bauman Moscow State Technical University

Car 220 **Pit 74** **WRL 300** **Russia**

We present our fourth car brt-4. After successful 2015 season with supercharged 4cyl. engine our team decided to move to single cylinder turbocharged engine, which allows us to reduce weight by 50kg and keep the same power to weight ratio. Weight reduction were provided by means of wide usage of topology optimisation. Our team want to thank our old and many new sponsors which support us and help us to build racecars!





FRAME CONSTRUCTION Hybrid steel-CFRP space frame. Rear aluminium plate.
MATERIAL C22 steel tubes, filament wounded CFRP tubes, 2024 aluminium rear plate.
OVERALL L / W / H (mm) 3000 / 1419 / 1220
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1540 / 1188 / 1160
WEIGHT WITH 68kg DRIVER (Fr / Rr) 109 / 157
SUSPENSION Double unequal length A-Arm. Pull rod actuated in front and the rear.
TYRES (Fr / Rr) 20.5 x 7.0-13, Hoosier R25B / 20.5 x 7.0-13, Hoosier R25B
WHEELS (Fr / Rr) 7x13 offset 31mm, Aluminium, one piece / 7x13 offset 31mm, Aluminium, one piece
ENGINE Yamaha WR450F, turbocharged
BORE / STROKE / CYLINDERS / DISPLACEMENT 95mm / 63.4mm / 1 cylinders / 449cc
COMPRESSION RATIO 9.5:1
FUEL SYSTEM Motec M400
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN 10000
MAX TORQUE DESIGN 5000
DRIVE TYPE #520 chain drive
DIFFERENTIAL Drexler clutch type LSD
COOLING Single radiator on right side behind driver, two fans.
BRAKE SYSTEM 4-Disk system, self developed 220mm rotors, adjustable brake balance, team designed pedal box
ELECTRONICS Electropneumatic Shifting System, Launch/Traction control, Data logging.

MUMBAI

K. J. Somaiya College of Engineering

Car 311 **Pit 124** **WRL 305** **India**

Ever since its inception in 2006, the Orion Racing team has grown significantly in organisation and structure with the increasing international exposure. This year the team's focus was to enhance car performance by opening new avenues for simplifying system design and understanding overall man-machine interaction. Adhering to this, the team opted for a single-cylinder engine and a 10-inch wheel package and thus intends to realize its goal which is to complete and compete.

FRAME CONSTRUCTION Tubular Spaceframe structure
MATERIAL Cold rolled steel
OVERALL L / W / H (mm) 2615 / 1500 / 1165
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1550 / 1246 / 1150
WEIGHT WITH 68kg DRIVER (Fr / Rr) 127 / 127
SUSPENSION Double unequal length A-Arm. Push rod actuated horizontally oriented spring and damper
TYRES (Fr / Rr) 150x45 D10 Hoosier R25B / 150x45 D10 Hoosier R25B
WHEELS (Fr / Rr) 7x10, 20mm offset, 3 piece Al rim / 7x10, 27mm offset, 3 piece Al rim
ENGINE KTM Duke 390
BORE / STROKE / CYLINDERS / DISPLACEMENT 89mm / 60mm / 1 cylinders / 373cc
COMPRESSION RATIO 12,8:1
FUEL SYSTEM Bajaj stock fuel rail, Electronic fuel injection, sequential
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN 8500
MAX TORQUE DESIGN 6500
DRIVE TYPE chain drive
DIFFERENTIAL clutch pack limited slip with internal preload adjustment
COOLING Rear mounted single core, single pass radiator with PWM electric fan
BRAKE SYSTEM 4-point floating disc system, adjustable pedal box & brake balance, 180mm rotors, fixed calipers
ELECTRONICS Onboard data logging via motec M400

MÜNCHEN

Technische Universität München

Car 231 **Pit 61** **WRL 149** **Germany**

The TUfast Racing Team from the TU Munich consists of 80 team members who in one team design and build two race cars each season (electric + combustion). One Team – Two cars – TUfast. The main goals designing the TUfast nb016 are lightweight, vehicle control and an aerodynamic package well-balanced between high downforce and efficiency. To achieve these goals: KTM one-cylinder engine, full CFRP- monocoque, Hoosier LC0 on CFRP Rims, Spool, DRS.Feel free to come to our pit and talk to us!

FRAME CONSTRUCTION One piece CFRP monocoque
MATERIAL CFRP: Spread toe, twill weave, unidirectional, aluminium honey comb-/foam core; CFRP and al inserts
OVERALL L / W / H (mm) 2850 / 1375 / 1200
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1500 / 1150 / 1220
WEIGHT WITH 68kg DRIVER (Fr / Rr) 101 / 124
SUSPENSION front: Double unequal length A-Arm, Pull rod actuated rear: Double unequal length A-Arm, Push rod ac
TYRES (Fr / Rr) 10" Hoosier
WHEELS (Fr / Rr) 10" Hoosier
ENGINE 2015/ KTM EXC 500 single cylinder engine
BORE / STROKE / CYLINDERS / DISPLACEMENT 95mm / 72mm / 1 cylinders / 510cc
COMPRESSION RATIO 14.3
FUEL SYSTEM Port Fuel injection
FUEL E85
MAX POWER DESIGN 9000
MAX TORQUE DESIGN 7000
DRIVE TYPE 530 chain
DIFFERENTIAL Spool
COOLING earduct mounted 30 core water-air radiator, 0.445 cfm fan mounted to radiator-duct
BRAKE SYSTEM 3-Disk-System, single rear inboard brake
ELECTRONICS Motec PDM 15, monitored via telemetry, Loom designed in CAD, heat-shrink tubing

MÜNCHEN

University of Applied Sciences München

Car 213 **Pit 110** **WRL 18** **Germany**

PassionWorks - not only the name of our cars but also our guiding principle! Last season - our most successful one - we took a big step forward in terms of driving performance and reliability of the car. This year, we're happy to announce that we designed a car that signifies a evolutionary step. New solutions make us more efficient, lighter and faster. Combined with many testing kilometers and a strong team, we want to improve upon last year's results.

FRAME CONSTRUCTION Front Monocoque, rear tubular space frame
MATERIAL Monocoque CFRP; Rohacell core, TSF: steel tubing
OVERALL L / W / H (mm) 2860 / 1427 / 1190
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1540 / 1182 / 1163
WEIGHT WITH 68kg DRIVER (Fr / Rr) 122 / 144
SUSPENSION Double unequal length CFRP A-Arms, Pull rod actuated dampers
TYRES (Fr / Rr) Hoosier R25B 7,5"
WHEELS (Fr / Rr) CFRP rim
ENGINE Honda CBR 600 RR PC40
BORE / STROKE / CYLINDERS / DISPLACEMENT 67mm / 42.5mm / 4 cylinders / 599cc
COMPRESSION RATIO 13.5:1
FUEL SYSTEM 4 Bosch injectors
FUEL E85
MAX POWER DESIGN 9500
MAX TORQUE DESIGN 8500
DRIVE TYPE
DIFFERENTIAL Drexler
COOLING
BRAKE SYSTEM AP Racing
ELECTRONICS self designed Energy Management System, CAN Bus

NAVI MUMBAI

Pillai Institute of Information Technology

Car 212 **Pit 119** **WRL 522** **India**

Hyperion Racing is a team comprising of engineering students from Pillai Institute of Information Technology, India with the objective of Formula Student events, both Nationally and at a global stage. Our second car, the HRT-02 is a result of what our team is, a democratic culmination of our members' thought processes. Our designs and processes encompass a sound knowledge that has been developed from what has been passed down from our previous team.

FRAME CONSTRUCTION Tubular Steel Space Frame
MATERIAL AISI 1018 Steel
OVERALL L / W / H (mm) 2763 / 1379 / 1132
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1540 / 1164 / 1088
WEIGHT WITH 68kg DRIVER (Fr / Rr) 116 / 142
SUSPENSION Double, Unequal Length, Non Parallel A-arms, Pullrod front, pushro rear, Dampers adjustable
TYRES (Fr / Rr) 20.5x6.0 R13 Hoosier R25B
WHEELS (Fr / Rr) 7x13, 22mm offset, 1 pc Aluminium Alloy OZ Racing Rims
ENGINE KTM Duke 390 CC
BORE / STROKE / CYLINDERS / DISPLACEMENT 86mm / 60mm / 1 cylinders / 349cc
COMPRESSION RATIO 12.8:1
FUEL SYSTEM Fuel Injection Pump
FUEL 98 octane gasoline
MAX POWER DESIGN 9500
MAX TORQUE DESIGN 6000
DRIVE TYPE Chain Drive
DIFFERENTIAL Quaife Automatic torque biasing differential
COOLING Right side mounted Radiator with shroud
BRAKE SYSTEM 4 disc system with self developed rotors (210mm dia), Adjustable brake bias, Wilwood brake callipers
ELECTRONICS Custom wiring harness with minimal weight

NEVERS

University of Burgundy - ISAT

Car 268 **Pit 68** **WRL 208** **France**

The 2016 ISAT Formula Team, entirely renewed with 31 new students, all in their first year of the engineering curriculum. They represent the only French public engineering school specialized in Automotive! After a year of hard work, we participate to the FS and FSG competitions with our Internal Combustion Engine single seat car, while the first French FSE is being developed within our premises. Since 2003, ISAT team have succeeded one another and we hope we can do better than our predecessors.

FRAME CONSTRUCTION Tubular Space Frame
MATERIAL Steel 25CrMo4S
OVERALL L / W / H (mm) 2572 / 1364 / 1215
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1550 / 1200 / 1150
WEIGHT WITH 68kg DRIVER (Fr / Rr) 129 / 139
SUSPENSION Double A-Arm with Damper Actuated by Pull-Rods
TYRES (Fr / Rr) Hoosier 18.0x6.0 - 10 R25B
WHEELS (Fr / Rr) Mad'in 10 Inches Diameter - 6.5 Inches Width, Aluminum
ENGINE Yamaha XJ6
BORE / STROKE / CYLINDERS / DISPLACEMENT 65.5mm / 44.5mm / 4 cylinders / 600cc
COMPRESSION RATIO 12,2:1
FUEL SYSTEM Student Designed, Built Fuel Lines with Yamaha Injection System Managed by Bosch MS4 ECU
FUEL 98 RON Unleaded
MAX POWER DESIGN 9000
MAX TORQUE DESIGN 7000
DRIVE TYPE Single 520 Chain
DIFFERENTIAL Drexler Limited Slip, 51% for Drive and 42% for Deceleration
COOLING Water Cooling
BRAKE SYSTEM Front : Beringer Caliper (2P1A) Ø32mm - Rear : AP Racing Caliper Ø25.4mm - AP Racing Master Cylinder
ELECTRONICS Bosch DDU-7, MoTeC PDM15, Bosch MS4 ECU, Several Sensors : Temperature, Pressure, Wheel Speed, etc.

OXFORD

Oxford Brookes University

Car 292 **Pit 69** **WRL 111** **United Kingdom**

Now in its 16th year Oxford Brookes Racing is stronger than ever and have come into this year with the aim of creating the fastest and most reliable car in OBR's long and successful history. The chassis is still our distinctive folded design, but now in full carbon fibre. We have also made the move to 10" wheels and have added a floor to compliment our wings. We would like to thank all our partners, without whom this wouldn't have been possible.

FRAME CONSTRUCTION Folded CFRP monocoque with alumnium honeycomb core
MATERIAL Various thickness CFRP skins with 15mm & 20mm aluminium core
OVERALL L / W / H (mm) 2927 / 1440 / 1195
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1535 / 1215 / 1215
WEIGHT WITH 68kg DRIVER (Fr / Rr) 113 / 122
SUSPENSION Double unequal length wishbones w/pullrod actuated spring-dampers. U-Bar ARB front and Rear
TYRES (Fr / Rr) Hoosier 18x7.0-10
WHEELS (Fr / Rr) Hoosier 18x7.0-10
ENGINE 2010 KTM 530 EXC
BORE / STROKE / CYLINDERS / DISPLACEMENT 100mm / 72mm / 1 cylinders / 566cc
COMPRESSION RATIO 11.9:1
FUEL SYSTEM Student designed single port injection
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN 8600
MAX TORQUE DESIGN 6500
DRIVE TYPE Chaindrive
DIFFERENTIAL Drexler LSD
COOLING Dual pass radiator with fan mounted to ducting
BRAKE SYSTEM 4-disc ISR radial mount, dual opposing piston from calipers with AP racing radial mounted rears
ELECTRONICS IP67 Harness, electropneumatic shifting system, wireless telemetry

PADERBORN

University of Paderborn

Car 258 **Pit 57** **WRL 179** **Germany**

The UPBracing Team was founded in 2006. Today we consist 230 members of which 45 ones actively worked on the 10th year anniversary car: the PX216. Ten years of Formula Student provide us with the knowledge to build one of the lightest four-cylindered Formula Student cars.In order to deceed the 200kg-line we took every part into reconsideration. Through integral design combination and structural analysis of every joining point we reached the highest level of engineering in 10 years of UPBracing.

FRAME CONSTRUCTION CFRP full monocoque
MATERIAL CFRP sandwich with aramid honeycomb core, aluminium front hoop, steel main hoop
OVERALL L / W / H (mm) 3015 / 1380 / 1161
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1600 / 1160 / 1140
WEIGHT WITH 68kg DRIVER (Fr / Rr) 125 / 135
SUSPENSION Double wishbone push rod suspension at front and rear, 7.0 x 10 inch 3pc Al Rim
TYRES (Fr / Rr) 18x7.5x10, R25B, 43105, Hoosier
WHEELS (Fr / Rr) 7.0 x 10 inch 3pc Al Rim, Offset 34,9mm
ENGINE Modified Suzuki GSX-R 600
BORE / STROKE / CYLINDERS / DISPLACEMENT 67.0mm / 42.5mm / 4 cylinders / 599cc
COMPRESSION RATIO 12.8:1
FUEL SYSTEM Student-designed rail, Bosch injectors
FUEL RON 95 unleaded
MAX POWER DESIGN 10000
MAX TORQUE DESIGN 7500
DRIVE TYPE Chain drive 20.5mm
DIFFERENTIAL Drexler Formula Student Differential (1,5 way limited slip differential)
COOLING Air-Liquid Heat exchanger, left-side mounted, 200mm radiator, electric fan mounted to air scoop
BRAKE SYSTEM Self-developed rotors, adjustable brake balance
ELECTRONICS Self-made wiring harness, changeable engine setups via steering wheel, automatic clutch actuation

PADOVA

University of Padova

Car 285 **Pit 75** **WRL 80** **Italy**

Race UP Team started participating in Formula SAE ruled competitions in 2003. This year the team is coming back to Formula Student Germany with its 11th car, starting from the experience of the good project of last year. All the components are designed to be as light as possible and to reach the best integration in the car. The goal of this year is to improve reliability and to gain the maximum performance from the new car with an efficient testing phase.

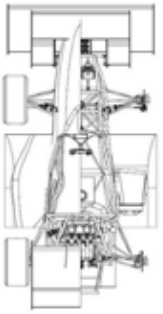
FRAME CONSTRUCTION Tubolar spaceframe
MATERIAL Steel AISI4130 (25CrMo4)
OVERALL L / W / H (mm) 2998 / 1446 / 1199
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1535 / 1220 / 1190
WEIGHT WITH 68kg DRIVER (Fr / Rr) 131 / 142
SUSPENSION Double unequal length A-Arm. Pull-rod actuated. Longit. oriented rear damper - transvers. front
TYRES (Fr / Rr) 20.5 x 7.0 R13 Hoosier / 20.5 x 7.0 R13 Hoosier
WHEELS (Fr / Rr) 7.0 x 13" / 7.0 x 13" magnesium
ENGINE Honda CBR 600 RR PC40 2007/2008
BORE / STROKE / CYLINDERS / DISPLACEMENT 67mm / 42.5mm / 4 cylinders / 599cc
COMPRESSION RATIO
FUEL SYSTEM Single injector per cylinder, low pressure
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN
MAX TORQUE DESIGN
DRIVE TYPE
DIFFERENTIAL Limited slip, 15 Nm Preload, 51% drive - 29% decel interlock value
COOLING Left mounted 30 core long 360mm aluminum radiator , 735 cfm electric fan
BRAKE SYSTEM ISR calipers, 4 self developed rotors with 230 mm rear/220 mm diameter, adjustable brake balance
ELECTRONICS

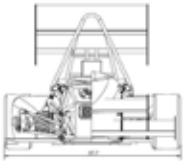
POMONA

California State Polytechnic University, Pomona

Car 245 **Pit 109** **WRL 71** **United States**

Cal Poly Pomona Formula SAE is proud to show its 2016 Formula SAE vehicle. With an incremental improvement other the previous car the team is looking for the podium. The major additions to the new vehicle include an electronic throttle body, LCD display on the dash, and an electronically actuated shifting system. An increase in downforce and a reduction in weight should allow the 2016 car to be Cal Poly Pomona's most competitive car yet.





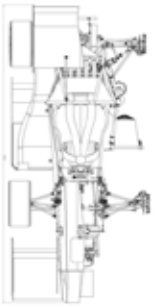
FRAME CONSTRUCTION Steel Space Frame
MATERIAL 4130 Chromoly
OVERALL L / W / H (mm) 2950 / 1480 / 1150
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1550 / 1250 / 1220
WEIGHT WITH 68kg DRIVER (Fr / Rr) 122 / 150
SUSPENSION Double Unequal Length A-Arm, Pushrod
TYRES (Fr / Rr) 18 x 7.5 x 10, R25B Hoosier
WHEELS (Fr / Rr) 18 x 7.5 x 10, R25B Hoosier
ENGINE Modified YZF-R6
BORE / STROKE / CYLINDERS / DISPLACEMENT 67.0mm / 42.5mm / 4 cylinders / 599cc
COMPRESSION RATIO 13:1
FUEL SYSTEM 2004 Suzuki SV650 SK3 Fuel Injectors, Walboro Cannondale GSL414
FUEL E85
MAX POWER DESIGN 9000
MAX TORQUE DESIGN 7000
DRIVE TYPE Direct Chain and Sprocket Drive
DIFFERENTIAL Drexler
COOLING Right side mounted single core 30.5cm x 30.5cm, 755 cfm fan mounted on rear
BRAKE SYSTEM 4-Disk 1018 Steel Floating system
ELECTRONICS AEM Infinity-8 ECU, Electronic Shifting, CAN-bus data logging with IPEtronic IPEhub 2 data logger

POZNAŃ

Poznan University of Technology

Car 302 **Pit 107** **WRL 160** **Poland**

Wilda is second car built by PUT Motorsport. We've gained lots of experience in our first year and now we know what it takes to be the top team. We took our first big step towards that level. We've improved our engine characteristics, vehicle dynamics and introduced aerodynamics package, while reducing the total weight by 20%. This year, we want to significantly improve our performance, continue our tradition to score in every single event, have fun and learn a lot!



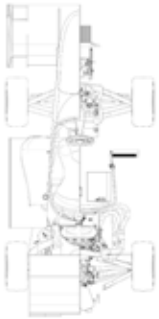
FRAME CONSTRUCTION Hybrid - front tub made of sandwich panels, rear tubular space frame
MATERIAL Front - 7075-T6 Al + Alu core + Textreme CF, Rear - 4130 steel round tubing
OVERALL L / W / H (mm) 2860 / 1375 / 1200
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1160 / 1150
WEIGHT WITH 68kg DRIVER (Fr / Rr) 128 / 145
SUSPENSION Double unequal length A-Arm. Push/pull rod actuated spring and 4-way adjustable damper.
TYRES (Fr / Rr) Hoosier 18.0 x 7.5-10 R25B / Hoosier 18.0 x 7.5-10 R25B
WHEELS (Fr / Rr) 7.0x10, 62mm offset, 3 pc Al Rim / 7.0x10, 37mm offset, 3 pc Al Rim
ENGINE Honda CBR 600RR PC40
BORE / STROKE / CYLINDERS / DISPLACEMENT 67mm / 42.5mm / 4 cylinders / 599cc
COMPRESSION RATIO 13:1
FUEL SYSTEM Student built, in-tank fuel pump, multi point injection
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN 10400
MAX TORQUE DESIGN 8900
DRIVE TYPE 520 chain
DIFFERENTIAL LSD differential, 30-35Nm preload
COOLING Custom made double-pass radiator, electric water pump, radiator in left sidepod
BRAKE SYSTEM 4-Disk system, self-designed rotors with 204mm and 170mm diameter, adjustable brake balance
ELECTRONICS Traction control, Half-Automatic electric gear shifter, Custom built data logger

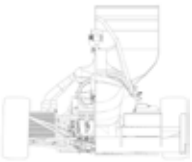
REGENSBURG

Ostbayerische Technische Hochschule Regensburg

Car 262 **Pit 76** **WRL 168** **Germany**

The Dynamics e.V. was founded in 2006 and is now competing in the Formula Student Germany Event for the 9th time. Goal for the season of 2016 is to reach the Top 14 at FSG to become one of the German top teams. With a highly motivated and strong team and a reliable concept of our combustion race car RP16c we are able to meet our target. The last season was not the best one, but we've learned a lot and we will not repeat mistakes, which were made.





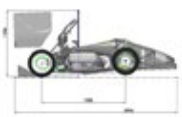
FRAME CONSTRUCTION Full CFRP monocoque, separated front monocoque and engine carrier
MATERIAL CFRP: twill prepreg and UD prepreg; shaped Rohacell core
OVERALL L / W / H (mm) 2985 / 1420 / 1185
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1575 / 1200 / 1200
WEIGHT WITH 68kg DRIVER (Fr / Rr) 124 / 133
SUSPENSION Double unequal length A-Arms with pushrod actuated horizontal oriented damper, ARB
TYRES (Fr / Rr) Continental,C16 205 / 470 R13
WHEELS (Fr / Rr) 7.5x13
ENGINE Honda CBR600RR PC37
BORE / STROKE / CYLINDERS / DISPLACEMENT 67.5mm / 42.5mm / 4 cylinders / 608cc
COMPRESSION RATIO 13.5:1
FUEL SYSTEM CFRP fuel tank with pressure controlled electric pump; intake-manifold fuel injection
FUEL 98 octane unleaded
MAX POWER DESIGN 10500
MAX TORQUE DESIGN 9000
DRIVE TYPE carbon fiber reinforced belt drive
DIFFERENTIAL self designed semiactive limited slip, quick adjustment
COOLING two sidepod mounted radiators with PWM controlled waterpump and fan
BRAKE SYSTEM front:Beringer MC 12.7x22, 4x RQ3 (CP4226) AP Racing rear:Tilton 77-625,2x RQ3(CP4226) AP Racing
ELECTRONICS self developed MainControllUnit for Cooling, Switching, Logging and Livetelemetry

ROMA

University of Rome Tor Vergata

Car 227 **Pit 116** **WRL 260** **Italy**

The Scuderia Tor Vergata is close to its fourth consecutive season inside the Formula Student competitions. The 2016 STV's team is competing at Formula Student Italy and Germany. The experience gained during previous years has resulted to be very useful in designing the new vehicle. The last prototype realized (STV3.0) and the results obtained in the last season have given the team the belief of being on the rigth track.



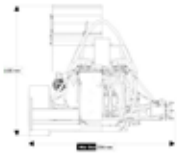
FRAME CONSTRUCTION tubular spaceframe
MATERIAL AISI 4130
OVERALL L / W / H (mm) 2956 / 1395 / 1196
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1200 / 1175
WEIGHT WITH 68kg DRIVER (Fr / Rr) 141 / 147
SUSPENSION Double unequal length A-Arm. Push rod actuated (front) and Pull rod (rear), adjustable dampers
TYRES (Fr / Rr) 13.0 , 7.2x20 , A92 Avon
WHEELS (Fr / Rr) 7.0x13, et30 mm offset, OZ magnesium alloy
ENGINE Honda CBR 600 RR
BORE / STROKE / CYLINDERS / DISPLACEMENT 67mm / 42.5mm / 4 cylinders / 599cc
COMPRESSION RATIO 12.8:1
FUEL SYSTEM Full sequential injection, 4 Denso injectors, external Bosh fuel pump and pressure regulator
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN 10000
MAX TORQUE DESIGN 8500
DRIVE TYPE 520 chain
DIFFERENTIAL Drexler LSD Sailsbury type with preload=25-30N
COOLING left sidepod mounted 30mm core radiator, cfm fan mounted to radiator output
BRAKE SYSTEM Brembo machined Al calipers with self developed 220mm rotors and adj. brake balance via balance bar
ELECTRONICS selfdeveloped software and hardware for electropneumatic shifter, wiring harness sealed to IP67

SAN SEBASTIÁN

TECNUN - University of Navarra

Car 321 **Pit 108** **WRL 301** **Spain**

The main goal of the race car's design is to maximize the overall score in Formula Student competitions. Different concepts are analyzed by lap-time simulation, calculation, testing and data analysis. Lightweight and high aerodynamic downforce and efficiency become a priority as well as power to weight ratio. This concept enhances superior lateral acceleration thanks to aerodynamic downforce.



FRAME CONSTRUCTION Tubular space frame with CFRP sandwich reinforcements
MATERIAL 4130 steel
OVERALL L / W / H (mm) 2955 / 1394 / 1195
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1580 / 1200 / 1180
WEIGHT WITH 68kg DRIVER (Fr / Rr) 138 / 150
SUSPENSION Double unequal length, non parallel A-arm. Push rod actuated spring and Damper. ARB
TYRES (Fr / Rr) 18.0x6.0-10 Hoosier R25B / 18.0x6.0-10 Hoosier R25B
WHEELS (Fr / Rr) 7,25"x18", 40mm offset, 2 pc Al rim / 7,25"x18", 40mm offset, 2 pc Al rim
ENGINE 2007 Suzuki GSX-R 600 4 cylinder
BORE / STROKE / CYLINDERS / DISPLACEMENT 67.0mm / 42.5mm / 4 cylinders / 599cc
COMPRESSION RATIO 12.5:1
FUEL SYSTEM Stock GSX-R injectors and fuel rail
FUEL 95 octane unleaded gasoline
MAX POWER DESIGN 11000
MAX TORQUE DESIGN 8500
DRIVE TYPE Chain (520)
DIFFERENTIAL Salisbury type Limited Slip Differential. Adjustable bias ratio, 30Nm preload
COOLING One side mounted radiator with front and rear nozzle, thermostatic controlled fan
BRAKE SYSTEM 4 floating disk system, hub mounted, 185 OD, 96,75 ID, vented.
ELECTRONICS Upshift cut-off, clutch-assisted downshift, DRS, CAN communication,

SCHWEINFURT

University of Applied Sciences Würzburg-Schweinfurt

Car 297 **Pit 112** **WRL 90** **Germany**

Mainfranken Racing e.V. was founded in 2006 out of the idea of some motor sport enthusiastic students. Actually our team consits of 45 motivated students building the ninth Formula Student racecar, the MF9. Our main goal is to implement the 10'' concept. This year we are looking forward to celebrating our tenth anniversary. Furthermore we are happy to participate at Formula Student Germany and Spain and having a good time with the other Formula Student Teams.

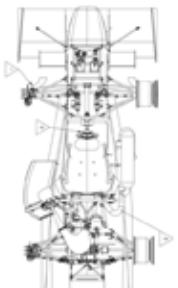
FRAME CONSTRUCTION Tubular steel space frame
MATERIAL E355, round tubing
OVERALL L / W / H (mm) 3030 / 1420 / 1200
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1540 / 1170 / 1170
WEIGHT WITH 68kg DRIVER (Fr / Rr) 137 / 143
SUSPENSION Double unequal length A-Arm, front/rear: push rod
TYRES (Fr / Rr) Hoosier 18x6.0 -10 R25B
WHEELS (Fr / Rr) Kaizer Wheels R10
ENGINE Modified Yamaha R6 rj05
BORE / STROKE / CYLINDERS / DISPLACEMENT 65.5mm / 44.5mm / 4 cylinders / 599cc
COMPRESSION RATIO 13,4:1
FUEL SYSTEM Bosch injection valves and ignition coils, dual stage sequential injection
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN 12500
MAX TORQUE DESIGN 8800
DRIVE TYPE Original transmission (Gears: N-1-2-3-4)
DIFFERENTIAL Limited slip differential (Formula Student Differential from Drexler)
COOLING self developed radiator in left side pod with 165mm electric fan
BRAKE SYSTEM 4-Disk system, floating self developed brake rotors, front: 4pistons, rear: 2pistons
ELECTRONICS electrified shifting, multifunctional steering wheel, datalogger, self design life telemetrie

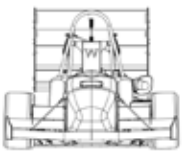
SEATTLE

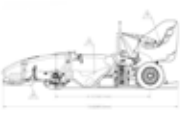
University of Washington

Car 269 **Pit 79** **WRL 99** **United States**

For the 2016 competition season the UWashington Formula Motorsports team has created one of the lightest, fastest, and most capable cars in our 27 year history. Featuring an all new chassis and aero package, we hope to regain our place near the top of the world rankings this year. We are proud to represent the United States at both FSC and FSE for the first time. We would like to thank our university, friends, family, sponsors, and most of all, our country, for making this year a possibility.







FRAME CONSTRUCTION Full carbon fiber/aluminum honeycomb monocoque
MATERIAL Toray T700S/T700G PW/UD (2510 resin), CYTEC FM73 adhesive, PLASCORE al. honeycomb
OVERALL L / W / H (mm) 2870 / 1422 / 1118
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1562 / 1219 / 1143
WEIGHT WITH 68kg DRIVER (Fr / Rr) 91 / 104
SUSPENSION Double unequal length A-Arm, pull/push rod actuated
TYRES (Fr / Rr) 6.0/18.0-10 Hoosier LC0
WHEELS (Fr / Rr) 7.4x10 CFRP wheel shell, 6061 al center
ENGINE 2014 Yamaha YFZ-450R, bored to 527.3cc
BORE / STROKE / CYLINDERS / DISPLACEMENT 99mm / 68.5mm / 1 cylinders / 527cc
COMPRESSION RATIO 13.5:1
FUEL SYSTEM Student developed algorithm, Siemens Deka VII Injector (2-4 cone elliptical)
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN 8200
MAX TORQUE DESIGN 6000
DRIVE TYPE 520 chain drive, stock 5 speed gearbox
DIFFERENTIAL Drexler Salisbury LSD, active differential modification, variable bias ratio
COOLING Side Mounted CBR Radiator
BRAKE SYSTEM Student developed 191mm/178mm rotors, Brembo P2.34 front/AP CP4226 Rear Calipers
ELECTRONICS Wiring harness sealed to IP69, wireless telemetry, AEM Infinity 10 ECU w/ Enginelab firmware

SEVILLA

University of Seville

Car 261 **Pit 103** **WRL 336** **Spain**

We are ARUS Andalucía Racing, from the University of Seville. Our team was founded in 2013. This is our fourth year taking part in Formula Student competitions, and the third season we participate with our own car. In this competition we present the third car from Seville, the ART-16. It gathers the experience from our last two cars and it is the result of exploiting our resources without compromising the manufacturing viability.

FRAME CONSTRUCTION Tubular steel spaceframe with side carbon fiber reinforcement
MATERIAL Steel, carbon fibre prepreg and honeycomb
OVERALL L / W / H (mm) 2914 / 1431 / 1184
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1535 / 1250 / 1250
WEIGHT WITH 68kg DRIVER (Fr / Rr) 135 / 152
SUSPENSION Front pull-rod, rear push-rod. Horizontally oriented spring and damper. U-bar ARB
TYRES (Fr / Rr) Hoosier
WHEELS (Fr / Rr) Hoosier
ENGINE 2006 Honda CBR600RR
BORE / STROKE / CYLINDERS / DISPLACEMENT 67.0mm / 42.5mm / 4 cylinders / 599cc
COMPRESSION RATIO 12.8:1
FUEL SYSTEM Fully secuentional electronic programmed fuel system
FUEL 98 octane gasoline
MAX POWER DESIGN 10000
MAX TORQUE DESIGN 7500
DRIVE TYPE 520 Chain drive
DIFFERENTIAL Drexler LSD V2
COOLING Aluminium radiator on left side, electric fan integrated in nozzle of cooling duct
BRAKE SYSTEM 2 independent fluid circuits, rear brake discs at hubs.
ELECTRONICS Multifuntional steering wheel, custom biult data logger and no alternator

SHIYAN

Hubei University of Automotive Technology

Car 222 **Pit 84** **WRL 128** **China**

Dongfeng HUAT Racing Team has won the national championship in 2012 and 2015 Formula Student of China.Internationally , Dongfeng HUAT Racing Team has refreshed Chinese racing teams best records in the tournament in 2013 Formula Student of Germany and the 2014 Formula Student of Japan. Since Dongfeng HUAT Racing Team was established in 2011, Dongfeng Trucks has provided great supports on the funds, techniques, management, communications, etc.

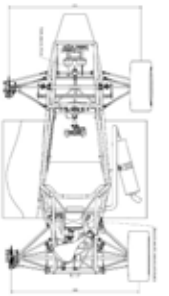
FRAME CONSTRUCTION Tubular steel space frame
MATERIAL 4130 seamless steel
OVERALL L / W / H (mm) 2980 / 1425 / 1180
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1540 / 1180 / 1150
WEIGHT WITH 68kg DRIVER (Fr / Rr) 143 / 154
SUSPENSION Double unequal length A-Arm.Push (Fr) / Push (Rr) rod actuated horizontally oriented spring and damper
TYRES (Fr / Rr) 180x75 R10, Hoosier R25B
WHEELS (Fr / Rr) 8.0x10,25.4mm offset, 3 pc Al Rim
ENGINE Honda CBR600RR
BORE / STROKE / CYLINDERS / DISPLACEMENT 67.0mm / 42.5mm / 4 cylinders / 599cc
COMPRESSION RATIO 12.2:1
FUEL SYSTEM The injector, pump, fuel rail are from the original car, student built fuel tank, sequential injection
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN 12500
MAX TORQUE DESIGN 10500
DRIVE TYPE Chain drive
DIFFERENTIAL Clutch pack limited slip, Drexler
COOLING Twin side pod mounted radiators with thermostatic controlled electric fans
BRAKE SYSTEM 4-Disk system, self developed rotors with 193mm front, 173 rear diameter.
ELECTRONICS wiring harness, MoTeC M84 control unit,- selfdesigned electronic instrument

STRALSUND

University of Applied Sciences Stralsund

Car 218 **Pit 111** **WRL 252** **Germany**

In 1999, Baltic Racing was founded as the first German racing team. Meanwhile, it has become the largest and most representative project at our university. The “TY16”, Stralsund‘s 16th race car, will start at this year’s FS Germany and FS Hungary. The knowledge and experience of many FS years are reflected in this car. The challenge for 2016 was to fix the problems of last year‘s car and to reduce weight even more. Baltic Racing - Engineered for success.



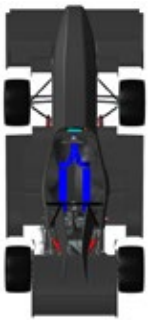
FRAME CONSTRUCTION tubular space frame
MATERIAL 25CrMo4
OVERALL L / W / H (mm) 2530 / 1450 / 1010
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1580 / 1250 / 1200
WEIGHT WITH 68kg DRIVER (Fr / Rr) 118 / 120
SUSPENSION Double unequal length nonparallel A-Arm. Pull rod actuated front and rear
TYRES (Fr / Rr) Continental, 205 / 470 R13 C16
WHEELS (Fr / Rr) 7x13, 22mm offset, OZ AlSi machined
ENGINE Borossi BT 450 MX 1 cylinder
BORE / STROKE / CYLINDERS / DISPLACEMENT 96mm / 62.1mm / 1 cylinders / 450cc
COMPRESSION RATIO 11:1
FUEL SYSTEM selfdesigned fuel injection system using EcuMaster ECU, full sequential
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN 8500
MAX TORQUE DESIGN 6000
DRIVE TYPE Chain #520 MAD6
DIFFERENTIAL torque biasing Torsen B (Quaife), selfmade 7075 T6 hard-anodized housing
COOLING aluminium radiator on left side; electric fan integr. in nozzle of cooling duct
BRAKE SYSTEM 4 disc system; self developed rotors 200mm rotors; ISR brake calipers, APRacing Master Cylinders
ELECTRONICS electrical shift and clutch system, Multifunctional Steering Wheel, ARB adjustable via servo

STUTTGART

University of Stuttgart

Car 202 **Pit 42** **WRL 7** **Germany**

The know-how of 11 years Rennteam Uni Stuttgart comes together with innovative ideas in the car's development. As flexibility plays a big role for us, we have built a chassis that consists of a CFRP-monocoque and a steeltube-rearframe to ease maintenance on engine- and drivetrain parts. To keep the innovative engineering solutions up to date, we have improved our aerodynamic package and our heave spring which together assure lightweight and increase vehicle dynamics.Complete Finish Win!



FRAME CONSTRUCTION Singlepiece Monocoque with tubular rearframe
MATERIAL CFRP Sandwich Monocoque, steel rearframe
OVERALL L / W / H (mm) 3050 / 1370 / 1200
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1630 / 1140 / 1120
WEIGHT WITH 68kg DRIVER (Fr / Rr) 125 / 128
SUSPENSION Double unequal length A-Arm. Heave-Spring system front and rear
TYRES (Fr / Rr) 10x7.5 - 18 R25B Hoosier
WHEELS (Fr / Rr) 10x7.5 - 18 R25B Hoosier
ENGINE Modified Yamaha YZF-R6
BORE / STROKE / CYLINDERS / DISPLACEMENT 65,5mm / 44,5mm / 4 cylinders / 599cc
COMPRESSION RATIO 14,2:1
FUEL SYSTEM student build fuel injection system using MoTec, fully sequential
FUEL E85
MAX POWER DESIGN 9500
MAX TORQUE DESIGN 7500
DRIVE TYPE Sequential 4-speed gearbox, chain drive
DIFFERENTIAL Drexler LSD
COOLING side mounted core dual radiator, 1200 cfm fan mounted to back of each radiator
BRAKE SYSTEM 4-Disk system, adjustable brake balance, self designed rotors
ELECTRONICS wiring harness, single connector to rearframe, digital multifunctional Steering Wheel

TAMPERE

University of Applied Sciences Tampere

Car 278 **Pit 120** **WRL 233** **Finland**

Tampere UAS Motorsport is founded 2008 in Tampere University of Applied Sciences in Tampere, Finland. Since then we have competed around Europe in various Formula Student events and with widely various casts. This year we experimented with cast magnesium parts and hybrid monocoque structure with carbon fiber sandwich structures over tubular steel frame. With the extensive support from our sponsors we have been able to come this far, we wish to send massive thanks to them!

FRAME CONSTRUCTION Tubular steel frame with carbon fiber sandwich panels
MATERIAL Ruukki Form 600 Steel
OVERALL L / W / H (mm) 2815 / 1495 / 1165
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1555 / 1228 / 1230
WEIGHT WITH 68kg DRIVER (Fr / Rr) 117 / 142
SUSPENSION Double unequal length A-arms. Springs, shocks & anti-roll bars actuated by pushrods with bellcranks
TYRES (Fr / Rr) 18x7.5-10 R25B Hoosier
WHEELS (Fr / Rr) 7.5x10, 3 pc Al Rim
ENGINE Aprilia RXV 550
BORE / STROKE / CYLINDERS / DISPLACEMENT 80mm / 55mm / 2 cylinders / 553cc
COMPRESSION RATIO 13,5:1
FUEL SYSTEM EFI, MSD 2225 170lph fuel pump, 2x bosch 190cc injectors, sequential injection, Tatech engine contro
FUEL E85 ethanol
MAX POWER DESIGN 8500
MAX TORQUE DESIGN 7500
DRIVE TYPE 5 gear gearbox + chain final drive
DIFFERENTIAL Drexler fsae LSD diff. Adjustable slip with 3 ramp set-ups, 10Nm preload
COOLING Side mounted 2,8L core aluminium radiator, 600 cfm fan mounted to backside of the radiator
BRAKE SYSTEM 4-Disk system, 188mm and 165 diameter rotors, adjust. balance, AP Racing cylinders & ISR calibers
ELECTRONICS Wiring harness sealed to IP67, Multifunctional Steering Wheel, Electropneumatic Shifting System

THESSALONIKI

Aristotle University of Thessaloniki

Car 312 **Pit 56** **WRL 36** **Greece**

Aristotle Racing Team(ART) celebrates its 10th anniversary with the manufacture of ART16, the 5th car of the team. The team consists of 33 members from the Aristotle University of Thessaloniki. ART16 is going to participate in three FSAE races, FSAEI, FSG and FSH 2016 events, and hopes to repeat past achievements. Basic changes of the new racecar are the wide use of carbon for weight reduction and the use of full aerodynamic package for better grip.

FRAME CONSTRUCTION Monocoque front with tubular steel space frame rear
MATERIAL Prepreg Carbon Fiber/Aluminum Honeycomb/ Carbon And Aluminum inserts
OVERALL L / W / H (mm) 3032 / 1400 / 1192
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1535 / 1170 / 1140
WEIGHT WITH 68kg DRIVER (Fr / Rr) 136 / 143
SUSPENSION Double unequal length A-Arm. Push rod actuated horizontally oriented spring and damper
TYRES (Fr / Rr) Hoosier 20.5x7.0-13 R25B/ Hoosier 20.5x7.0-13 R25B
WHEELS (Fr / Rr) 7.0x13-32mm offset-1 pc Mg OZ Racing Rim/ 7.0x13-32mm offset-1 pc Mg OZ Racing Rim
ENGINE Honda CBR 600RR PC-40
BORE / STROKE / CYLINDERS / DISPLACEMENT 67mm / 42.5mm / 4 cylinders / 599cc
COMPRESSION RATIO 12.2:1
FUEL SYSTEM Student design/build
FUEL Gasoline
MAX POWER DESIGN 11500
MAX TORQUE DESIGN 8500
DRIVE TYPE Chain 520 X-Ring, 4 speed Gearbox
DIFFERENTIAL Drexler Limited Slip Differential Formula Student 2010
COOLING Side mounted radiator, 37 degrees inclinatio, two electric fans, mounted in shroud, electric pump
BRAKE SYSTEM Fully floating ISR discs, 230mm front, 220mm rear, hub mounted, ISR calipers, AP Racling cylinders
ELECTRONICS Custom built data logger and telemetry system, 2-way team radio.

TORONTO

University of Toronto

Car 339 **Pit 83** **WRL 176** **Canada**

The University of Toronto FSAE team looks to build on their success of the 2015 season. This year the team focused on weight reduction, driver ergonomics and downforce. This year the team features a hybrid carbon-steel chassis with the team's first aerodynamics package. Out team would like our sponsors and supporters for the 2016 season. We look to make you proud in Hockenheim.

FRAME CONSTRUCTION Hybrid steel space frame with integrated carbon-fiber sandwich panels
MATERIAL 1020 DOM Steel, 1" closed cell PVC foam core, student designed carbon laminate schedule
OVERALL L / W / H (mm) 2923 / 1430 / 1184
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1537 / 1226 / 1152
WEIGHT WITH 68kg DRIVER (Fr / Rr) 112 / 130
SUSPENSION Double unequal length A-Arm. Pull rod actuated horizontally oriented spring
TYRES (Fr / Rr) 18 x 6-10 Hoosier R25B
WHEELS (Fr / Rr) 3-Pc., 177mm Wide, Keizer Shells, Custom Center, 20mm Offset
ENGINE Honda TRX 450
BORE / STROKE / CYLINDERS / DISPLACEMENT 96mm / 62mm / 1 cylinders / 450cc
COMPRESSION RATIO 12.5:1
FUEL SYSTEM PE3 ECU System
FUEL 93 Octane
MAX POWER DESIGN 9000
MAX TORQUE DESIGN 6500
DRIVE TYPE 4 Speed Sequential
DIFFERENTIAL Adjustable clutch pack differential, 45 degree accel ramp, 60 degree decel ramp
COOLING 1130 cc side mounted radiator with 200mm fan
BRAKE SYSTEM 4-Disk system, self developed rotors, Adjustable bias bar, Al. machined calipers
ELECTRONICS Student made harness. Battery, fusebox, relays, ECU, datalogger located behind the firewall

ULM

University of Applied Sciences Ulm

Car 244 **Pit 105** **WRL 333** **Germany**

The Einstein Motorsport Team was founded in 2006. The first car built by students from Ulm started at Hockenheim in 2006. The actual car for 2016 is car number ten in the team's history. Starting with the AI'06 (ALbert), every car was a continuous development with adoption of the parts which were proved in former cars. With a new carbon monocoque and a Husaberg single-cylinder engine the AI'16 will be the first car with a ten inch kinematics.

FRAME CONSTRUCTION CFRP Monocoque with horizontal separation
MATERIAL CFRP with Rohacell foam core with variable thicknesses
OVERALL L / W / H (mm) 2916 / 1374 / 1134
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1535 / 1180 / 1140
WEIGHT WITH 68kg DRIVER (Fr / Rr) 120 / 130
SUSPENSION Double unequal length A-Arms. Pull rod actuated vertically diagonal orientated spring and damper
TYRES (Fr / Rr) 18x6 R10, Hossier LC0/ 18x6 R10, Hossier LC0
WHEELS (Fr / Rr) 7x10 Al Rim from Kaizer Wheels
ENGINE 2010 Husaberg FE570
BORE / STROKE / CYLINDERS / DISPLACEMENT 100mm / 72mm / 1 cylinders / 565cc
COMPRESSION RATIO 12.1:1
FUEL SYSTEM Bosch, manifold sequential fuel injection
FUEL unleaded fuel 98 ROZ
MAX POWER DESIGN 7100
MAX TORQUE DESIGN 5900
DRIVE TYPE Chain drive (520 pitch)
DIFFERENTIAL GKN limited slip differential, student built housing, drive TBR 3.88, decel TBR
COOLING Right side mounted aluminium radiator with thermostatic controlled 246mm electric fan
BRAKE SYSTEM 4-Disk system, self-dev. rotors, floater-fix; FRONT: diam 190; 4 piston ; REAR: diam: 180; 2 piston
ELECTRONICS Selfdesigned PDS, Live Telemetry, Electropneumatic Shiftingsystem, Multifunctional Steering System

UXBRIDGE

Brunel University London

Car 250 **Pit 46** **WRL 225** **United Kingdom**

BR-17 is Brunel University's 18th car, built by a team of 20 undergraduate students. After a disappointing season in 2015 we're hoping for a much better 2016! BR-17 is a monocoque/space frame hybrid powered by the ever reliable Yamaha R6 engine. As well as front and rear wings we make extensive use of Bosch electronics. The package is completed by a beautifully designed and machined suspension system.

FRAME CONSTRUCTION Aluminium honeycomb tubular frame hybrid
MATERIAL 6082-T6 Skins, 4130 tubes
OVERALL L / W / H (mm) 3027 / 1406 / 1190
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1200 / 1170
WEIGHT WITH 68kg DRIVER (Fr / Rr) 138 / 150
SUSPENSION Double unequal length A-Arm, Push rod rear, pull rod front
TYRES (Fr / Rr) 18x6.0 R10, Hoosier R25B front and rear
WHEELS (Fr / Rr) 7.0x10, 3 piece, custom centre
ENGINE Modified Yamaha YZF-R6
BORE / STROKE / CYLINDERS / DISPLACEMENT 67mm / 42.5mm / 4 cylinders / 599cc
COMPRESSION RATIO 14:1
FUEL SYSTEM Bosch MS4 ECU, common rail with Bosch EV14 injectors
FUEL 98 octane unleaded petrol
MAX POWER DESIGN 13000
MAX TORQUE DESIGN 8000
DRIVE TYPE 520 Chain and sproket
DIFFERENTIAL Drexler Salisbury plate type
COOLING Side mounted water and oil coolers, electric fan
BRAKE SYSTEM Custom rotors, AP racing calipers, 4 piston front, 2 piston rear
ELECTRONICS OLED display on steering wheel, Bosch C60 data logging, Bosch PBX90 power management

VALÉNCIA

Universitat Politécnica de Valéncia

Car 395 **Pit 48** **WRL 125** **Spain**

As third year team, FSUPV Team faces the 2016 competitions with the aim of demonstrating theresults obtained last season were due to the effort and work done in the previous cars. For that reason, the main goals of the team for this season are: Improve manufacturing processes to guarantee a better assembly and final weight of the car; Monitor all the car parameters possible to have a data-driven decision making process andbetter understanding of the car; Increase testing time.

FRAME CONSTRUCTION Front monocoque / rear tubular space frame
MATERIAL Carbon Fiber prepreg and kevlar honeycomb core and high grade steel round tubing
OVERALL L / W / H (mm) 3025 / 1430 / 1194
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1585 / 1200 / 1170
WEIGHT WITH 68kg DRIVER (Fr / Rr) 122 / 159
SUSPENSION Double unequal lenght A-arm. Push rod actuated horizontally oriented spring and damper
TYRES (Fr / Rr) Hoosier 178 x 58 R13 R25B / Hoosier 178 x 58 R13 R25B
WHEELS (Fr / Rr) 7.0 x 13, 30 mm offset Mg Rim
ENGINE Honda CBR 600 RR (2006)
BORE / STROKE / CYLINDERS / DISPLACEMENT 67mm / 42.5mm / 4 cylinders / 599cc
COMPRESSION RATIO 12:1
FUEL SYSTEM Student des/built, fuel injection
FUEL 95 octane
MAX POWER DESIGN 11500
MAX TORQUE DESIGN 9750
DRIVE TYPE 520 x-ring chain
DIFFERENTIAL Limited slip differential with internal preload adjustment
COOLING Single radiator with thermostatic controlled electric fan (12 inches)
BRAKE SYSTEM 4-Disk system, self developed rotors with 220mm diameter, adjustable brake balance
ELECTRONICS Launch Control, Gear Shift Control System, Electropneumatic Shifting System, Steering wheel display

VELLORE

VIT University - Vellore

Car 254 **Pit 50** **WRL 297** **India**

FRAME CONSTRUCTION Tubular Space Frame AISI 4130 Steel.
MATERIAL AISI 4130 Steel
OVERALL L / W / H (mm) 2017 / 1391 / 1180
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1560 / 1200 / 1150
WEIGHT WITH 68kg DRIVER (Fr / Rr) 135 / 153
SUSPENSION Double unequal length A-Arm. Front:Pull rod actuated coil-over .Rear:Push rod actuated coil-over.
TYRES (Fr / Rr) 18x7.5-10 R25B Hoosier/ 18x7.5-10 R25B Hoosier
WHEELS (Fr / Rr) 7.0x10, 52.86mm offset, 3 pc Al rim/7.0x10, 52.86mm offset, 3 pc Al rim
ENGINE Honda CBR600RR
BORE / STROKE / CYLINDERS / DISPLACEMENT 67.0mm / 42.5mm / 4 cylinders / 599cc
COMPRESSION RATIO 12.2:1
FUEL SYSTEM Denso High Impedence sequential Injectors, Bosch External Electric Fuel Pump.
FUEL RON 98
MAX POWER DESIGN 9700
MAX TORQUE DESIGN 9200
DRIVE TYPE Chain drive, Chain 520, pitch 5/8 inch.
DIFFERENTIAL Drexler FSAE Limited Slip Differential, 30Nm preload.
COOLING Side mounted 30cmx26cm aluminium radiator with temperature driven electric fan
BRAKE SYSTEM 4-Disk system, self developed rotors with diameter 180 front and 170 Rear, adjustable brake balance.
ELECTRONICS Student designed wiring harness, Custom Display on Steering Wheel,Self designed PCB with diagnostics

VOLOS

University of Thessaly

Car 277 **Pit 81** **WRL 217** **Greece**

Centaurus constitutes a team which operates according to the fundamentals of team management. Main priority is to build a team with members that willingly espouse its' goals, as long as team spirit predominates. Our philosophy is that a competitive car can be built without a lot of resources, as long as a solid design process is implemented. All our racecars are named after mythological Centaurs, thus we present our third racecar „Thireus"

FRAME CONSTRUCTION Tubular Spaceframe
MATERIAL 4130 (25CrMo4) , AISI 304/304L
OVERALL L / W / H (mm) 2880 / 1287 / 1174
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1540 / 1105 / 1150
WEIGHT WITH 68kg DRIVER (Fr / Rr) 140 / 157
SUSPENSION Unequal length double wishbones, Pull-rod actuated with ARB.
TYRES (Fr / Rr) 7.0x20.5 R13, Hoosier R25B
WHEELS (Fr / Rr) 7.0x13, ET22, Forged aluminum
ENGINE Honda CBR 600RR
BORE / STROKE / CYLINDERS / DISPLACEMENT 67.2mm / 42.5mm / 4 cylinders / 603cc
COMPRESSION RATIO 13:1
FUEL SYSTEM OEM fuel injection rail, controlled by Megasquirt ECU
FUEL 98 octane unleaded gasoline
MAX POWER DESIGN 10600
MAX TORQUE DESIGN 8900
DRIVE TYPE Chain Driven, 520 Chain
DIFFERENTIAL Adjustable Limited Slip Differential Clutch Style
COOLING 320mmx290mmx35mm al radiator, 1200 cfm thermostatic fan, inside left sidepod
BRAKE SYSTEM 4-Disk system, semi floating rotors, 4 piston caliper front, 2 piston caliper rear, balance 60-40
ELECTRONICS Electropenumatic shifting system, student built circuit boards with Can Bus

WEINGARTEN

University of Applied Sciences Ravensburg-Weingarten

Car 360 **Pit 80** **WRL 86** **Germany**

About 55 students of the UAS Weingarten built the Stinger16 this season. Additional to the main goal, to achieve as many points as possible on a FSAE event, the Formula Student Team Weingarten focused on weight reduction while maintaining security and reliability of the car. To improve the dynamic performance of this year's car and drivers, a symmetric aerodynamic package and a new intake system were developed, supplemented by an adjustable pedalbox and steering system.

FRAME CONSTRUCTION Steel tubular space frame reinforced with CFRP panels
MATERIAL E335; CFRP prepreg
OVERALL L / W / H (mm) 3051 / 1430 / 1190
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1600 / 1200 / 1180
WEIGHT WITH 68kg DRIVER (Fr / Rr) 129 / 134
SUSPENSION Double unequal length A-Arm. Pull rod actuated horizontally oriented spring and damper
TYRES (Fr / Rr) 205x7 R13 Hoosier R25B5x7 R13 Hoosier R25B
WHEELS (Fr / Rr) 7.0x13, 30mm offset, Mg casted Rim / 7.0x13, 30mm offset, Mg casted Rim
ENGINE Modified Honda CBR600RR PC40
BORE / STROKE / CYLINDERS / DISPLACEMENT 67.0mm / 42.5mm / 4 cylinders / 599cc
COMPRESSION RATIO 14.2:1
FUEL SYSTEM double injection sytem one in the runner, one before valve
FUEL 98 octane unleaded gasoline octane unleaded gasoli
MAX POWER DESIGN 11500
MAX TORQUE DESIGN 8500
DRIVE TYPE 4 gear sequential gearbox; chain drive
DIFFERENTIAL Drexler LSD
COOLING symmetrical sidepod mounted radiators
BRAKE SYSTEM 4 disc system self developed rotors with ISR calipers; 4 piston front / 2 piston rear
ELECTRONICS active ARB system; active intake manifold; selfd. display; selfd. cooling control unit

WIESBADEN

University of Applied Sciences RheinMain

Car 265 **Pit 66** **Germany**

The Scuderia Mensa Racing Team is proud to present their ninth Formula Student car, SPR16. Our team consists of 40 students from various courses of studies. Last year we took part at the Formula Student Events in Hockenheim, Barcelona and Most. This year we will start at the same events. SPR16 is a crucial change in our powertrain system. After several years at FSE we are back at FSC!

FRAME CONSTRUCTION Steel Spaceframe
MATERIAL S235JR G2 and E355 steel round tubing
OVERALL L / W / H (mm) 2910 / 1425 / 1175
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1575 / 1220 / 1180
WEIGHT WITH 68kg DRIVER (Fr / Rr) 118 / 176
SUSPENSION Double unequal length A-Arm. Push rod actuated vertically oriented spring and damper
TYRES (Fr / Rr) 20.5x7.0-13 R25B C2500 Hoosier
WHEELS (Fr / Rr) 20.5x7.0-13 R25B C2500 Hoosier
ENGINE Suzuki GSX-R 600 K3
BORE / STROKE / CYLINDERS / DISPLACEMENT 67mm / 42.5mm / 4 cylinders / 599cc
COMPRESSION RATIO 12.9:1
FUEL SYSTEM Intake-manifold fuel injection, full sequential
FUEL 100 octane unleaded gasoline
MAX POWER DESIGN 12500
MAX TORQUE DESIGN 7500
DRIVE TYPE Chain drive (D.I.D. 520 ert2)
DIFFERENTIAL Drexler Formula Student Differential
COOLING Single radiator, controlled by engine ecu
BRAKE SYSTEM 4-Disk system, self-developed rotors with 220mm diameter, adjustable brake balance, BREMBO calipers
ELECTRONICS Self-developed data logging and Telemetry, electronic shifting control, self-developed HMI

WROCŁAW

Wrocław University of Technology

Car 307 **Pit 53** **WRL 152** **Poland**

PWR Racing Team was founded in 2008, since that we designed and built five class 1 cars. In 2014 we set goal to build the simple and reliable car: solid base for future vehicle. With this car we managed to reach 9th place overall in FSAE Michigan and Formula Student UK 2015 and 10th in Formula Student Germany. This year we designed first aerodynamic package and CFRP monocoque. We worked many days and nights designing, building and testing our vehicle, enjoying every second spent together.

FRAME CONSTRUCTION Hybrid construction, CFRP monocoque as driver cell, steel space frame as engine cage
MATERIAL CFRP monocoque, Aluminum Honeycomb, 4130 Chrome-molly steel
OVERALL L / W / H (mm) 2830 / 1478 / 1170
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1550 / 1230 / 1230
WEIGHT WITH 68kg DRIVER (Fr / Rr) 124 / 139
SUSPENSION SLA type, pushrod actuated, adjustable U-bar, 3-way adjustable dampers, coil springs
TYRES (Fr / Rr) Hoosier 18.0x7.5-10 R25B
WHEELS (Fr / Rr) Hoosier 18.0x7.5-10 R25B
ENGINE Honda CBR600RR (PC40)
BORE / STROKE / CYLINDERS / DISPLACEMENT 67mm / 42,5mm / 4 cylinders / 599cc
COMPRESSION RATIO 12,2
FUEL SYSTEM Denso
FUEL RON98
MAX POWER DESIGN 11000
MAX TORQUE DESIGN 10000
DRIVE TYPE 520 chain, 3 gear gearbox
DIFFERENTIAL Drexler LSD, 60% lock
COOLING left side mounted core aluminium radiator, 802 cfm fan mounted to fan shroud
BRAKE SYSTEM Aluminum AP Racing Pistons, 4-Disk Systems, steel rotors
ELECTRONICS Multifunctional Steering Wheel, Electropneumatic Shifting System, Data-logging

ZAGREB

University of Zagreb

Car 324 **Pit 106** **WRL 131** **Croatia**

This is our fifth car and second participation on the FSG event. After a great 10th place in UK 2014 we have designed a completely new car with several interesting technical solutions new-to formula student world. Based on the experience on our previous 4 vehicles the components were optimized and designed to achieve our aimed weight and performance. We are looking forward to this competition and we're hoping to have a great time both on and off track!!

FRAME CONSTRUCTION space frame tubular chassis
MATERIAL 25CrMo4 steel round tubing
OVERALL L / W / H (mm) 3005 / 1536 / 1180
WHEELBASE (mm) / TRACK (Fr / Rr) (mm) 1530 / 1300 / 1250
WEIGHT WITH 68kg DRIVER (Fr / Rr) 155 / 103
SUSPENSION Double wishbone, unequal lenght A-Arm. Direct acting damper. Composite leaf spring.
TYRES (Fr / Rr) 18x7.5-10, R25B, Hoosier
WHEELS (Fr / Rr) 7,0x10 3pc AL
ENGINE Modified Husqvarna TE610
BORE / STROKE / CYLINDERS / DISPLACEMENT 98mm / 76.4mm / 1 cylinders / 575cc
COMPRESSION RATIO 13:1
FUEL SYSTEM VEMS system with a wasted spark
FUEL E85
MAX POWER DESIGN 6000
MAX TORQUE DESIGN 4500
DRIVE TYPE gear drive transmission case
DIFFERENTIAL ZF limited slip differential
COOLING undertray mounted radiator double electric fan
BRAKE SYSTEM self developed 4-disk system 180mm, AP racing calipers
ELECTRONICS

Live Timing at FSG
Die Live Zeitnahme bei der FSG

During the dynamic events a website for the FSG live timing will be available online.

On **http://tk.formulastudent.de** you will continuously find the latest lap times, of the teams on track at that specific moment in time. The personal best of the teams will be shown in green. An overall best time in the respective class (FSC or FSE) will be displayed in pink.

To stay informed, the overall best lap times will always be shown, regardless of the level of lap times achieved at the time.

Während der dynamischen Events wird im Internet eine Webseite fürs Live Timing verfügbar sein.

Unter **http://tk.formulastudent.de** erfährt man immer die neuesten Rundenzeiten, die von den Teams zum jeweiligen Zeitpunkt gefahren werden. Dabei wird die persönliche Bestzeit eines Teams in grüner Farbe markiert. Eine neu gefahrene absolute Bestzeit in der jeweiligen Fahrzeugklasse (FSC oder FSE) wird in Pink dargestellt.

Um den Überblick behalten zu können, werden die absoluten Bestzeiten immer dargestellt, unabhängig von den aktuell gefahrenen Zeiten.

In addition, the latest lap times will be available online on **http://tk.formulastudent.de.**

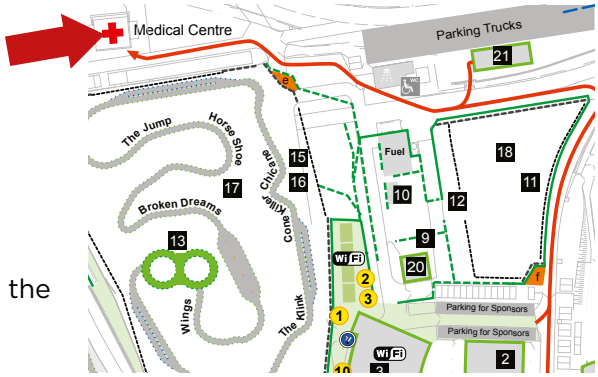
Zusätzlich sind die aktuellen Rundenzeiten unter **http://tk.formulastudent.de** verfügbar.

In 2016, several displays are again available on the dynamics area. Auch in 2016 wird es wieder mehrere Displays bei den dynamischen Disziplinen geben.

EMERGENCY INFORMATION

Minor Injury

Medical Centre:
Please accompany the injured person to the Medical Centre.
Emergency aid is provided there.
The Medical Centre is occupied each day round-the-clock.



Severe Injury

Contact someone with a two-way radio:
Every Official and Security has two-way radio. Ask them to call the Medical Centre or an ambulance on channel 11.

Call an ambulance:
Call an ambulance yourself if someone is severely injured and needs urgent help. The Emergency Number for every phone and mobile phone is **112**.

During dynamics:
On Saturday and Sunday an ambulance is on site during the dynamic events. To contact them ask someone with a two-way radio (Official, Security) to call them.

Hospital:
Main Hospital, Kreiskrankenhaus (Schwetzingen), Bodelschwinghstrasse 10, 68723 Schwetzingen
phone: +49 (0) 6202/84-30

Emergency Numbers

In case of an emergency beyond competition times call 112. This number works with each phone, also with mobile phone or coin-operated telephone as international GSM-standard. It is alway free of charge.

112

Officials

Pit Marshal - Konrad Paule	+49 (151) 560 747 00
Pit Marshal - Sebastian Seewaldt	+49 (151) 560 747 01
Event Control - Daniel Ahrens	+49 (151) 560 747 02
Back Office - Sven Grundner	+49 (151) 560 747 03

(In case of an emergency please call one of them, no matter what time it is.)

Emergency Call Contents

The emergency control centre will ask you some questions to ensure proper help for you. To support you at your call, here are some standard questions and some hints for your answers in English and German.

Who is calling? (Wer ruft an?)
Say your name and your telephone number for callbacks. Digits in German: 0 (null), 1 (eins), 2 (zwei), 3 (drei), 4 (vier), 5 (fünf), 6 (sechs), 7 (sieben), 8 (acht), 9 (neun)

Where did it happen? (Wo ist es passiert?/Wo ist es geschehen?)
the event site has the adress "Hockenheimring, Sachshaus, Am Motodrom", make it more precise!:
pit lane (Boxengasse), dynamic area (Fahrerlager);
the adress for campsite C2 near the Motodrom Hotel "Hockenheimring, Zeltplatz C2 beim Motodrom Hotel"
and for campsite C3 on the other site of the highway "Hockenheimring, Zeltplatz C3 an der Continental Straße"

What happened? (Was ist passiert?/Was ist geschehen?)
accident (Unfall), traffic accident (Verkehrsunfall), fire (Feuer), fall (Sturz), explosion (Explosion)

How many people are affected? (Wie viele Personen sind betroffen?)
1 (eins), 2 (zwei), 3 (drei), 4 (vier), 5 (fünf), 6 (sechs), 7 (sieben), 8 (acht), 9 (neun), 10 (zehn)

What kind of injury has happened? (Welche Verletzung liegt vor?)
fracture (Knochenbruch), bleeding (Blutung), unconsciousness (Bewusstlosigkeit), burn (Verbrennung), electric shock (Stromschlag), suffocation (Ersticken), heart attack (Herzinfarkt), shock (Schock)

Don't hang up after answering these questions! Wait to hear if the control centre has further questions!

WHERE

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FORMULA STUDENT GERMANY 2016

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