FACT SHEET XXL

FORMULA STUDENT GERMANY

JULY 28–AUGUST 2, 2015

SCHAEFFLER

ENGINEERS OF TOMORROW

The student teams supported by Schaeffler compete with their race car prototypes in Formula Student Germany at the Hockenheimring

EDITORIAL

Dear students,

Innovation prowess, determination, courage: Motorsports make high demands on the skills and traits of everyone involved in them. The fascination exuded by racing – from the heart pounding just before the start to the thrill on the finish straight – is equally great. Turn to page 4 to start reading about how DTM driver Mike Rockenfeller handles his routines in this emotionally charged atmosphere.

Fascination and passion also motivate the young constructors in Formula Student to deliver new top performances every year. Schaeffler has been supporting teams from across Germany with know-how and products since 2006. Starting on page 16, members from various team functions will tell you what drives 'our' teams and what is important to them.

Thanks to Formula Student, Schaeffler is in close touch with the type of talent we seek to recruit as employees: international students who enjoy technology and bring solid project experience to their future jobs. On page 26, you can find out what entry-level opportunities Schaeffler offers to the specialists of tomorrow.

The fascination exuded by motorsports is an exhilarating experience. Have a great time with Formula Student 2015 at the Hockenheimring!

Christiane Tietz
HR Communication at Schaeffler

Karin Görl
Employer Branding, Formula Student contact at Schaeffler

CONTENTS

Ready for a break?

With a Recharge Zone in the midst of the racing hustle and bustle of the FSG, Schaeffler offers all teams an opportunity to take a little break. Our booth featuring four zones has something to suit everyone's taste

ENERGY ZONE

Recharge and power up again: tasty cereal bars and fresh water make everyone fit to race for the winners' spots.

CAREER ZONE

For a perfect start to a career: empower yourself with information about internships, final papers and entry-level opportunities at Schaeffler.

RELAX ZONE

Exhausted from racing fever? Not to worry, our massage chairs are the perfect place to relax and recover.

TECH ZONE

Birds of a feather: our technology experts look forward to engaging in tech talk with the fledgling engineers.

SCHAEFFLER BOOTH HIGHLIGHTS

Fri, 31 Jul, 21.00
Award ceremony with presentation of the Schaeffler Award for the best wheel hub motor

Sun, 02 Aug, 15.00
Prize drawing for Schaeffler quiz

Daily at 14.00
Dispensing of fresh fruit

AN OPPORTUNITY NOT TO BE MISSED

Answer the quiz question on the last page and, with a little luck, win two tickets to a Formula E race, including hotel accommodation (travel costs not included).

Racing fever instead of daily classroom grind

Big names from technology and motorsports thrill students at Schaeffler Motorsport Academy

Around 60 students with a keen interest in racing got in touch with experts and pros at the first Motorsport Academy held in Herzogenaurach, from May 18–19, 2015. As part of Formula Student Germany, Schaeffler invited the teams sponsored by the company and transformed the conference center into a mecca of motorsports.

Among the audience listening with keen interest: Rally legend Armin Schwarz, DTM driver Mike Rockenfeller, Porsche racer Timo Bernhard, Formula E youngster Daniel Abt, ABT Sportsline Head of Marketing Harry Unflath (center row, from left), Shareholder Georg F. W. Schaeffler and Jörg Walz, Vice President Communications and Marketing Automotive at Schaeffler (bottom row, from left)

"I showed Mike Rockenfeller our car from last year. The opportunity to explain our designs to a real DTM star – that was a unique experience," Benjamin Lutz, one of the participants, said with shining eyes when he talked about the high-caliber guests Schaeffler had invited to the Motorsport Academy in Herzogenaurach. The 20-year-old is the overall organizational team leader of High-Octane Motorsports e.V., the Formula Student team of Erlangen-Nuremberg University. As such, his aim for the event held on the Schaeffler premises was clear: "I'd like to gather as many new ideas and useful information as possible," he said. Exactly that was what the Motorsport Academy at Schaeffler with its program featuring presentations, discussions and workshops provided to the teams of Formula Student Germany: tips, know-how and perspectives directly from the field.

Several stars and well-known faces from the racing scene brought the fascination exuded by motorsports to the auditorium of the conference center during a panel discussion. Rally racer and Schaeffler brand ambassador Armin Schwarz, 2013 DTM champion Mike Rockenfeller, Porsche factory driver Timo Bernhard and Formula E racer Daniel Abt provided their audience with exciting peeks behind the scenes of professional race teams.

The experts outside the cockpit managed to inspire and surprise the students as well. They included Harry Unflath, Head of Marketing at ABT Sportsline, and Dr. Simon Opel, Assistant to the Chief Technology Officer at Schaeffler. Together, they presented Formula E, the newcomer among motorsports disciplines. "The topic of Formula E fascinated me very much. I didn't realize how interesting this new racing series is and what potential it harbors," Benjamin Lutz said in awe of what he had learned.

FORMULA STUDENT THRILLS

The Motorsport Academy made it clear to the student of mechanical engineering that the entire company is fired up for motorsports: "Interest in motorsports, including Formula Student, is obviously high all the way up to the top – I'd have never thought that." From the Shareholders Maria-Elisabeth Schaeffler-Thumann and Georg F. W. Schaeffler, to Chief Technology Officer Prof. Peter Gutzmer, to Kurt Mirlach, Member of the Executive Board, Human Resources – none of them would miss the opportunity to visit the event and to get in touch with the engineers of tomorrow. Maria-Elisabeth Schaeffler-Thumann put the relevance of 'racing fever' for all functions of the company in a nutshell: "Motor racing

Shareholder Maria-Elisabeth Schaeffler-Thumann (left) took the time to personally welcome the students and race drivers at the Schaeffler conference center. At the end of the event, all the participants posed for a picture in front of the main entrance

FSG participant Benjamin Lutz shows DTM driver Mike Rockenfeller the race car of his team High-Octane Motorsports e. V.

is fascinating and thrills people. At the same time, for Schaeffler it is a perfect platform to continue to develop technologies and to test them. Therefore, particularly our commitment in Formula E makes a contribution to the technological progress of the automobile."

FOCUS ON EXCHANGE

Obviously, the Motorsport Academy was not only about sitting still and listening. The participants were able to engage in active exchanges with the experts and pros, and to establish contacts. In four workshops, for instance, the students looked at various aspects of professional motorsports in small breakout sessions. Benjamin Lutz had selected the topic of marketing and gaining sponsors with Armin Schwarz: "That was a perfect fit for my scope of duties as an organizational team leader. We covered the whole gamut of questions such as effective utilization of social media or the importance of using visuals to build team recognition."

For the Hockenheimring, Lutz now feels better prepared: "The Motorsport Academy has been very beneficial for me and I'm going to try to put the ideas and inspirations from the lectures and workshops into action in the team. The many different insights I gained into motorsports as a working environment were very valuable for me personally as well – I'm taking a lot of great impressions home." ■

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Formula Student Germany is being held for the tenth time in 2015. 2006 was its inaugural season.

Schaeffler employee Christian Marek about hurdles, passion and team spirit in Formula Student Germany

“The competitions were the bee’s knees for us”

From Formula Student to Schaeffler: Christian Marek is a perfect example of how taking on an additional commitment as a student can pay off

The hands are trembling, the pulse is racing, the right foot is nervously twitching toward the gas pedal – the race will start in just a moment. Christian Marek knows exactly how the drivers and their team-mates feel in Formula Student Germany at the Hockenheimring. He used to be one of them.

Today, the 33-year-old engineer in the Innovation Projects department at Schaeffler in Herzogenaurach is working on the mobility concepts of tomorrow. And he is still happy about his involvement in Formula Student in his student days. Marek, at his university for applied sciences in Coburg, Franconia, was a team member of the first hour because Formula Student was not on anyone's lips on the Coburg campus until 2007. Encouraged by a professor, he jump-started Team CAT-Racing together with two classmates, a man and a woman. "We approached the project with a good mix of practical experience, enthusiasm for technology and strong communication skills," says Marek. "This was important because we first had to win over the university and establish a suitable infrastructure."

When facilities, funding and, most importantly, additional team members had finally been organized, the time had come to get down to the nitty-gritty. "We were sitting in front of a blank piece of paper and were supposed to develop a car – that was a huge challenge. At first, we had no idea where to begin," Marek recalls. So it's no wonder that he still benefits from his time as a fledgling constructor today. "Developing a car from scratch opens up deeper insight into vehicle engineering than you could possibly get in the classroom," Marek says. This is one of the particular fortes of Formula Student in his book: "You have an opportunity to learn outside the normal college environment and wind up with a finished product: a car that's functional and that you can drive. That was incredibly motivating for me."

1.300

Students are employed by Schaeffler every year.

ON THE TRAIL OF HAMILTON AND COMPANY

As the team leader in the area of the chassis, Marek's organizational skills were additionally called for in 2009: pulling strings, resolving conflicts, agreeing perspectives. "Formula Student taught me to keep track of things and to effectively coordinate a team. As a side effect, that prepared me for the challenges of a future career."

Aside from all the practical aspects, the successful learning curve and the bonus points on his resume, the unique experiences that Formula Student provided him with are the things that count most for Christian Marek. "Obviously, the competitions were the bee's knees for us: the many wonderful people from around the world, the exciting atmosphere, the team spirit," he recalls. So, it comes as no surprise that looking back on his personal highlight causes him to go into raptures: the moments at Silverstone in the UK when he was at the wheel of his team's race car. "For me as a racing fan, Silverstone is the home of motorsports – and being able to drive on the tarmac that Lewis Hamilton and company normally race on was awesome."

That's why Marek, above all, wishes the teams at the Hockenheimring plenty of fun and unforgettable experiences. But aside from all the harmony, a large dose of thrill is part of it as well: "I hope the students will be fighting some fierce duels. After all, Formula Student is supposed to be exciting as well." ■

A cage filled with thrill

Riding as a passenger in a DTM race car one day – for Schaeffler employee Stephanie Rosenzweig this wish came true at the Lausitzring

Thumbs up – Schaeffler employee Stephanie Rosenzweig was thrilled by her ride in the DTM race taxi

INNOVATIVE RACE CARS IN CONTEMPORARY HISTORY

1899
La Jamais Contente

'The Never Satisfied' is the English translation of the name of the electric road vehicle that was the first-ever car to crack the 100 km/h mark.

1906
Renault AK

109 years ago, the first Grand Prix was held in France. The winner of the near-1,200-kilometer race was the Hungarian Ferenc Szisz in a 90-hp Renault with a displacement of 13 liters.

1911
Marmon Wasp

The winning car of the first 'Indy 500' surprised with a rear-view mirror and relied on wheel bearings of the Schaeffler brand FAG.

"Get in with your left leg first," says the man in the red Audi Sport t-shirt. With a little help, I land in the bucket seat of the Audi RS 5 DTM race taxi, just barely above the tarmac. Experienced hands tighten the H-style belt. Next to me, Manuel Reuter swings himself into the safety cage with a broad smile on his face. Manuel is a touring car legend, 2006 ITC Champion and has more than 200 DTM races under his belt. Mike Rockenfeller, the 2013 DTM Champion, told me that the DTM drivers are not allowed to drive the race taxi themselves – as this would give them a track advantage over the other drivers. Strange. Mike just walks the circuit once or occasionally goes for a morning run on it and then directly hits the track in his race car. After just five practice laps, he's got the track configuration down pat. Mind-boggling.

1,120 *kilograms is the weight of a DTM car, including the driver, according to the regulations.*

I look at the track in front of us and what I see is – the black dashboard. Manuel senses my sight and casually says: "That's okay, don't worry. You don't get to see a lot anyway, and the corners just before they come up." From talking to Mike's chief mechanic, whom everyone calls 'Boosterrr,' I know that the DTM cars race across the Lausitzring with up to 250 km/h. I start feeling a little queasy, but still manage to ask if I should leave the helmet's visor open. Yes, I'm told, the cockpit would get very warm. Even warmer? It already feels really hot to me. I slipped into a fireproof suit in the changing truck and put on the shoes, balaclava, helmet and neck support directly in the race taxi. 20 degrees centigrade and a cloudy sky – I'm starting to sweat.

"THE FORCES ACTING ON ME ARE AWESOME"

And then it gets even warmer. Manuel pushes the start button. The V8 naturally aspirated engine with about 460 hp literally screams. The seat vibrates with surprising intensity, and so does my behind. I feel as if I was sitting on a vibrating plate compactor. The noise in general is not as loud as I was afraid it would be and there's a smell of fuel. I feel like I'm in a daze. My heart is pounding.

1936
Auto Union Typ C

6-liter mid-engine with 16 cylinders, 520 hp, 853 newton meters of torque, aluminum body – the technology of the silver 'rocket' was ahead of its time.

1950/1951
Alfa Romeo Typ 158/159

With its 1.5-liter compressor engine, the 'Alfetta,' thanks to drivers Giuseppe Farina and Juan Manuel Fangio, won the first two titles in the F1 World Championship.

1970
Porsche 917

The 1970 and 1971 Le Mans winning car was used by Schaeffler for the development of hydraulic valve train components that subsequently went into production by the millions.

And then Manuel steps on the gas. I'm pressed into the seat. The acceleration is absolutely awesome. Now I know what 'Boosterrr' means when he talks about the 4.0-liter engine of the Audi RS 5 DTM having maximum torque of more than 500 newton meters and reaching 100 km/h in just three seconds. At the end of the straight, we're at 240 km/h. To me, it even seems a lot faster. We're flying past the spectators in the grandstands and the pit lane. It's hard to believe that Mike is no longer awed by high speeds. For him and his team, it's routine, but for me it isn't. Manuel brakes and I crash into the harness. A turn. Another S-turn. I'm pressed into the right-hand side of the seat and immediately afterwards into the left-hand side. The forces acting on me are awesome.

I can feel the loads race drivers are exposed to and understand why weight training to strengthen the neck and back muscles is indispensable. Now Manuel raises his thumb and all I can think of is "Please keep both hands on the wheel." He laughs into the camera that's mounted on my side. I raise my thumb too and instantaneously cringe. We came really close to the wall. But the outside mirror is still in place.

Then the next turns follow and then the start-finish straight. We've covered the first lap in 1 minute and 40 seconds. The DTM drivers are even faster. They only need 1 minute and 19 seconds per lap on average. Mike always goes to the limit for it – absolute perfection.

And then Manuel hits the brakes full-force. Right, it's 'Turn 1.' Manuel shifts into lower gears three times using his fingertips. On just 3.5 kilometers, he has to change gears 24 times. It's fascinating that the drivers can access all the key functions on the steering wheel.

"SHE'S STILL ALIVE"

Manuel virtually flies across the track. I'm beginning to get used to the flat-out acceleration and hard braking. My heart's still pounding, but I've got total confidence in Manuel. And while this thought crosses my mind, Manuel starts heading for the pit lane. We're slowing down. I suddenly realize that our breath-taking ride around the Lausitzring is ending. The nice Audi employee in the red shirt laughs into the car: "She's still alive!" That makes me laugh too. I climb out of the safety cage, right leg first, and notice that I'm sweaty all over. It's a good thing that the DTM drivers can use three of these suits per race weekend. I take off the helmet and

INNOVATIVE RACE CARS IN CONTEMPORARY HISTORY

1976
Tyrrell P34

The strangest car in F1 history ran on six wheels. The four small front wheels were supposed to reduce aerodynamic drag. The 'six-wheeler' in 1976 even won the Swedish Grand Prix.

1978
Lotus 78

Lotus aerodynamicist Peter Wright took advantage of the negative ground effect to triple downforce and designed the first 'wing car' in Formula One history.

1989
Ferrari 640

In the 640, the Scuderia developed the first Formula One car with a semi-automatic transmission and paddle shifters behind the steering wheel.

balaclava, shake out my hair and beam at everyone around me. What an experience. I'm still feeling the vibrations. There's a tingling sensation in every part of my body. But there's no time to take a deep breath.

Stephanie Rosenzweig in conversation with Phoenix team boss Ernst Moser and Mike Rockenfeller, who in the DTM drives the Schaeffler Audi RS 5 DTM

2013
Schaeffler Audi RS 5 DTM

In the third year of Schaeffler's DTM commitment, the company, after 2011, won the drivers' title for the second time. Mike Rockenfeller was unbeatable in the high-tech touring car.

2014
Abt-Schaeffler Formula E

The FIA Formula E Championship is the future of motorsports. In the 2014/2015 inaugural season of the eco-conscious racing series, Schaeffler was represented as the technology partner of Team ABT Sportsline.

2015
Porsche 919 Hybrid

Since 2014, the Porsche factory team has been competing in the FIA World Endurance Championship (WEC) with the innovative hybrid prototype, and in 2015 clinched a one-two win in the Le Mans 24 Hours.


OTH Regensburg
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SCHAEFFLER
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HIGHSPEED KARLSRUHE

MARCO GIULIANO, 23

University *Karlsruhe University of Applied Sciences*
Student of *mechanical engineering*
Team member since *2012*
Role *driver and technical leader*
Team size *approx. 50 people*

DISCIPLINE OR INTUITION: HOW DO YOU PREPARE FOR THE RACE?

When I sat in a race car for the first time I was surprised how much of a sweat you work up in the cockpit. The forces acting on the driver in a car like that are very high. They strain your body and give it a good shake. That's why regular stamina training before the event is a must. I also had to make sure to develop absolute control of the car – and the only way to do that is to drive, drive, drive. Just before the race, I go into seclusion to mentally prepare for the on-track competition and to go through all the strategic aspects we agreed on once more. Obviously, our aim as a team is to extract the maximum from the competition and preferably finish on the top step of the podium. So, the pressure is particularly high on the driver at the crucial moment. But then, when the race gets started – and the whole team feels this way – I need to shake off such thoughts, in keeping with the motto: as soon as the helmet's on and the visor down, the mind's shut off.

KARAT RACING

JANA LAMPE, 25

University *TU Kaiserslautern*
Student of *computer science*
Team member since *2013*
Role *team leader and group leader micro-electronics*
Team size *approx. 40 people*

TIGHT REINS OR LAISSEZ-FAIRE: HOW DO YOU ORGANIZE YOUR FORMULA STUDENT TEAM?

As the team leader, it's essential for me to keep track of things. I need to know what the various working groups are doing, keep an eye on our finances, take care of sponsors, etc. In addition to many, many emails, I primarily use our weekly team meetings to exchange information. Regular communication with the other team members is indispensable for me anyhow – because I make decisions, whether or not they pertain to my functional area. This is a big challenge and can only be mastered through teamwork. Sometimes I have to be tough to keep things moving but, in general, we're all students pursuing a common aim. We want our car to score as many points as possible and we want to continually improve, especially in the dynamic disciplines. At the Hockenheimring, we'd like to prove that even a small team from the Palatinate region can be competitive in Formula Student Germany!

HIGH-OCTANE MOTORSPORTS E. V.

KATHRIN KRAUSE, 20

University *FAU Erlangen-Nürnberg*
Student of *international business studies*
Team member since *2014*
Role *responsible for business plan and teambuilding*
Team size *approx. 80 people*

RAZOR-SHARP STRATEGY OR CREATIVE CHAOS: WHAT DOES YOUR BUSINESS PLAN LOOK LIKE?

Following intensive exchange with our predecessors and brainstorming for hours on end, it was clear for those of us who are responsible for the business plan that we wanted to get something new and unusual off the ground. But in spite of all our imagination we had to restrain ourselves from time to time and ultimately pick a good idea for consistent further development. This is what makes the business plan project so intriguing for me: it offers incredible creative freedom but, at the same time, has to remain feasible and compelling. This is not an easy balancing act! But now we're all the happier about our business model. We simulate the development of specialized boarding schools that promote young race drivers and race engineers and train them based on our race car. That's how we'd like to stand out from the crowd and leave a lasting impression with the jury. The most important thing, though, is that at the end of the day every team member goes home happy from the Hockenheimring. Only then will all the hard work from the last season have paid off.

ECURIE AIX

THILO HEINS, 23

University *RWTH Aachen University*
Student of *mechanical engineering*
Team member since *2011*
Role *simulation frame group*
Team size *approx. 75 people*

SPEEDY RACER OR RELIABLE BUDDY: WHAT ARE YOU STRIVING TO ACHIEVE IN YOUR DEVELOPMENT?

In the redesign project of our monocoque, I've been responsible for simulation and design this season. The vehicle has to hold up to numerous loading conditions, but its weight has to be kept as low as possible. In computer-aided experiments, I continued to develop the component in many steps in order to explore the optimal placement of the carbon fibers. In the end, I had to make sure that the monocoque satisfies all the mechanical demands, while keeping the manufacturing period within limits. Especially because manufacturing this component is so complex, it must not break under any circumstances. Besides that, it serves to protect the driver – so safety is the top priority. Obviously, the car should be light, but we make no compromises in terms of reliability. The quality of our components is more important to us than saving a few grams of weight. With a solid vehicle, we also expect solid results. Our aim is to consistently finish all events this season in the top ten.

MUNICHMOTORSPORT

MICHAEL GAMBITZ, 26

University *University of Applied Sciences Munich*
Student of *computer science*
Team member since *October 2013*
Role *board member, head of communications*
Team size *approx. 80 people*

OLD SCHOOL OR DIGITAL: HOW DO YOU COMMUNICATE YOUR TEAM TO THE GENERAL PUBLIC?

I rely on direct channels of communication to attract attention to our team. With sponsors, for instance, I normally use the phone and immediately address my request to the right place. To communicate with the general public, I prefer using Twitter – a medium that has the potential of reaching a large audience, while making it possible to get in direct touch. No matter what medium I choose, professionalism is of paramount importance. We design all our content – from Facebook posts to press kits – based on a guide, pay attention to consistency in our visuals and respectable wording. While we do make a witty comment here and there, our team generally uses an unpretentious style. That's how we'd like to prove that we're motivated students who are adept at setting up a project and completing it in a responsible manner. The success of the team takes center stage in anything we do – and we'd like our PR activities to reflect that as well.

GREEN VOLTAGE RACING

FUTURISTIC OR ELEGANT: WHY DID YOU OPT FOR THIS DESIGN?

The design of our livery was a premiere for me. Although I have a creative streak, designing the colors of our race car was my first major project. Just starting to paint wasn't enough in my book. For me, a race car has to look sporty and dynamic, as well as unusual and artistic. I wanted people to be impressed by our car at first glance. Because we participated in the Schaeffler Design Competition, green and yellow were the primary colors used. I experimented quite a bit and created several variants. The final decision was made in a voting by the whole team. Obviously, we'd like to stand out with creative graphics and show that we're aiming to become better and better. But motivating others to join in is particularly important to us. We're not a closed community and need many creative minds!

FINN QUILLFELDT, 21

University *Clausthal University of Technology*
Student of *energy engineering*
Team member since *October 2014*
Role *electric drive, designer*
Team size *approx. 60 people*

MAINFRANKEN-RACING

JULIUS POLLAK, 21

University *University of Applied Sciences Würzburg-Schweinfurt*
Student of *mechanical engineering*
Team member since *October 2012*
Role *pedal system assembly, treasurer*
Team size *approx. 40 people*

UNIVERSAL GENIUS OR SPECIALIST: HOW DO YOU DEVELOP A COMPONENT?

As the person with primary responsibility for the pedal system, I control every development step from the first sketch to final assembly. In the planning and design stage, for instance, I had to pay attention to distance specifications in the regulations and, above all, take the factor of safety into account – after all, the brakes have to work with no ifs and buts. So, heading up a dedicated assembly group involves a lot of responsibility and requires comprehensive knowledge in a wide range of fields. This total coverage makes Formula Student so attractive in my opinion. You start with a blank sheet of paper and, in the end, have a component in your hands. Reliability is our team's top priority in this respect. We want a car that runs reliably and is capable of mastering all disciplines. We focus our developments on this aim and prove that even smaller teams can build good race cars in the process.

DART-RACING

NICO SCHWARZ, 23

University *TU Darmstadt*
Student of *industrial engineering with business studies*
Team member since *2013*
Role *organizational team leader*
Team size *approx. 35 people*

BIG NAMES OR LOCAL POWER: WHAT'S IMPORTANT TO YOU IN A SPONSOR?

When it comes to sponsorships, I'm the hub in our team. I'm the contact person, keep track of existing sponsors and initiate new partnerships. In this role, I pay attention to our sponsors complementing each other well and offering our team optimum benefits. The collaboration with a company should actively enable us to move forward and open up possibilities we wouldn't have without that sponsor. Our search normally starts in our immediate vicinity. Local companies relate to our university and can provide a lot of assistance, particularly in manufacturing. But the most important aspect is that a partner can support us in meaningful ways and is willing to be inspired by unusual ideas as well. In that case, geographic proximity or big names are secondary. Each season, we pursue the aim of delivering the best possible results anew: sophisticated components of top quality. This is our success formula – and this is what we need great supporters for.

STROHM + SÖHNE

ANDREAS MARBUS, 22

University *Georg Simon Ohm Hochschule Nuremberg*
Student of *mechanical engineering*
Team member since *2011*
Role *driver and head of brake design*
Team size *approx. 70 people*

LEAD-FOOTED OR BRAINY: HOW DO YOU DRIVE TO VICTORY?

I already drove karts as a teenager and tested my skills in slalom events. Ever since then, my motto has been to start by going all out! Especially when there are two heats, I squeeze everything out of our race car in the first one. In round two, I play it safe if necessary. This strategy has been serving me well because, as a rule, those who won't go to the limit won't see the flag in first place. But what I need most in order to drive successfully is a team with a good atmosphere. The driver has a great responsibility and, at the end of the day, represents the work of the whole team. So, having the backing of the others even when things aren't going so well for a change is really important. In our case, that goes without saying. We want to have a good time together and we deal with each other on an equal footing. That, by the way, applies to the other teams as well. On track, we're rivals, but after the race, there's no more rivalry whatsoever!

2014 car

TUFAST RACINGTEAM

STEFAN ENDER, 25

University *TUM*
Student of *mechanical engineering*
Team member since *October 2012*
Role *team manager*
Team size *approx. 75 people*

TEAMWORK OR ONE-MAN SHOW: HOW DO YOU TAKE YOUR TEAM TO SUCCESS?

We're one team that builds two cars: one with a combustion engine and one with an electric motor. Except for the powertrain, all the sub-teams are involved in both vehicles. As the team manager, I particularly keep my eye on our milestones to prevent chaos. I set deadlines and make sure they're being met. Obviously, that can become a bit stressful now and then. If problems come up, I have to make decisions and make sure they're implemented. Still, a casual and, above all, friendly atmosphere in the team is important to me. I pay attention to creating transparency and to provide sound justifications for decisions made by the team's management. At the same time, I'm receptive to suggestions made by the other members and try to foster a positive exchange of knowledge with our alumni. In the past, we were often the runners-up and now we're aiming for the top of the podium at all cost. We're pursuing this aim not only as a student race team – but as friends working together to achieve something.

RENNTEAM UNI STUTTGART

GEORG ANGST, 25

University *University of Stuttgart*
Student of *mechanical engineering*
Team member since *August 2014*
Role *pedals, ergonomics, crash*
Team size *approx. 35 people*

COMFORTABLE OR STREAMLINED: WHAT'S YOUR MAIN AIM IN ERGONOMICS?
Among other things, I updated the driver's seat of our car this season and that turned into a real balancing act between efficiency and comfort. In the seating position, for instance, the center of gravity should be as low as possible. At the same time, it's essential that the driver's vision isn't impaired. A similar dilemma exists with the harness. The assembly should save as much weight and material as possible, but without the harness cutting or obstructing the driver in any other way. The key question is: how much discomfort can I expect the driver to put up with in order to save weight? While my compromise tends to put a greater load on the driver, it's also clear that my team-mates should be sitting as comfortably as possible. The same applies to us as a team: the compromise has to fit. Success is important to us, our motto is: 'Compete – Finish – Win.' Still, in spite of all our ambitions, it's important not to sacrifice the element of fun.

KA-RACEING

BIG SLOGANS OR SOFT SOUNDS: HOW DO YOU PROMOTE YOUR TEAM?
One of the things I focus on in our marketing team is the visuals of our publications and compliance with our corporate design. We want to present a unified image to external audiences to create recognition value. This is particularly important because our content can reach the public through diverse channels. We use all means of communications, from 'classics' like newspaper contacts or radio, to digital media like our homepage or social networks through to flyers and videos. We're one team that builds two cars – this special feature takes center stage in our marketing activities. Aside from our engineering achievements, our PR primarily reflects passion: teamwork, friendship and joint experiences are at the top of our list. But no matter what message we send, we refrain from window dressing and let facts speak for us.

INKA PHILIPP, 25

University *Karlsruhe Institute of Technology*
Student of *communications and media management*
Team member since *December 2014*
Role *marketing/design*
Team size *approx. 70 people*

Flat-out for progress

Schaeffler is a pioneer in terms of innovative technology – with a long tradition off the race track and now looking back on several years on the race track as well. Technology transfer is the keyword among Schaeffler's engineers

2014/2015 was the inaugural season of the innovative FIA Formula E electric racing series – and Schaeffler was involved from day one

Performance, efficiency and precision: From the smallest ball bearings with a diameter of just a few millimeters through to the 15-ton rotor bearings for wind power turbines, components from Schaeffler have to meet the highest technological standards. A field that particularly tasks the creativity and innovative spirit of Schaeffler's engineers is motorsports – and that's exactly why racing has a major impact on the production side of the house as well.

In the automotive sector, Schaeffler's position has traditionally been particularly strong. The portfolio ranges from wheel bearings, suspension and steering components, to transmission components and developments, through to engine elements, electric drive, hybrid solutions and valve timing systems. About 60 components made by Schaeffler are installed in every automobile around the world on average. Energy efficiency is a factor of increasing importance in this context, both in production and motorsports.

TECHNOLOGY TRANSFER BETWEEN PRODUCTION AND RACING

Two racing series in which Schaeffler is involved with particular intensity play a pioneering role here. One of them, obviously, is Formula E, the world's first global racing series for fully electric vehicles. The other one is the FIA World Endurance Championship (WEC), which includes the iconic 24-hour race at Le Mans. "In the WEC regulations, energy efficiency and forward-thinking technology take center stage. These are exactly the topics we work on day in day out at Schaeffler," says Chief Technology Officer Prof. Peter Gutzmer. "At Le Mans, the cars cover the distance of a full Formula One season in the space of 24 hours. This is an extremely high standard and therefore perfectly fits the qualities we define for our production technologies as well."

2,518

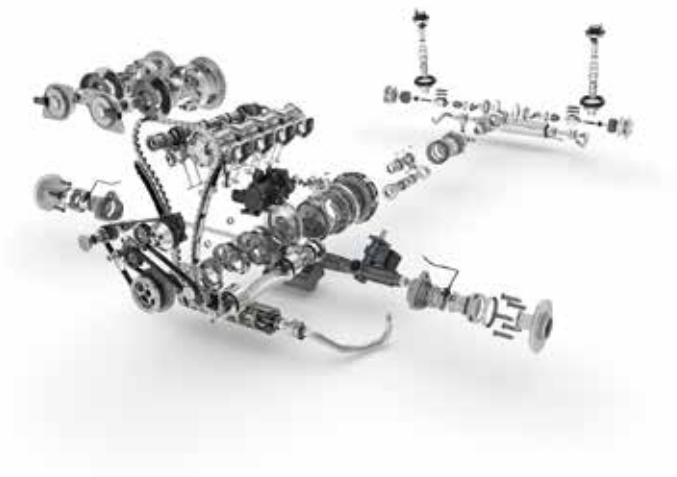
patents were filed by Schaeffler in 2014, which put the company in second place across Germany.

Together with manufacturer Porsche Schaeffler entered the FIA World Endurance Championship (WEC) in 2014 and immediately celebrated a victory

The experiences which the Schaeffler partners Porsche and ABT Sportsline gather in the two championships assist Schaeffler's engineers in their development work for production vehicles. "In addition to developing new solutions and products, it's important to us that our technicians and engineers have the opportunity to apply their expertise to motorsports as well and, obviously, successfully prove themselves too," says Prof. Peter Gutzmer.

The Schaeffler partners in their on-track activities equally benefit from the comprehensive know-how the company has acquired over decades. Schaeffler, for instance, already offers the 'forward-thinking technology' from the WEC, namely the combination of an internal combustion engine with a selectable electric drive axle, today as a system that is ready for use on production vehicles. The E-Axle with wheel-selective power output combines the efficiency advantages of an electric drive with the plus in vehicle dynamics and safety delivered by four-wheel drive.

The technology transfer from motorsports to production and back has both a tradition and a future at Schaeffler. Prof. Peter Gutzmer: "The competition in motorsports trains people's creativity and ability to focus on essentials. A pragmatic yet consistent and proficient approach is what counts. These experiences, coupled with the emotion of motorsports, provide motivation for routine tasks." ■



A collection of Schaeffler components installed in production vehicles around the world

An executive board member as well as a motorsport fan: Prof. Peter Gutzmer (center) at Formula E in Monaco with ABT drivers Daniel Abt (left) and Lucas di Grassi

THREE QUESTIONS FOR ...

PROF. PETER GUTZMER Chief Technology Officer

Schaeffler and Formula E

How satisfied are you with the first Formula E season?
"The inaugural season has even surpassed our high expectations. Formula E is organized in a highly professional manner, the locations are unique in motorsports history and – most importantly – the fans at the race track and in front of their TVs witness thrilling races from the first to the last lap. Electric mobility can hardly be featured in a more fascinating way than this."

Why is Schaeffler involved in Formula E?
"Helping to shape the electrification of the automobile is one of our central strategic forward-thinking topics. Schaeffler is one of the innovation leaders in this field and frequently pioneers new ideas. Formula E is bold and visionary, which makes it a perfect fit for us, and ideally complements our other commitments such as those in the DTM, the WEC and Formula Student. Last but not least, motorsports charge the topic of electric mobility with emotions in a fascinating way."

What plans does Schaeffler have for the coming season?
"Formula E and the FIA have permitted proprietary developments in the areas of the motor, transmission, suspension and motor software for the second season. As the team's exclusive technology partner, Schaeffler will be tackling all these areas together with ABT Sportsline. This will arguably make us the manufacturer to present the most extensive proprietary developments. This is a great challenge, but one we're delighted to accept. We look forward to driving Formula E forward with innovations and are going to expand our technology team particularly with dedicated young engineers." ■

2.9

seconds is the time it takes the Formula E race car to sprint from zero to 100 km/h. Top speed is 225 km/h.

Take off to the future: How to successfully get started at Schaeffler

With state-of-the-art components and systems in engines, transmissions and suspensions, as well as rolling and plain bearing solutions for industrial applications, Schaeffler moves the world

As a pioneer among suppliers, the company needs young talent from nearly all professional fields. Engineers and technicians in particular can expect to find fascinating assignments in research and development. But fields like finance, marketing or HR management are in demand at Schaeffler as well and offer attractive career paths.

Even while still enrolled in university or college, Schaeffler, as part of an internship or work on a final paper, offers students opportunities to take a look at the way one of Europe's largest family-owned companies operates. The students are an integral component of the teams they are assigned to and work on demanding projects. 'Support and challenge' is the motto: students who display particular dedication and commitment have the chance of being selected for an internship abroad or – if a relevant need exists – for casual student jobs.

Those who have demonstrated their skills even before submitting an application will secure a solid advantage in the race for the most coveted positions. But even new faces have a chance of direct entry, provided they have relevant qualifications and skills. Former Formula Student participants are welcome applicants. Their commitment indicates a capacity for teamwork, technical know-how and dedication – skills which are at the top of Schaeffler's wish list. ■

Current job opportunities can be found at www.schaeffler.com/career. Applications can be conveniently submitted via the online career portal as well.

MASTHEAD

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DRAWING

FIRST PRIZE ***3 x 2 weekend tickets***
To a Formula E event in the 2015/2016 season (incl. hotel accommodation for two persons, excl. travel costs)

SECOND PRIZE
3 x Schaeffler Watch

THIRD PRIZE
3 x 'Power Bank' charger

HOW TO PARTICIPATE

- *Enter correct answer to quiz question*
- *Complete contact fields*
- *Drop page in lottery box at the Schaeffler marquee*

QUIZ QUESTION

What German team does Schaeffler partner with in Formula E?

☐ *Team ABT Sportsline* ☐ *Audi Sport Team Phoenix*

First name, last name

Full mailing address (incl. street address, postal/zip code, town and country)

Phone number (cell/mobile for notification of winners)

Participation in the lottery quiz is subject to the following terms and conditions: The prizes are made available by Schaeffler Technologies AG & Co. KG. Anyone aged 18 years or older is eligible to participate. An individual participates in the lottery quiz by (a) fully and correctly filling out their entry and (b) dropping their entry in the lottery drum in the Schaeffler marquee within the drawing period that closes at 15.00, 2 August. Winners will be determined in the drawing on 2 August and immediately notified by text-message. Cash payments in lieu of prizes, or other substitution of prizes, are not possible. All decisions are final.

MOBILITY FOR TOMORROW

ECO-FRIENDLY DRIVES

How will people travel in the future, and how will goods be transported? What resources will we use, and how many will we need? The passenger and freight traffic sector is developing rapidly, and we provide the impetus for innovation and movement. We develop components and systems for internal combustion engines that operate more cleanly and more efficiently than ever before. We are also pushing forward technologies that are bringing hybrid vehicles and alternative drives into a new dimension – for private, corporate, and public use.
The challenges are great. We develop the solutions.

Join us and let's shape the mobility of tomorrow.

www.schaeffler.com/career

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