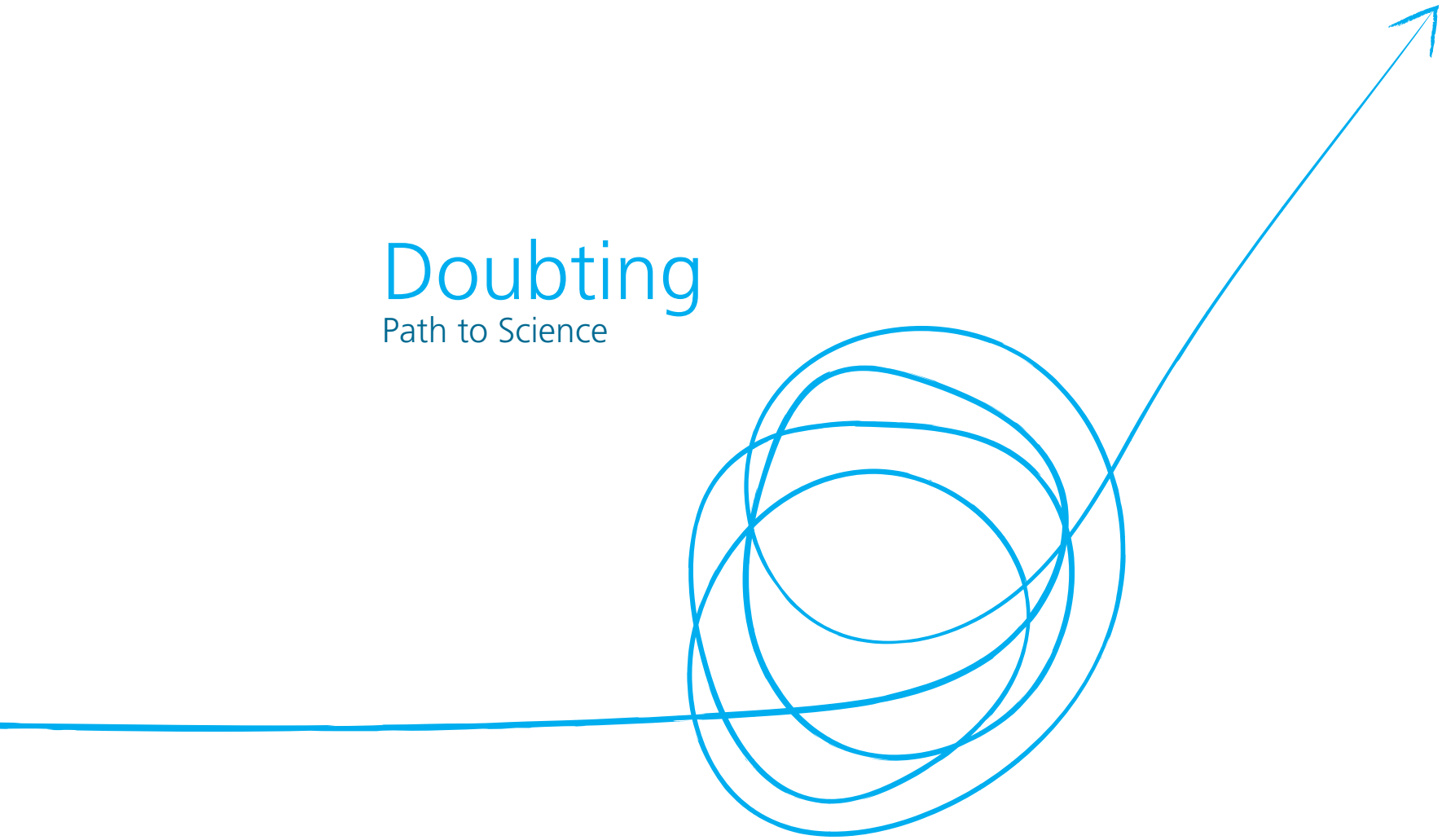
Doubting

Path to Science



Annual Report 2015

Hochschule
Bonn-Rhein-Sieg
University of Applied Sciences

Doubting
Path to Science

Imprint

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Bonn-Rhein-Sieg
University of Applied Sciences

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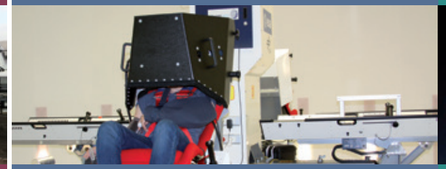

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Intercultural exchange at the anniversary celebration: University President Hartmut Ihne tests the "language tandem".

NRW Minister of Science, Svenja Schulze, congratulates the H-BRS on its "successful development" and on being an "outstanding hub of teaching and research".

19th June 2015: first a ceremony in the auditorium, then a research exhibition and a spirited summer festival.

Impossible to overlook: since anniversary year, a tram in city line 66 wears the blue of Hochschule Bonn-Rhein-Sieg

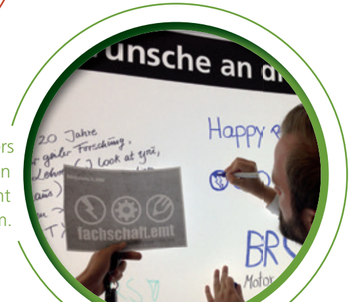
#20 Years_H_BRS: entrepreneurs, friends and donors tweet congrats.

20 Jahre Hochschule Bonn-Rhein-Sieg

A model of the university's new building in Sankt Augustin.When the H-BRS opened on 1st January 1995, its focus was Management Sciences.

Reunion at the big alumni brunch

www.h-brs.de/en/20-years-bonn-rhein-sieg-university



Permanent ink: well-wishers immortalise themselves on an electronic whiteboard in front of the auditorium.

20 successful years of university and research history: This chronicle provides an overview www.h-brs.de/chronik-der-hochschule-20-jahre-h-brs

Recipients of the first matriculation numbers: Wolfgang Minnich and Jasmin Riediger

Even the beer is blue: for the occasion, Cologne's traditional ale in the university's colour

From the Culture of Doubt(ing)

Science journalist Ranga Yogeshwar and University President Hartmut Ihne discuss doubts in science and society

What does doubt mean to you?

Ranga Yogeshwar: Doubts always appear when a decision has to be made. But what's the motive of doubting? We question, check and want to verify. Considering the wide spectrum of inherent doubt on the one hand, and the structured doubt of science on the other, a deeper question arises: is doubting a culture in and of itself?

Hartmut Ihne: Doubt is, first and foremost, the general feeling that something isn't right. However, doubt can also be a methodological position, to quote Descartes loosely: what can we actually know for certain? Then doubt itself becomes a methodological principle. Descartes addresses this idea in his "Discours de la méthode", considered a classic of European science history and the foundation upon which modern science is built.

Yogeshwar: After the time of Descartes too, methodology was examined in the philosophy of science, mainly the placement of doubt. In which categories do doubts arise, how does the contextual description look, and which words are chosen? Doubt includes a question: you question, scrutinise and challenge. But even the way that questions are asked can change views. We are captives of our own categories; in other words, within doubt, aspects of our own narrow-mindedness are hidden.

"We are captives of our own categories; in other words, within doubt, aspects of our own narrow-mindedness are hidden."
Ranga Yogeshwar

Was doubt a decisive factor in the development of modern society?

Ihne: Yes, absolutely. The Age of Enlightenment witnessed a radical distancing from prevailing certainties about truth and values. Secular science could not prove the existence of God. Doubts about God led to the questioning of hierarchical legitimacy based on divine right. Doubt is a crucial element on the path toward democratisation

and part of our culture. What does it mean when a society doesn't doubt, isn't permitted to doubt?

Yogeshwar: Here in Germany, doubt is also interpreted as a sign of weakness. The culture of doubting is capable of holding dialogue based on doubt; it does not accuse anyone for doubting. I can imagine how liberating it would be if top politicians facing a crisis could say that they simply don't have the answer. Instead, we expect clarity from the government, and this leads to the inevitable propagation of delusion. I would also welcome this kind of dialogue in talk shows. If only participants could say, "That's a point that I've never considered. I'd first like to think it over." Nowadays, we insist that people take a position and shut out the option of doubting. The culture of doubting is much more complex than that of certainty, but at the same time it's also more free and more human.

How much doubt does science need?

Yogeshwar: Science is full of doubt. That's why every scientific statement made must be verifiable; a precise list of sources and references is essential. Any residual doubt is quantified and stated as a margin of error.

Ihne: In addition to verification, falsification also plays a large role. According to Karl Popper, a statement is only scientific if one can show the conditions under which it is false. That is the falsification criterion.

Yogeshwar: We should recognise doubt as a fundamental element of science. In order for that to function well, however, a certain impartiality is required. Let's take the example of researching rare diseases. Established scientists can be blinded by their long years of experience and arrange certain characteristics of a disease a priori into an existing pattern. That's why we choose young medical students for this task, hoping that with their untainted viewpoints they'll discover something new in the patients' files. In "The Emperor's New Clothes", it's a child who finally says: "He has nothing on". This open mode of thought characterised Albert Einstein. His work on the theory of relativity called both methods and that which had been considered law into question. In this way, he succeeded in arriving at completely new insights.

What room for questioning is there at the university?

Ihne: In philosophy, it's obligatory to question everything at first, even your own point of view. Otherwise, you find no basis from which thinking can begin. Of course, radical reflection is an integral part of a university's self-image – regardless of discipline. Everywhere high quality academic instruction takes place, be it seminar, exercise or lecture hall, room is created for this fundamental self-reflective attitude. Students must always have the chance to ask when they don't understand as well as to doubt the truth of a statement. But doubt is much more fundamentally anchored in society – and must be. As Ranga Yogeshwar said at the beginning: doubt is a fundamental component of the culture. A culture that doesn't doubt is unthinkable for me. No doubt, no knowledge and no innovation. Cultures that don't doubt are totalitarian.

Can the doubts of scientists lead to religious belief? There are famous examples: Max Planck and Werner Heisenberg have expressed this view.

Ihne: At the dawn of Western intellectual history, there was the famous Socratic insight: as knowledge increases, trust in its finality decreases. I actually know that I don't know. I apprehend the universe of possibilities and ascertain that there is very little that I actually know. The philosopher Ludwig Wittgenstein asserts that in the end, when everything that can reasonably be said is clear, from the sea of the unsayable we have only cut an island of the sayable. The rest that remains is there, but it cannot be rationally described; it is the mystical. Rationality is therefore embedded in a sea of the irrational. Science is surrounded by chaos.

Yogeshwar: The question is: how do I eventually fill this blind spot? Some fill it with God, Jahveh or Allah; others simply persevere with the idea that there is something there that cannot be explained. That's probably the hardest. Scientists love completeness and hate systems that are partially unresearched. But in methodology, the point is eventually reached at which we're no longer in the position to understand everything completely. To me it's like a slap in the face from nature that says, "I'm not revealing everything to you".

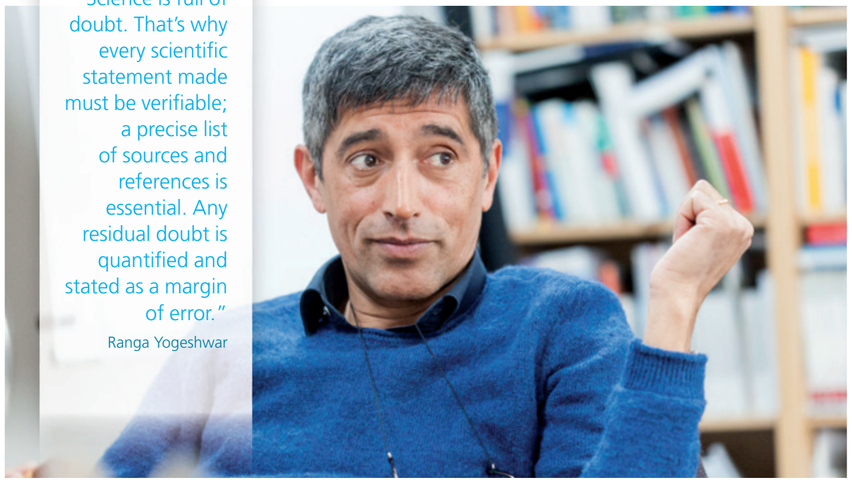
"A culture that doesn't doubt is unthinkable for me. No doubt, no knowledge and no innovation. Cultures that don't doubt are totalitarian."
Hartmut Ihne

Ranga Yogeshwar, physicist, television presenter, author

has developed numerous TV programmes, such as the science magazine "Quarks & Co." for Westdeutscher Rundfunk, which he has been hosting for over 20 years. After completing his studies in Physics at RWTH Aachen, Yogeshwar first worked at the Swiss Institute for Nuclear Research (SIN), at CERN in Geneva and at the Jülich Research Centre. In 1987, he began as an editor at WDR and was chief of the Science Television Programme Group for many years. Since 2008, he has been working as an independent journalist and author. Yogeshwar is one of the most well-known science journalists in Germany.

"Science is full of doubt. That's why every scientific statement made must be verifiable; a precise list of sources and references is essential. Any residual doubt is quantified and stated as a margin of error."

Ranga Yogeshwar



When you think about the future, where do your greatest doubts lie?

Ihne: In the long-term, I doubt the integrity of human beings; that is to say our moral reliability. We think too little and let ourselves drift. Essentially, our worldviews are largely based not on what we have found out or thought of, but rather on what others have told or given to us, especially the media and the new social media. A large portion of our ostensible "reality" is created by others. Think about what we know of politics. It's almost exclusively second or even third-hand knowledge. Nonetheless, we all act as if we understand the issues perfectly. We question less and less. We believe that we have direct access to reality and don't realise that it is only a construct, put together by media interests and other such players. This influence on our thinking becomes stronger and stronger due to increasing digitalisation and its accompanying convenience – Kant speaks of the "laziness and cowardice" that hinders the use of one's own understanding.

Yogeshwar: I'm afraid that the digitalisation in many key sectors is incapacitating people just as Kant described. We live in a very convenient, predictive world where my smartphone suggests which word I should write next and where I get recommendations about which shoes I should buy while surfing the net. We don't make decisions anymore, we just choose from among a limited number of options. The convenience of allowing machines to make ever more decisions, combined with ever more and ever faster computers, feeds my fear that eventually machines could take over.

Could we build a better future by doubting more?

Ihne: Doubting is healthy and provides orientation as long as it doesn't turn into quibbling. When, for instance, we fail at something, we begin to doubt the methods we used up to that point; we rethink. Doubting and innovation go hand-in-hand. Doubts help us to recognise dead ends and overcome them. But this requires that we perceive doubting not as a disease but as healthy and helpful. The attitude towards doubt is decisive. This can be observed, as studies show, in career biographies. Successful managers who have utterly failed with one concept may doubt their previous methods, but they don't doubt themselves as bringers and driving forces of change. The Ego as the basis of all action does not give up on itself. It can't give up. Dubito, ergo sum. I doubt, therefore I am.

Yogeshwar: Doubt always holds the opportunity to change a development. Young people are driven by their environment not to deviate from a prescribed path leading to a successful future. I wish that doubt was allowed to work its magic here too and that the opportunity existed of questioning the current plan and perhaps discovering a completely new path.

"Of course, radical reflection is an integral part of a university's self-image – regardless of discipline. Everywhere high quality academic instruction takes place, be it seminar, exercise or lecture hall, room is created for this fundamental self-reflective attitude."

Hartmut Ihne

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Quality teaching is a hallmark

Great successes in teaching are the hallmark of 2015 at the Hochschule Bonn-Rhein-Sieg – University of Applied Sciences. Pro-MINT-us, the project that has been successful for years in the “The Quality Pact for Teaching”, convinced the Federal Ministry of Education and Research with their follow-up application and is now moving forward into the second phase of funding. The name stands for project-based learning and support in the so-called MINT-courses (Maths, Information Science, Natural Sciences, Technology) at the commencement of studies.

Pro-MINT-us tests new forms of learning throughout the university and improves support measures for students. Continuation of the project guarantees intense exchange on quality teaching at the university. Successful approaches like the Study Workshop and Study Island (modules for accompanied self-study) can spread across departments. The university also introduced feedback tools to evaluate learning success via e-learning.

The Department of Electrical Engineering, Mechanical Engineering and Technical Journalism won the national competition for the VDMA University award “Bestes Maschinenhaus 2015”. With this prize, the German Engineering Federation (VDMA) awards concepts for improving the quality of teaching. The prize is endowed with 100,000 euros (see page 21).

Quality teaching at our university of applied sciences is also evident in the CHE Ranking. The Master programme in Computer Science received an outstanding overall score of 1.3.

Quality teaching lives, last but not least, in the many small and less glamorous routine efforts of all participants. When they take half an hour’s time to explain something patiently to individual students, when they scrutinise their teaching concept once again and look for fresh topics, more memorable explanations or new opportunities for participation. That is what really accounts for student learning success, which makes us as a university successful, and I’d like to take this opportunity to express my sincere thanks!

Prof. Dr. Iris Groß
Vice President for Teaching, Learning and Further Education

Didactic Dessert

If this title calls chocolate mousse or crème brûlée to mind, you're not far off. The difference is that dessert at the university is accompanied by a stimulating discussion on new didactic methods. Once per semester, Iris Groß, Vice President for Teaching, Learning and Further Education, invites all university teaching staff to this event. The hot didactic tip for Winter Semester: "It doesn't always have to be PowerPoint". Professors Ursula Konrads and Ingo Groß faced off in "battle", both introducing their own favourite tablets and input tools. Via projectors, they use these tools in lectures and seminars as electronic blackboards. This enables them to show previously prepared elements and work on other content interactively with students.

A big crowd-puller

Comprehensive support at the University and District Library

Active support

How do I research correctly? How does the specialist database work? First-year students, in particular, have a lot of questions when they come the library. For this reason, in summer 2015, the library set up BibFachinfo. Experts offer quick, simple library guidance and help the students to find their way among data and books. The Fachinfo is open four hours daily, but Susanne Kundmüller-Bianchini, Deputy Director of the Library, would like to expand this support in the future: "The info stand is a big crowd-puller."

Structured management of literature

When students write their Bachelor's thesis at the very latest, they have to organise their sources carefully. To prevent them from losing their overview, the library offers all members of the university free access to the reference management program Citavi. This program facilitates the professional recording of research results from library catalogues, specialist databases and other sources. Passages or quotes can be extracted individually; moreover, the program automatically compiles a bibliography.

Bib-Cloud against data theft

Access data anytime, anywhere – it's possible with Bib-Cloud. The library reserves 4 GB space for each user in its online storage. Users can store texts, images and other files and share them with others at the library. The data remains in the university server and is thus protected from misuse. "We offer the students a secure alternative to Dropbox and other such solutions", says Kundmüller-Bianchini.

Study in the virtual lecture hall

Online meetings, webinars, e-learning – with the program Adobe Connect, seminars and lectures can be held online. The library supports the use of this tool, which is made available free of charge via the German National Research and Education Network (DFN). "Professors like to use Adobe Connect for courses on exam preparation", reports Kundmüller-Bianchini. Since Winter Semester 2015/16, a new Master programme is being offered in the field of Social Security Studies with a second semester consisting exclusively of online courses.

Self-study in the e-college

The e-college of learning platform LEA comprises numerous e-learning courses for self-study. In addition to special academic courses, students can acquire languages and soft skills. The offer is also aimed at newcomers who finished school a longer time ago. "The basic course in maths is especially popular", observes Kundmüller-Bianchini. The e-teaching area on LEA is targeted at university lecturers. Here the library staff has set up didactic services on e-learning.

More on library services:

➲ www.bib.h-bonn-rhein-sieg.de/en/Home.html

Google insider and philosopher are guests "On the Sofa"

What does Google want? SPIEGEL correspondent Thomas Schulz offered exclusive insight into the world's most powerful concern. For his book, the Silicon Valley expert spoke with Google founder Larry Page as well as with corporate masterminds and scientists. His results held the entire auditorium spellbound.

As a guest on the sofa, philosopher Natalie Knapp spread, above all, confidence. She encouraged the audience to value periods of personal transition and doubt as intense phases of life.

Recommended reading:

Thomas Schulz: *What Google Really Wants – How the most influential concern in the world is changing our future*

Natalie Knapp: *The Never-Ending Moment: The Value of Uncertainty*

Susanne Kundmüller-Bianchini in discussion with Thomas Schulz

Rewarding the courage to study abroad

Scholarship holders double, thanks to supplemented Erasmus grants

In 15 seconds …

The International Office supplements Erasmus scholarships for practical semesters, internships or final thesis projects – this is well received by students. Self-initiative is still required.

Funding for international internships is higher at the H-BRS than at many other universities

International exchange impacts positively on academic knowledge and personal development – career counsellors, human resource managers and many returning students agree. The Hochschule Bonn-Rhein-Sieg, with its heavy emphasis on practice, has a second focus. "Employers looks for practical experience abroad", says Astrid Schlinkert from the International Office. "Students learn not only to apply their theoretical knowledge, but also to act confidently and on their own initiative."

Despite these positive effects, many of those interested still find it difficult to decide in favour of an internship abroad: the familiar environment is too comfortable. One incentive that can make this decision easier is financial support from the International Office in the scope of the Erasmus Programme. Erasmus grants are not always high enough for everyone who is interested, so the university supplements them through its own resources. This means that funding amounts at Bonn-Rhein-Sieg are higher than at many other universities.

The campaign to promote Erasmus-funded internships is successful: the number of students with an internship abroad has doubled

This campaign to promote Erasmus-funded internships is successful. In academic year 2013/14, only 13 students went abroad with the programme; in the following academic year, nearly twice as many crossed the border. Students can show initiative early on in the preparatory phase by tending to their own internship. The International Office provides advice on issues surrounding departure formalities, funding options and finding a suitable position. "I receive calls for applications and other offers via e-mail", says Astrid Schlinkert. "I then forward this information to the corresponding departments where it's made available to students online." Lists of placement agencies and companies offering internships help, too.

Most students travel to English-speaking countries to expand their language skills in a professional environment there. Each scholarship holder finds his or her own path in the practical experience abroad. In the 2014/15 academic year, 4 out of 25 scholarship holders took advantage of the opportunity to be funded after graduation – a novelty of the Erasmus programme. The period of the practical experience varies, too. "Exchanges abroad of two months or longer are funded", says Astrid Schlinkert. "But we did have one student who went to France twice during his Master course, once for an internship and later for the practical phase of his Master's thesis."

More:

➲ www.h-brs.de/praxissemester-im-ausland

Writing till dawn

The Long Night of Deferred Assignments

The semester is drawing to a close, and assignments should be nearly completed by now. Instead piles of textbooks crowd the desk; the first sentence is not yet written. "I'll start first thing tomorrow", we typically reassure ourselves. Almost all students are familiar with this phenomenon: "procrastinitis".

Professor Iris Groß, Vice President for Teaching, Learning and Further Education, is addressing this issue. Together with the General Students' Committee (AStA), the student councils within each department, and many other supporters, she organised the "Long Night of Deferred Assignments" at the Hochschule Bonn-Rhein-Sieg. On two evenings toward the end of the summer semester, students met in the library and the rooms for independent study to work on their assignments. Discussion rounds and one-on-one counselling on self-organisation were also on offer. "The event had two goals: first, to offer students concrete support with their assignments, and second, to broach the issue of procrastination with them", says Iris Groß. "Students should enjoy attending university."

"The university should be a place where students feel comfortable."

Iris Groß, Vice President and "Long Night" initiator

The Long Night was filled with support. The library staff introduced the reference management program Citavi and was available to answer questions until 10pm. The university Writing Centre team gave tips on proper citation and successful wording. And the AStA provided refreshments. Students who couldn't make it home so late at night, could even sleep at the university. "The university should be a place where students feel comfortable", says Iris Groß.

Master's student Christiane Reher benefited from this event. She especially appreciated the one-on-one training at the Sankt Augustin Campus. "I got tips on improving my study strategies and learned how to get better organised. The next assignment will be easier for me", she says full of conviction.

Mechanical Engineering professor, Iris Groß, remembers the problem of procrastination from her own time as a student. For this reason, she finds it important to show students that they are not alone in this behaviour. "We always offer support and advice at the university, not just during the 'Long Night of Deferred Assignments'. But this event makes students especially aware of what we have to offer." Positive feedback from the students has already had an effect: in February and March 2016, the midnight oil will burn again, and many assignments will come much closer to completion.

doubting

Christine Buchholz,

Interim Professor for Quantitative and Qualitative Methods, sees her main task as encouraging students to doubt.

Numbers are objective and statistics clear proof – that's what many people think, but it's not always true. Christine Buchholz wants to straighten out this misconception. "In my lectures on statistics, I ask students to doubt the results of statistical tests." This also applies to students' own work. On each exam, Buchholz gives them the task of critically questioning their own results. In the final thesis, too, a chapter critically analysing the methods, procedures and challenges faced is required. "Doubt is a basic requirement of good science."

Understanding the essence of economics

Business Psychology launches a Master programme

In 15 seconds …

Universities with a specialisation in Business Psychology are in high demand in Germany. One of these is the Hochschule Bonn-Rhein-Sieg – University of Applied Sciences. It offers students a comprehensive programme that goes beyond lectures and seminars – and since Summer Semester 2016, in addition to a Bachelor, a Master course.

More on the Master Programme in Business Psychology:

➲ www.h-brs.de/en/wiwi/business-psychology-msc

Maxi Dietzsch has been working on a Bachelor's degree in Business Psychology at the Hochschule Bonn-Rhein-Sieg since 2013. Her decision was well thought-out. "Business Psychology doesn't just focus on economics; it takes the behaviour and lives of the employees into consideration", says the student. "Interest in the psychological dimension of business has increased dramatically." Dietzsch is not alone in this observation. In 2012/13, the programme's first student intake, 1,800 candidates applied for 60 places.

Students directly test their knowledge of economics, methodology and psychology during a practical semester. "Most gather practical experience in the region, at Deutsche Telekom or at SMEs like Knauber", says Antje Röbbert, the department's practical semester coordinator. "About one fourth of the student interns were active elsewhere in Germany with companies such as Bosch." Positions ranged from human resource management, development and recruiting to sales and market research. This prepares the business psychologists ideally for the job market, which has positions open for them in human resource management, marketing and corporate development.

Launched in Summer Semester 2016, the three-semester Master programme in Business Psychology offers Bachelor graduates an alternative to entering the job market directly. Even more so than in the basic course, students are guided toward independent work, which begins with the selection of three to six compulsory optional courses. "These semester-overlapping modules are project-focused", says Cristina Massen, Programme Director and Professor for Business Psychology. "Students conduct independent projects, such as developing an assessment centre." Peter Muck, Department Dean and Professor for Business Psychology, adds, "With this degree course, we've created a very attractive programme situated at the juncture of science and practice."

This specialisation benefits students later during the job search – both as a directional impulse in choice of career and as a unique qualification in rare yet in-demand specialties, such as environmental or finance psychology. Maxi Dietzsch would also like to continue her studies after completing her Bachelor's degree in Winter Semester 2016/17. "It's difficult to find a job in psychology without a Master's degree", she says. "Besides, I feel comfortable here and can pursue my passion."

"I feel comfortable here and can pursue my passion."

Maxi Dietzsch, BA student in Business Psychology, plans to go on for a Master's degree

Better teaching, fewer dropouts

Hochschule Bonn-Rhein-Sieg awarded VDMA prize "Bestes Maschinenhaus 2015"

Students like coming to the H-BRS. They enjoy studying and acquiring professional and personal competencies for a successful career – this is how Professor Paul Melcher and his colleagues define academic success. The professor, as coordinator for quality, evaluation, practical semesters and scholarships for the Department of Electrical Engineering, Mechanical Engineering and Technical Journalism, summarised everything that improves teaching and reduces the number of students who break of their studies in his application for "Bestes Maschinenhaus 2015". The result: success. In the 2nd competition of the German Engineering Federation (VDMA), this teaching concept triumphed over five high-ranking finalists, securing the prize of 100,000 euros for the department.

"We award this prize to a teaching concept that makes students the central focus", said VDMA President, Dr. Reinhold Festge, at the award ceremony in May. This is attested to by involving students in the process, through evaluation procedures and feedback discussions, for instance. Measures that sustainably ensure the quality of teaching and contribute to academic success are extensive. From a logical, step-based study structure and the interdisciplinary nature of the department to funding and support measures, the potential for improvement has been fully tapped at all levels.

The concept is based on practical experience, as illustrated by what is known as the 4+1+4+1+4+1 model. For every four weeks of theory – lectures, exercises, internships – a project week follows. This gives students the chance to apply their expertise in practice. Professor Iris Groß, Vice President for Teaching, Learning and Further Education, praises this approach: "The large project component lets students experience the purpose behind their learning early on." Moreover, the team coordination and personal responsibility inherent in the project work promote personal development and train students in soft skills, such as project management and presentation techniques. "We impart competencies that help students later in their professional lives", explains Professor Melcher. "Vocational preparation is especially important to us as a university of applied sciences."

More:

➲ www.youtube.com/watch?v=8s7UpcZ2U-0

"We award this prize to a teaching concept that makes students the central focus."

Dr. Reinhold Festge, VDMA President

Modern Journalism

Students produce a multimedia report on brown coal

On-site interview in Garzweiler

A buzzing noise fills the room. The world's largest land machine, the bucket wheel excavator, cuts into the ground. Billows of dust rise. Kilometre-long conveyor belts roll past. Viewers feel as if they are standing in Garzweiler surface mine near Neuss rather than in the multimedia lab at the Hochscule Bonn-Rhein-Sieg. During the project weeks in Summer Semester 2015, aspiring technical journalists developed a multimedia report on the topic "Brown Coal in the Rhineland". Project director Sabine Fricke thinks it is important for students to become familiar with new forms of journalism. "The trend is moving away from television toward the Internet. New formats, like cross-media reports, are emerging. I want to teach future technical journalists the best way to convey information. The secret: tell stories."

Multimedia, one tool

14 students worked in four groups on the topics power plant, surface mining, environmental impact and town resettlement. Equipped with video cameras, film cameras and audio recording devices, they travelled to Garzweiler for on-site research. There they interviewed the spokesperson for the energy concern RWE and residents of the town Immerath who had been resettled for the surface mining. "The students captured the footage, images and audio themselves. We then pieced these many little fragments of the puzzle together into a master production", says Sabine Fricke. The biggest challenge was coordinating the material from the different work groups. Video and audio recordings needed cut and had to be integrated with photos and text to form a story. The online tool Pageflow, developed by Westdeutscher Rundfunk (West German Broadcasting Cologne), facilitated this process. With this tool, mixed media can be combined to compose a report. Student, Lea Lindenberg, is inspired by the practice-based opportunities at the university. "The project weeks in the degree programme Technical Journalism give us the chance to apply our knowledge. That helps me during the practical semester because I'm already putting together multimedia reports now. Thanks to the brown coal project, I'm well prepared."

Tuned in to the degree programme

The two projector directors, Sabine Fricke and Wolfgang Koch, consciously chose the topic brown coal (lignite) because it unites the two programme specialisations, technology and environment. In Pageflow, both the threat to the environment posed by the surface mining and fumes of the power plant and the technical side with power plant, conveyor belts and excavators were addressed. The students presented the report in the university's multimedia lab on the Day of the Open Project. It was warmly received. Professor Johannes Geilen, Dean of the Department EMT, was enthusiastic about the modern teaching methods in the degree course Technical Journalism/ PR and called for the production of another multimedia report in Summer Semester 2016.

The report online:

➲ http://bit.ly/1X6oWWs

Kick off right

Head start in studies: StartGut trains academic skills and self-organisation

In 15 seconds ...

Kick of your studies right, with a preparatory semester – the programme H-BRS-StartGut is pursuing this goal in the degree course Electrical Engineering. The interdepartmental Study Workshop also contributes to academic success.

The test run in Summer Semester 2015 went off without a hitch. Eleven "StartGut-ers" took advantage of this offer to prepare themselves for requirements in the Bachelor course in Electrical Engineering. The programme, funded by the Stifteverband (Donor's Association), in the Department of Electrical Engineering, Mechanical Engineering and Technical Journalism, is not only targeted at prospective students. Students who are already studying Electrical Engineering but struggling with the study load, can also train at StartGut. "Module 1 Mathematics is especially difficult for many students. That's why we offer the option of catching up", says project initiator Professor Jürgen Apfelbeck. Prospective students also benefit from the intense training in maths. "Some haven't done arithmetic in years. We start with simpler math problems and then gradually increase the level", reports mathematics lecturer Roberta Hodel. The programme not only fosters academic skills but also self-organisation, which plays a crucial role in meeting study requirements. Dealing with anxiety and procrastination are topics, too. A learning excursion with three days of exam preparation is part of the programme.

Concept for all departments

The Study Workshop is another project that supports academic success. Students can prepare in peace for tests or work on their exercises and assignments. Tutors and lecturers help when problems crop up and offer tips. "We want to motivate students to work out a study routine for themselves. Then they learn much more effectively", says Professor Klaus Lehmann, founder of the Study Workshop. Together with chemistry lecturer Antje Thielen, he introduced this project of accompanied self-study in Summer Semester 2014 in the Department of Natural Sciences. At the start of Winter Semester 2015, the chemistry professor invited colleagues from other departments to a discussion. "In Rheinbach, the Study Workshop is a successful model. We'd like to make it a university-wide format." The EMT and Computer Science Departments have already set up their own offers. The Management Sciences and Social Security Studies Departments are also considering establishing their own Study Workshops. Since the end of the year, refugees have been attending the EMT Department's Study Workshop, too. The opportunity is welcomed. Many of the refugees studied in their home countries and are glad to be able to do something productive related to their field to stay on the ball.

More on StartGut:

➲ www.h-brs.de/hbrs-startgut

Pro-MINT-us enters round two

"Since the introduction of Pro-MINT-us, significantly more students are passing examinations in the MINT subjects", says project director Professor Marco Winzker. Pro-MINT-us supports students in the subjects Math, Informatics (computer science), Natural sciences and Technology. Thanks to the Federal Ministry of Education and Research's Quality Pact for Teaching, continuation of the programme is ensured. Beginning 2017, the university of applied sciences receives funding for three more years.

24 research

Gravity and spatial awareness: Centrifuge experiment at the German Aerospace Centre in Cologne

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Science – sustainability – social responsibility

The title of University Development Plan II (HEP II) that the President's Office concluded at the end of 2015, is also a call for research at the Hochschule Bonn-Rhein-Sieg – University of Applied Sciences.

Under the headings Structures for Research, Space for Research and Visibility for Research, we've planned extensive measures for research promotion in the coming years, setting the course in 2015.

An outstanding example is the new Graduate Institute North-Rhine Westphalia (GI NRW), where colleagues from the Graduate Institute at our university of applied sciences interact with partners from other universities. As Vice Chair of the GI NRW, University President Hartmut Ihne has taken on the task of moving forward with the development of a framework for conferring doctoral degrees.

The success and variety of research at the Hochschule Bonn-Rhein-Sieg was displayed at the Research Exhibition on the occasion of the 20th-year anniversary celebration. The scientists – supported by students and doctoral candidates – presented exciting projects "to touch". Minister of Science, Svenja Schulze, was just as caught up in the exciting atmosphere during her tour as the numerous visitors were.

The outcome of the assembled research projects in 2015 is quite impressive. Among them is a large-scale project from the EU Horizon 2020 programme (see page 26) and the involvement of the German Research Foundation in two research training groups at the University of Siegen and the Ruhr University Bochum. Another highlight is the Institute of Technology, Resource and Energy-Efficient Engineering (TREE), a new central research facility at the H-BRS (see page 34). At TREE, topics on technical sustainability are bundled into a research focus, thereby addressing the immense social challenges.

Incorporating the results of research into teaching is a permanent concern at the H-BRS. In 2015, the institution decided on six new Master programmes. This is where the interlocking of research and teaching takes on central importance and contributes to developing the H-BRS into a truly application-based institution.

Prof. Dr. Margit Geißler
Vice President for Research and Young Academics

Full service for research

The Centre for Science and Technology Transfer (ZWT) supports scientists with cooperation projects

June 2015 in the Parisian suburb of Palaiseau: 18 research partners from nine countries meet to kick off the Horizon 2020 research project "C-BORD". One of the partners is the Hochschule Bonn-Rhein-Sieg – University of Applied Sciences; project coordinator is the French Alternative Energies and Atomic Energy Commission (CEA).

A 126-page application, five months of evaluation and three months of intense negotiations preceded this event, resulting in a total of 403 pages of contracts. The Centre for Science and Technology Transfer (ZWT) was involved from the very beginning. It provides scientists at the university with advice on relevant funding programmes, assists with proposals and applications, handles project contracts and offers support during project implementation.

Decisive for the success of an application is the total package of concept, scientific know-how and a thoroughly detailed evaluation plan for the results, right down to the registering of a patent. If any of this is lacking, the project's prospects for success sink dramatically, according to the experience of the ZWT. During consultation, the ZWT takes the following approach: scientists should be able to focus on scientific matters. "We support them in all other issues. It doesn't make sense that they should also have to worry about familiarising themselves with all the details of the respective funding conditions, the EU state aid legislation and the small print of contracts", says Roland Wünsch from the ZWT. "We've acquired extensive experience and represent the interests of our scientists and the university in the often difficult negotiations."

In contracts with partners from science and business, it's not about a few simple rules. "Compliance with funding conditions and legal regulations, not least hard-nosed financial interests in evaluating project results, these are the crux of the negotiations", according to Wünsch. "During the initial talks, the danger already exists of making thoughtless commitments that could cause significant problems later and place the whole project in jeopardy. That's why it's crucial that we become involved early on."

Bringing contracts to life

Kick-off events, like the one in Palaiseau, are already about concrete implementation. Initial steps as well as the binding procedures for publication and the internal exchange of information are agreed upon. The ZWT supports the university's scientists in this process too, with a lot of hands-on experience. Researchers should not be deterred by red tape. We support them throughout the entire project period up to and including patent applications and licensing negotiations", explains Wünsch.

➲ www.cbord-h2020.eu

C-Bord

The Safety and Security Research Institute, represented by Professors Peter Kaul and Norbert Jung, is also participating in "C-BORD". The European partners are conducting joint research on how freight containers can be inspected for drugs, smuggled goods, explosives and dangerous substances as well as radioactive material through non-invasive methods.

Is a dino inside?

A procedure for quickly examining large quantities of stone for paleontological finds would significantly ease the work of Professor Thomas Martin, palaeontologist at the Steinmann Institute of the University of Bonn. In cooperation with the Institute for Detection Technologies (IDT) of the Hochschule Bonn-Rhein-Sieg, a technical solution for this problem is being developed. Professor Gerhard Holl and doctoral candidate Dominik Wild are carrying out preliminary tests for this purpose. Using a laser, they want to analyse the composition of individual rock samples. The system should be able identify potential bone finds quickly and with no contact. In the scope of her Bachelor's thesis in Forensic Sciences, Catarina Berger is also working on this topic.

Which way is up?

Cooperative research on perception

In 15 seconds …

Computer Science professor, Rainer Herpers, along with colleagues at York University in Canada, is researching how people orient themselves in space. How do they know which way is up, and what influences this perception? For this purpose, tests were carried out with a centrifuge from the German Aerospace Centre (DLR).

A stumbling astronaut on the surface of the moon and an older person who trips on the stairs – what they have in common is their unreliably functioning self-orientation. Rainer Herpers from the Department of Computer Science at the Hochschule Bonn-Rhein-Sieg has made it his task to understand the process of self-orientation better. To this end, he conducted experiments with the DLR centrifuge. "Self-orientation is a very interdisciplinary problem. First we had to figure out how we could simulate specific conditions for the test subjects and how to interpret the results properly", explains the expert in Medical Computer Science. He received support from specialists at York University in Canada, perception psychologist Laurence Harris and technical computer scientist Michael Jenkins.

"d" or "p": that is the question

In a joint study, they examined what is known as Perceptual Upright (PU), a person's perception of "up". Among other factors, visual information and bodily awareness play a large role. The goal was to find out how big the influence of gravity was. To test this, subjects lay fixed on their backs on a centrifuge. Completely isolated from the outside world, they could only see a round monitor. On the screen a letter was visible that could be interpreted by the study participants as either a "d" or a "p". The turning of the centrifuge created artificial gravity, but the earth's gravity was still at play, as well. This gave the test subjects the feeling that they were standing at a slant, which influenced their perception of the letter. "From the results, we can draw conclusions about gravitational conditions that are weaker than those on earth", according to Herpers. By varying the rotation speed, the scientist could examine situations between 0 g (zero gravity) and 1 g (earth gravity).

Threshold moon gravity

"Our results indicate a clear trend. Gravity only influences our perception of "up" and "down" when it's at least as strong as it is on the moon", explains the Computer Science professor. "Our next goal is to determine this threshold more precisely." In the course of their research, Herpers and his team also hope to improve science's understanding of perception in general.

Small cells, big innovation

University Innovation Prize 2015 for "micrOzone"

The great strength of research at universities of applied sciences is its close relation to practice. Together with industry partners, many innovative products and technologies with concrete applications can be developed. Since 2010, the H-BRS has been honouring the best ideas with the Innovation Prize. In 2015, the prize, endowed with 5,000 euros, was awarded to the research project "micrOzone": microdisinfection system for decentral disinfection of water distribution systems".

In cooperation with the Institute of Solar Research from the German Aerospace Centre (DLR), scientists at the university of applied sciences were engaged in examining the properties of an especially small electrolytic cell, developed by the firm Innovatec. With minimal energy, it splits water into hydrogen, oxygen and ozone. The small quantities of ozone that result can then be deployed at neuralgic points for water treatment. "In espresso machines, the cells can be used directly where the piping bends, that is to say, in places that are hard to clean with conventional methods", explains Professor Gerd Knupp from the Department of Natural Sciences. He coordinated the work of the three participating university research groups, who dealt with various issues before the product's market launch.

Three teams for one cell

As an environmental analyst, Gerd Knupp, along with his teams, tested whether the system would be able to break down harmful substances like pesticides or pharmaceuticals within a relevant framework. "On average, we observed a very successful reduction in harmful substances even though we were working with a contamination that was up to 1,000 times stronger than we'd expect in reality."

Disinfection performance in water pipes and the probability of re-contamination were analysed by microbiology professor, Dieter Reinscheid. He was able to determine a significant reduction in germs that should last for several weeks.

Chemistry professor, Steffen Witzleben, examined the long-term stability of "micrOzone" and its behaviour in hard water. He was supported by colleagues from the DLR. For longer space missions, a resource-friendly, efficient method of water treatment is extremely important. "The system can be operated with solar cells or even small batteries. Its use in areas with no electricity, such as in crisis regions, is quite conceivable", explains Gerd Knupp. "It could be applied in many different scenarios. Even a well-known beverage bottler has shown great interest."

Overview of University Innovation Prize winners:

➲ www.h-brs.de/hochschulinnovationspreis

The electrolytic cells split the water into hydrogen, oxygen and ozone. The ozone is used in water treatment.

doubting

Udo Scheuer

meets aspiring entrepreneurs at the university as a devil's advocate – and ensures that doubt is dispelled and projects are successful.

„"The fundamental cause of the trouble is that in the modern world the stupid are cocksure while the intelligent are full of doubt." Udo Scheuer only partially agrees with this quote from philosopher Bertrand Russell, because to him, doubt contributes to success – in establishing a company, for instance. The Director of the Centre for Science and Technology Transfer (ZWT) at the H-BRS, provides advice to graduates who want to start their own businesses. "An idea doesn't get better when everyone praises it", he says. "That's why I act as a sparring partner who carries out a reality check." Again and again, the founder of a business should question basic ideas, implementation and market entry, in order to be able to estimate the potential for success. "Doubt is a step along the path toward a convincing solution", says Scheuer. "That applies not only to start-ups but also to large, dynamically developing organisations like universities."

Skin colour plays no role

More security while working with machines

Man and machine working together in perfect harmony, both fully applying their own capabilities in the production process – that would be an industrial revolution. Up to now the parallel existence of workers and robots in manufacturing is the rule, not cooperation. The danger is too great that a small error in the process could lead to an accident. The reason: person recognition is not yet reliable. This is the problem that Professor Norbert Jung from the Safety and Security Research Institute wants to solve.

In the scope of the research project "Safe Person Recognition in the Working Area of Industrial Robots (SPAI)", engineer Norbert Jung and his team examined how skin could be reliably distinguished from other materials. Cameras working within the near-infrared (NIR) spectral range form the basis. "During our preliminary examinations with normal cameras, the recognition rate fluctuated significantly, especially under changing lighting conditions", explains Jung. For this reason, the cameras for the SPAI project work with active illumination via devices known as ring lights. These emit near-infrared rays that are invisible to humans but that assist the cameras in reliable detection.

This technique has a further benefit for the safety researchers: skin colour plays no role. The system already functions very reliably, according to Norbert Jung, but it can't be used everywhere. "We need visible skin – a hand, an arm, a face. This rules out use in environments where protective clothing is worn, in welding for instance."

Accident prevention with high tech

The new technology is flexible; it can be used with robots or with machines like circular saws. "In this case, we just work with a measuring spot, not with a camera image. Reaction is required in milliseconds, and the recording of a measuring spot and its subsequent interpretation by the system is much faster", explains Norbert Jung. This accident prevention is in the interest of the German Social Accident Insurance (DGUB), which is funding the project. For the upcoming 2016 "beyondSPAI" project, findings from the previous project are to be used and the system further developed. In addition to the Safety and Security Research Institute and the DGUV, the company Schmersal, which specialises in safety and security technology, is participating and carrying ten per cent of the project costs. "beyondSPAI" will additionally be funded by the Federal Ministry of Education and Research in the scope of the "FHProfUnt Programme".

Skin and face database for research

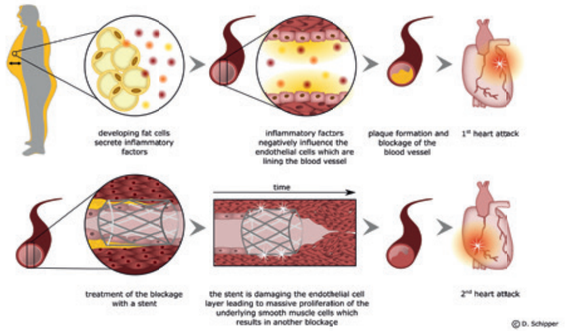
The Safety and Security Research Institute (ISF) has created a database of skin and faces that can be used by both researchers and lecturers. The data was originally collected for two projects: a biometric recognition system (FaGeb) that reliably picks up on deceptions like artificial facial parts, and Safe Person Recognition in the Working Area of Industrial Robots (SPAI). Both projects are based on a custom-developed camera system that works with the near-infrared spectral range. In this range, skin, regardless of type, sex and age, can be reliably differentiated from other materials.

Getting fat is dangerous

Search for the origin of atherosclerosis

Thrombosis, stroke and heart attack – three main causes of death in industrialised countries. All three can be traced back to atherosclerosis. In this disease, small inflammations appear on the inner walls of blood vessels, which consist of so-called endothelial cells. This first leads to a narrowing of the blood vessels, called stenosis, and finally to complete blockage. While the second phase of the disease is already well understood, researchers in the joint project "Mechanism and Model of Atherosclerosis" (MeMoAthero) want to explain why these infections arise.

"We mimicked the process that leads to infection in vitro, in order to gain a better understanding of the progression of the disease", explains Professor Edda Tobiasch. The stem cell researcher from the Department of Natural Sciences coordinated MeMoAthero throughout the three-year project period.



"Getting fat is dangerous, being fat isn't", summarised the researcher at the close of the project. "As a fat cell develops, an enormous number of inflammatory factors are released. We showed this clearly in our experiments." These factors cause a change in the metabolism of the endothelial cells, which can eventually lead to atherosclerosis. In their experiments, the scientists found out that purine receptors play a role in this cell change. "These cellular components could be the key to non-surgical treatment because drugs that affect them already exist, though they're used in other applications. That's why we need to continue researching", says Edda Tobiasch.

Topics for many doctoral theses

The MeMoAthero project generated plenty of dissertation topics. Patrick Babczyk is researching how atherosclerosis arises at the molecular level. His colleague Dorothee Schipper is working on the project's second focus, researching what is termed restenosis. In addition to a bypass, treatment of a blocked artery (stenosis) frequently includes the use of stents. The purpose of these implants is to widen the affected blood vessel. However, their use can result in damage to the endothelial lining, exposing the layer of smooth muscle cells below. These cells begin to proliferate, causing a new blockage: restenosis. In order to exam this process better, a "scratch machine" was developed in cooperation with Professor Kathrin Harre from the Dresden University of Applied Sciences. This machine simulates the scratching of the stent on the inner wall of the blood vessel in the model.

The fruit of a highly ramified TREE

Technical sustainability and technology acceptance research – TREE Institute lays the basis for third research focus

NRW Minister of Science, Svenja Schulze, learns more about TREE's focuses from institute director, Dirk Reith

Students have compiled a multimedia report on TREE:

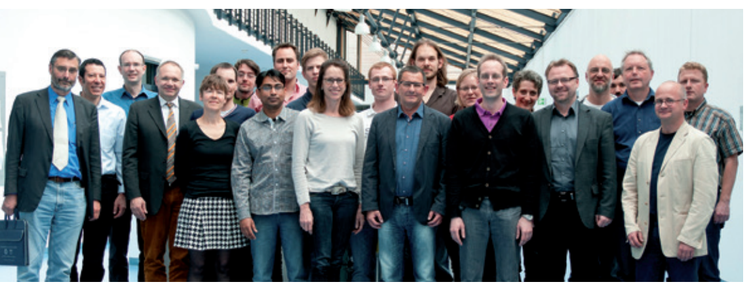
- http://technikjournalismus-hbrs.pageflow.io/tree-3282
- www.h-brs.de/en/tree

In 15 seconds ...

With technical sustainability in focus, the Institute of Technology, Resource and Energy-Efficient Engineering (TREE) is in touch with the times. The institute serves as a platform for streamlined interdisciplinary cooperation. Its wide range of projects could make the world a little more sustainable in the future.

Technology should not be viewed in isolation but rather in interplay with people and the environment – under this premise, the university of applied sciences founded the Institute of Technology, Resource and Energy-Efficient Engineering (TREE), established within the Department of Electrical Engineering, Mechanical Engineering and Technical Journalism. "TREE offers all scientists at the university a platform for dealing with topics related to technical sustainability", explains Professor Dirk Reith, one of the institute's founding managing directors.

Interdisciplinary work: Scientists and researchers of TREE



With currently around 20 actively participating professors from a wide variety of departments and professional groups, TREE emphasises interdisciplinary, application-based research. A selection of ongoing projects: under the direction of Professor Alejandro Valenzuela sensors for intelligent energy monitoring in large buildings are being developed. Professor Alexander Asteroth is working with his team on efficient mobility concepts, while Professors Stefanie Meilinger and Dieter Franke are dealing with profit forecasts for photovoltaic modules. The team of Professor Bernhard Möginger is researching the possibility of real-time tracking of the hardening properties of dental components, so that the longevity of fillings can already be ensured during treatment.

Dirk Reith's interests go beyond research on technical sustainability. He would like to raise social awareness on this topic. "In the future, we also want to work on acceptance research and technological mediation. We believe it's important to disseminate these ideas in the region and throughout society at large."

NRW Minister of Science, Svenja Schulze, has already shown great interest in the institute's work. During a Research Exhibition on the occasion of the university's 20th anniversary celebration, TREE presented its diversity. By decision of the President's Office, the institute has been upgraded. Since 2015, it ranks among the central research facilities. This makes the field of technical sustainability, alongside security and visual computing, the university of applied science's third research focus.

Economic factor medical tourism

To Germany for cancer therapy

In 2004, the outlook was excellent: North-Rhine Westphalia was at the top in medical tourism. But in the following years, Bavaria overtook all other federal states. What happened? How could NRW catch up? Jens Juszczak, academic staff member at Bonn-Rhein-Sieg, examined this question. For over ten years, he has been working in the Department of Management Sciences on the topic of medical tourism.

The research project "Medical Tourism along the Rhine Cologne – Bonn – Dusseldorf" was launched in January 2012 to deliver answers. "The initial impulse came from the state of North-Rhine Westphalia", explains the economist. Ultimately, many institutions benefit from patients from abroad, mainly hospitals, but also airports, hotels and rehabilitation centres.

"Taking Cologne, Bonn and Dusseldorf as models, we developed and implemented innovative concepts. Thanks to targeted marketing efforts, training, certificates and networking, the Rhine region is in a much better position than it was three years ago", says Jens Juszczak. The numbers confirm this: in the period from 2012 to 2013 alone, the city of Cologne recorded a 51 per cent increase in inpatients from abroad, but Bonn and Dusseldorf also lay far above the national average (8 per cent), with 21 per cent and 16 per cent, respectively.

Learning to deal with patients is important.

"The majority of medical tourists come from Russia or the Arab world", explains Jens Juszczak. They have a concrete need for high-tech medicine, in oncology or neurosurgery for instance. To support them and acquire new patients, many hospitals have now opened international offices. The education and advanced training of staff is an important component of the project. "Seminars on interacting with Arab patients are especially popular. We've organised them with some of the best practitioners in Germany."

To ensure further improvement, experts from the university in conjunction with TÜV Rheinland have developed a standard for evaluating the quality of service offered by international offices. What especially pleases university lecturer Juszczak: many of these offices are now directed by his former students.

Even after the project comes to an end in March 2015, many different components of "Medical Tourism along the Rhine" will be carried forth. "Further education and certification", named by Juszczak as examples, draw a positive conclusion. "We have demonstrated that investments in human resources and marketing show measurable success very quickly. With research and our conference on medical tourism, we've discovered a niche in which we're national leaders."

German Vice President at IEEE-RAS

For the first time in the 30-year history of the IEEE Robotics and Automation Society (RAS), a German has been elected to the executive committee. Since June 2015, Computer Science professor, Erwin Prassler, has been Vice President of what with its 11,000 members is the world's largest association of engineers and computer scientists in the field of robotics. During his term of office, which lasts until 2017, he is member of the "Industrial Activities" committee. Prassler believes that it is especially important to close the gap between scientific research and practical application in the field of robotics. Moreover, he'd like to create a global infrastructure to support start-ups in this field.

Forward-looking and interdisciplinary

The Department of Social Security Studies initiates a new discipline

In 15 seconds ...

More than a decade after its founding, the Department of Social Security Studies is more current and active than ever. Rarely does a single department create an entirely new academic discipline. Now a new Master programme is preparing to carry the university's competencies into the world.

In 2003, Professor Günther Sokoll became founding dean of the Department of Social Security Studies and developed the dual Bachelor programme Social Security Management, focus Accident Insurance. His work forms the basis for the Master programme, launched in 2015, in Analysis and Design of Social Protection Systems. Moreover, this was the start of a breakthrough that led to an entirely new academic field: Social Security Studies in the form of an integrated discipline.

In order to drive this development forward, the *Handbuch Sozialversicherungswissenschaft* (*Handbuch on Social Security Studies*) was published in September 2015. "The handbook is the result of three years' work. With the publication of this handbook, we want to overcome departmental boundaries, stimulate cross-disciplinary and cross-institutional discourse, bring individual players in social security closer together and lay the basis for successful interdisciplinary cooperation", explains project coordinator Iris Schuhmann. 86 authors contributed articles on interdisciplinary issues in the field of social security. The complete work with over 70 contributions was published by Springer VS Verlag. In just three months, the digital version received more than 40,000 call-ups for individual contributions.

On the occasion of the handbook's publication, the department organised a symposium on Social Security Studies at which the newly founded association "Forum Sozialversicherungswissenschaft e.V." was introduced. "By establishing the association, we want to create an interdisciplinary forum to provide actors in science and practice with a joint platform for future exchange in the area of social security", says Iris Schuhmann.

> "With the publication of the handbook, we want to overcome departmental boundaries, stimulate cross-disciplinary and cross-institutional discourse, bring individual players in social security closer together and lay the basis for successful interdisciplinary cooperation."
>
> Project Coordinator Iris Schuhmann

Contribution to global social development

The new Master programme Analysis and Design of Social Protection Systems has an international focus. Coordinated by Professor Esther Schüring, the three-semester consecutive degree course is aimed at students who wish to deal with the analysis of social security systems. The combination of on-campus events and online courses offers flexibility, while ensuring sufficient opportunity for intercultural exchange. The participants from 13 countries learn how to structure and further develop social security systems responsibly. In addition to theoretical principles, the degree course has a strong emphasis on practice. The communication skills and social competence of the future graduates also play a big role.

More on the department and its new Master programme

➲ www.h-brs.de/en/analysis-and-design-social-protection-systems-ma

Prominent Guest: Andrea Nahles, Minister of Labour and Social Affairs, presents the department's publication, "Handbuch Sozialversicherungswissenschaft", together with project coordinator Iris Schuhmann (left) and Prof. Dr. Susanne Peters-Lange (right)

Graduate Institute NRW

Back in early 2014, the deans and presidents of the universities of applied sciences in NRW introduced the "Bonn Declaration", calling for the development of a statewide graduate institute. The purpose was to consolidate procedures for the cooperative conferral of doctorates at universities of applies sciences with other universities. On 14th December 2015, the university administrator signed an agreement that laid the foundation for the Graduate Institute NRW. Official launch was 1st January 2016; University President, Hartmut Ihne, is a member of the board. The foundation was preceded by the efforts of a task force. Involved were Vice President for Research and Young Academics, Prof. Dr. Margit Geißler; Academic Director of the Graduate Institute at the H-BRS, Prof. Dr. Rainer Herpers, and Chief Executive of the Graduate Institute, Dr. Rita Cornely.

doubting

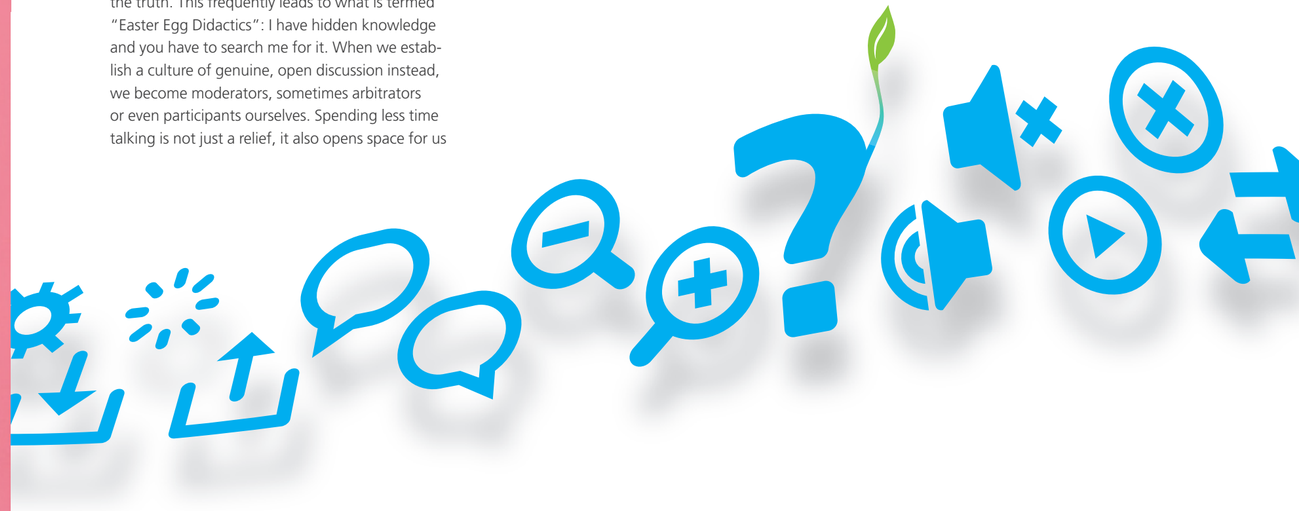
the magazine on this year's theme

Doubt makes us stronger

by Iris Groß, Vice President for Teaching and Learning

Who likes to doubt him or herself? The feeling is unpleasant, and yet those who don't regularly question the content and methods of their own approach to teaching to see what is retained – let alone what is applied – are getting nowhere. We have to doubt ourselves before we're ready to learn from others.

The principle of good academic teaching: we must awaken doubts in students. They shouldn't just accept what we set before them; they should critically question and contemplate it. Only in this way will they reach a deeper level of understanding. After all, constantly doubting what appears to be true is the first step toward science. As professors, we often try to cultivate a traditional, authoritarian style as if we alone possess the truth. This frequently leads to what is termed "Easter Egg Didactics": I have hidden knowledge and you have to search me for it. When we establish a culture of genuine, open discussion instead, we become moderators, sometimes arbitrators or even participants ourselves. Spending less time talking is not just a relief, it also opens space for us to receive thought-provoking impulses and expand our own understanding. The econometrician, Stefan Freitag, is pioneering an especially extreme approach at our university: the so-called Flipped Classroom. This approach flips the principle of transferring knowledge in the classroom and practising and repeating it at home. Students use customised teaching materials, such as videos, to prepare themselves before class. In the classroom, only topics that remain unclear are discussed. The rest of the time is used to delve deeper into the topic with exercises. Another important point, and a strength of our university, is the joint project work with students. Not only is this a completely new kind of learning, but it's also an opportunity for students to introduce and develop their own ideas and express doubts that may not have occurred to us as lecturers.



Doubting the idea of a degree course…

…because I'm the first in my family to study

Engineering professor, Elvira Jankowski, comes from a working-class family and is familiar with the problems and doubts of children who are the first in their families to study. That's why she has contributed a video to the campaign "First at the University". "I recount how I traversed the path from childhood to professor. I hope it encourages other working-class children to follow their paths and dare to study." In addition to her video, the campaign site profiles numerous other famous people, including Vice Chancellor Sigmar Gabriel, Federal Education Minister Johanna Wanka, and Dr. Thomas Enders, Chief Executive of Airbus. Jankowski is currently establishing a network at the university to provide role models to children from working-class families and support them in their studies, but she'd like to go one step further. "Working-class children are just part of the story. I'd like to encourage people with disabilities to study, motivate women to take up technical disciplines, and open universities to even more international students. It's about expelling all their doubts and promoting diversity."

More in the video:

➲ www.youtube.com/watch?v=5GdPw9UGofQ

…because I have a disability

How does your disability restrict you?

MDS is a very rare neurological disease. It causes me to cramp up suddenly and sometimes twitch uncontrollably.

Did you have doubts as to whether you'd be able to study at all?

I believe that everyone has some doubt about and respect for what is expected at the university. But, of course, a disability makes you doubt the possibility of a degree even more. I was also afraid that my disability would overshadow me as a person. I only want support when it's necessary. That's hard to recognise in the case of my disability because it's less conspicuous. When I run into problems I have to talk to people directly and explain what I have. And I'm not sure how that is perceived.

Do you feel as though you receive sufficient support from the university?

At the beginning, the lecturers and university staff seemed doubtful. Many of them had never heard of MDS and didn't know how to deal with it … but then they were all very open-minded – and that is still the case today. I get friendly, helpful answers to my questions. I receive support, especially during tests, more time for instance, or the option of taking an oral rather than a written exam. This encourages me.

The Health and Disability Commissioner supports students and university staff:

➲ www.h-brs.de/en/health-and-disability-commission

…because I have a small child

Anna Sophia Stötzer is a single mother with a young daughter and studies Technical Journalism/PR

Q: Did you have doubts as to whether you could coordinate studies and child?

I was studying at another university when I became pregnant. After the birth of my daughter, I tried to continue my studies. I began to doubt that I could handle both – my old university didn't really address my situation. I plucked up my courage when I found out about the degree course in Technical Journalism from a friend and heard about the support the university of applied sciences offered to new parents.

What specifically took away your doubts?

Before I commenced my studies, I sought advice from Barbara Michel at the university's HELP Counselling Centre. The support that HELP offers is great, but the understanding and consideration I received from the lecturers and students also encouraged me. At the time of my transfer, my daughter was 6 months old. After talking to the professors, I was even permitted to take her to classes with me. Later I got a spot for her in the Student Union kindergarten; the university was very accommodating. It would have been difficult to find a kindergarten spot elsewhere for such a small child.

The Family Counselling Centre HELP supports students who have or are expecting children by providing detailed information and confidential advice: www.h-brs.de/help

Against our better judgement

“The driving force behind social welfare is self-interest.” Unfortunately, this observation from the father of political economy, Adam Smith (1723-1790), has held true. We know the sad result: climate change, species extinction and the global water crisis are almost beyond repair. I doubt that a timely reversal is possible. A cheap flight south and a large portion of meat apparently help us to overlook existential scientific facts.

Rosemarie Stibbe, Professor for Business Administration, Controlling and Sustainable Management

Waiting for the Babel fish

When the Internet era dawned in the early 1990s, Wolfgang Wahlster, Director of the German Research Centre for Artificial Intelligence (DFKI), said he wanted to translate spoken Japanese automatically into German. Returning from a one-year trip to Japan, I knew what computers were capable of and had massive doubts as to whether automatic translation would ever be possible. Today, thanks in part to the World Wide Web, computers have access to enormous quantities of data that provide them with the context they need to understand language. If I’m not mistaken, I can now look forward to my own personal Babel fish, the translation creature from Douglas Adams’ *A Hitchhiker’s Guide to the Galaxy*.

Andreas Hense, Professor for Business Information Systems

Pillars of good science

As a radio astronomer, I deal with assessing and questioning observations, possible detections and their significance every day. Questioning also means doubting. Did we measure correctly? Were the instruments functioning properly? Is the calibration correct? This helps us interpret results critically and stimulates scientific debate, which in turn ensures high quality research. I believe that doubting, along with diligence, curiosity and perseverance, is one of the four pillars of good science.

Bernd Klein, Professor for Digital Signal Processing and Radio Astronomy Instrumentation and Head of the Division for Digital Signal Processing (DSP) at the Max Planck Institute for Radio Astronomy in Bonn

Gender research and comfort level

Gender research is an ideal instrument for calling existing knowledge into question, doubting in order to expose the blind spots that arise because the experiences of women or of people with different social or cultural backgrounds are overlooked. By doubting the standard settings of office air conditioning systems, two Dutch biologists in 2015 finally answered the question as to why women tend to freeze in the office. Conventional air conditioning systems were developed by men for men, according to their comfort levels. The devices were set far too cold for women.

Susanne Keil, Professor for Journalism and Online Journalism

Productive state

On the path to a more sustainable society, I always pack doubts. I can never be certain whether my questions along the way and the answers provided by my data will lead me safely to my destination. A hint of scepticism and insecurity always remains. Max Frisch keeps me from despairing. He says, “A crisis is a productive state. You simply have to get rid of its aftertaste of catastrophe.” This guides me: doubts steer me toward asking better questions.

Christian H. Meyer, Researcher at the International Centre for Sustainable Development (IZNE)

Methods of gaining knowledge

No doubt, no science. No doubt, no gain in knowledge. Doubtless truisms that every scientist or anyone involved in science would agree with. But does doubt ever extend beyond the constant struggle for knowledge or content and the like, to the question of what the appropriate methods for gaining knowledge are? The fact is: we can’t calculate “good” and “evil”.

Volker Kronenberg, Professor for Political Science

Room for interpretation

Over many research parameters we have no influence. That’s why it’s important to question measurement results critically. In detection technology, for instance, we work with tracking dogs. This leaves even more room for interpretation than technical systems do. I think we should always entertain doubts about the accuracy of any statements made and exercise caution when representing something as fact.

Peter Kaul, Professor for Physics, Statistics and Measurement Technology

Doubting for justice

Jurisprudence doesn’t want simple answers, but rather simultaneously searches in the answer for justice. But what is justice? Can norms and laws create justice? And moreover, can those responsible, those who apply the law, guarantee justice? As a legal scholar I doubt the meaning of my discipline. If it doesn’t (only) stand for justice, then it must have other functions. In the search for answers lie the doubts of a science!

Susanne Peters-Lange, Professor for Law and Social LegislationThe search for substance

The search for substance

University President Hartmut Ihne and Director of the Grimme Institute Frauke Gerlach discuss the challenges of digital enlightenment

Do you doubt the quality of the media?

Dr. Frauke Gerlach: The Grimme Institute watches the quality of the media, be it TV, Internet or radio. Quality is not, however, an established term. It depends on social values and norms. What can be said, what not, aesthetic impressions and the underlying technology – all this influences our assessment of quality. You can observe this in television films and series. Over the course of time and through changing generations, a significant transformation is apparent. That's why quality also means innovation to us. In journalistic media, we also attach great importance to careful research and respect for the principles of the Press Code.

Prof. Hartmut Ihne: Good research forms the basis for quality. Is it documented, thorough and transparent? Is it possible to verify what was said? Or is the text an interpretation, arising from a certain inclination or conviction of the journalist? What worldviews and values are being conveyed? Does the writing marginalise; is it racist? The ethical dimension of truthfulness is especially important for quality. Moreover, structural and aesthetic qualities are involved that we're not addressing here.

What differences in quality do you see between classic media and online media?

Ihne: The biggest difference is the speed with which online media makes information available and simultaneously generates a constant demand for new information. This places journalists under tremendous pressure because it limits the amount of time that can be spent on research and fact checking. New quality guidelines must be developed.

In fact, online media must first at least partially emulate the quality and standards of print media. An obligatory framework exists for print media, expressed in the education and experience of the journalists, the press code and everything that stands behind it. These kinds of ethical standards must also be established for the net. The issue of quality in online journalism is especially urgent because we're currently experiencing a period of transformation. More and more publishing houses are struggling to keep their printed daily newspapers afloat and switching over to online media.

Gerlach: Print or net – the same journalistic standards must apply. The Press Council needs to refine the Press Code for online journalists. A good orientation would be if online journalists would publicly acknowledge these standards so that we, as users, could clearly see who follows them. I agree with Mr. Ihne: The biggest difference between online and classic media is the real-time communication. These time restrictions place the media under tremendous pressure. Another difference is the "bi-directionality". Users are no longer silent consumers. They can create pressure through feedback in the form of opinions and comments. Users are in a much stronger position to influence the images that are made and conveyed from reality than they were during the time of "letters to the editor".

Is the Internet a vehicle of disinformation?

Gerlach: The net is an outstanding vehicle of disinformation. It's often hard to recognise this though because we're bombarded with so much and such a variety of information, and manipulating images and content is so easy. Apparently human nature is such that disinformation solidifies and becomes "truth" the more claims and assertions that circulate. The opportunity for mass mobilisation makes the Internet the perfect medium for manipulation.

Ihne: Added to that, the huge quantity of information in the web makes us believe we're very close to the action. And we all have opinions on everything, but these opinions are based on the reporting rather than on our own experience or knowledge. This results in a fatal mixture: we believe we're in the middle of events and express our opinions about them, while in truth we're only in the middle of a reality created by those who rule the net.

Aren't users part of this reality and helping to shape it?

Gerlach: In fact, the net is an outstanding platform for social communication. It provides an easily accessible, cheap way for us to become involved, arrange demonstrations and flash mobs, and also spread information. The prime example is the whistleblower: the Internet makes it possible to access confidential information that is relevant to the public, and this same medium enables us to make this information widely available. I think that we need to develop a digital value system for the net. Among other issues, more pressure must be exerted on social media to stop offering a platform for racist and other extremist commentary.

Ihne: We must create rights and laws for the web without overly restricting it in the process. It's interesting to see how all that we've achieved during the enlightenment process in the analogue world, all the constitutional law and human rights we've codified, seem to play a subordinate role in the net. With Facebook, e-mails and all our other user accounts, we "live" in the Internet without the right to inviolability of the home. Digital enlightenment, meaning the application and securing of Basic Law and human rights in their entirety in the Internet, is one of the major tasks. It cannot be postponed!

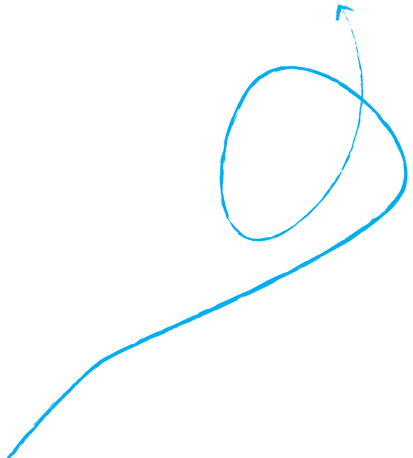
Q: The Internet seems to know no boundaries and offers anonymity at the same time. What does that mean?

Ihne: That's a double-edged sword. On the one hand, anonymity protects people living under dictatorships and other autocratic systems when they want to communicate freely. On the other hand, anonymity in the net becomes a problem when hate comments and similar discourse is considered. Hate in the net could probably be minimised if everyone had to write openly under real names. Then things would be litigable, too. Transparency plays a role in other areas, as well. When I see who has access to my data without my knowledge, let alone my permission, I feel uneasy.

Gerlach: If the state had access to all its citizens' information, that would conflict with Basic Law, in particular with the concept of human dignity pursuant to Article 1 paragraph 1 and with personal freedoms, Article 2 paragraph 1. The right to informational self-determination grew out of the census boycott movement of the 1980s. The current Data Retention Directive weakens these basic rights. But state access is just one dimension. Another appears when companies like Google or Facebook tap into this data. If we more or less volunteer this data in exchange for services, then the basic right to informational self-determination remains untouched; also because basic rights generally regulate the relationship between citizen and state. If, however, this information is not sufficiently protected from being accessed by state intelligence apparatuses and economic interests, then it becomes a matter for the European Court of Justice. Europe, as a major player, can heavily influence the future development of the Internet. For this to function, society must show interest; no laws can be written without a social base.

What will happen long-term with the urge to read and spread snippets of news round the clock?

Ihne: It's comparable to an addiction, always wanting to be up-to-date on the latest talk. This produces lots of hot air but no gain in knowledge – not even good entertainment. We need to remember that the success of the Western world was built on the search for substance, the essence of things, the constant among the changing. The incessant flow of information and nearly unlimited opportunities for spreading it via the Internet merely simulate reality and let this search run dry. If we give up on the idea of pursuing substance, of understanding the essence of things, in favour of the steady flow of a colourful surface of words and images, then we're giving up the core that led to the success of European culture and the fundamental rights of the individual harboured within it.



Grimme Institut

The Grimme Institute

The Grimme Institute in Marl, North Rhine-Westphalia, deals with questions involving media culture and perceives itself as a forum for the debate on communication policy in Germany. Theoretical and practical media education is also among its tasks, for which the Institute observes, analyses and evaluates media services and products – from television and radio to multimedia. Best known to the public are the Institute's two prestigious quality competitions: the Grimme Prize for exemplary contributions to television and the Grimme Online Award for outstanding quality in the Internet. In June 2016, the Grimme Online Award will be conferred for the 15th time.

➲ www.grimme-institut.de

True or False?

Those who know a lot can boast. But statements don't always stand up to a fact check. Below are some impressive facts about the Hochschule Bonn-Rhein-Sieg - University of Applied Sciences – true or false? We leave you room to doubt:

1. Scouts from Menden are responsible for the name of the street on which the Sankt Augustin Campus is located: Grantham Allee.
2. Scientists at the university are planning an interdisciplinary project to find a way to make coffee more effective without changing its taste.
3. The university is part of a globally successful computer game.
4. The circles in the university logo have no special meaning.

.

1.) True. In the mid-1970s, scouts from Menden and the English town of Grantham participated in an exchange, which led to a town twinning. For experts: Margaret Thatcher was born in Grantham. The town is located in the county of Lincolnshire.

2.) False. Unfortunately coffee has never been a topic of research at the Hochschule Bonn-Rhein-Sieg. But you're welcome to take up this proposed topic!

3.) True. In the game "Deus Ex: Human Revolution", you'll find references to a fictional talk held by a scientist at the Hochschule Bonn-Rhein-Sieg in 2016 on the topic of controversial technology, which later plays a decisive role in the game.

4.) True. According to former university chancellor Hans Stender, the logo was intentionally given no official meaning in order to leave room for interpretation.

4

Programme Head of Forensic Biology, Professor Richard Jäger, confronts doubts about the image of forensics. In many crime series, the forensic expert plays a central role. Do we need to doubt this portrayal of the profession?

In films, forensic scientists are all-round experts. They investigate the crime scene, collect scores of samples as evidence, interview suspects and carry out tests in the lab. This image of forensics belongs in the scriptwriter's imaginary world. Reality looks different: forensic experts in Germany, if they specialise in criminology, are laboratory scientists. They carry out chemical and toxicological analyses, identify DNA traces or examine substances – all exciting tasks.

What do students say about this gap? Do they begin to doubt their choice of degree programme?

We clearly communicate how the degree programme is structured and what the career involves. The image propagated through television may be the source of initial interest, but the low dropout rate clearly shows that reality bears up to expectations. There are only a few openings in criminal forensics, but we prepare students for work in many difference areas of analytics. They learn the fundamentals of biology and methods of analysis. At the same time they deal with the important aspect of quality assurance, such as the problems that could arise due to faulty documentation or lack of reproducibility? Examples of applied forensics are also part of the curriculum.

No doubts from the students, but what does the academic community say?

In the beginning, there were some doubts about the forensic expertise of the lecturers. They're not all true forensic scientists, how should they teach, let alone conduct research, on the topic? In the meantime, thanks to numerous research activities, we've won the respect of this special community. We cooperate with forensic laboratories in biology and with a state office of criminal investigation. At the Safety and Security Research Institute, pressing forensic topics are being worked on. This brings teaching closer to practice and helps build contacts with companies in the branch. This is rewarding for us as scientists as well as for the students and their career prospects.

"TV forensic experts don't exist in real life."

50 live

Campus life: the Christmas market in Sankt Augustin draws many visitors

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Small prick, big impact
An alumna has developed a blood alcohol test and registered it for a patent » 60

Keep in Touch
Over 10,000 alumni – the university invites graduates to a reunion and further education » 62

Course set for digital services

Universities in Germany find themselves in a period of profound change. Multifaceted issues confront students and staff with new challenges as social trends seep into university life. The prime example is digitalisation, which is increasingly permeating all areas of the university. Buzzwords, such as digitalisation and lifelong learning, are discussed in all their complexity; the requirements are constantly being raised.

This calls for administration and management to develop into an academic-promoting service structure that works closely with scientists and lecturers at the university to tackle and implement new projects. Initial steps have been taken by increasing human resources, but enormous efforts are still required to master the wide-ranging and demanding tasks.

To deal with the issue of "digitalisation" professionally, a Chief Information Manager has been appointed. Together with the Centre for Campus-IT and those responsible for IT in the departments, the experts, in close cooperation with the chancellor and the university administration, are leading the H-BRS into its digital future. Top priorities are to expand and upgrade the university information system, provide campus-wide WiFi access, and update digital services for students.

Another trend is cooperation management. Last year, we gained important partners and successfully paved the way for projects. We are also one of the very few universities of applied sciences in Germany to have formed a partnership with the Max-Planck Institute for Radio Astronomy – a cooperation that will be utilised and expanded to its full potential. One of the university's professors is now working as Division Head at the Max-Planck Institute for Radio Astronomy within the scope of this cooperation. A joint appointment with another external research institute is in planning.

The H-BRS also scored points on future issue number one: sustainability. The Rheinbach and Sankt Augustin campuses are now equipped with EV charging stations. An electric-powered BMWi3 is available as a service vehicle for university staff, and the number of bike racks at the Sankt Augustin Campus has been increased. In addition, new buildings for Rheinbach and Sankt Augustin are being constructed in line with the strict requirements for category Silver of the BNB, a rating system for sustainable building compiled by the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety. Groundbreaking begins in April 2016, kicking of the visible phase of the construction project.

Dr. Michaela Schuhmann
Chancellor

At home in a foreign land

Syrian studies with DAAD scholarship at the Rheinbach Campus

"No, I'm not a refugee", Mounera Jbara often has to explain when her classmates hear she is from Syria. She has been spared the experience of smugglers, overcrowded accommodations, and the permanent fear of being sent home – she came to Germany on an official visa. Excellent grades, persuasiveness, and a fair amount of luck brought her here. The 24-year-old was chosen by the German Academic Exchange Service (DAAD) for the schloarship programme "Leadership for Syria". After completing the Bachelor programme in Pharmacy, she would like to stay on at the Hochschule Bonn-Rhein-Sieg to earn a Master's degree in Biomedical Sciences.

Due to the war in her home country, teaching is no longer possible at most universities. As a result, 5,000 young people have applied for the DAAD scholarship programme.

A DAAD scholarship makes it possible: Mounera Jbara is studying Biomedical Science in Rheinbach

Mounera Jbara is happy to be one of the 271 who made the leap to Germany, but she worries about those she left behind. Her parents still live in Damascus. "Of course I'm worried about them", she says. "I call my mother every morning and evening and hope that everything is OK.

Mounera Jbara has been in Germany since June 2015. She first spent three months at a language school in Marburg with other students on the scholarship. "I lived with a German family. It was a great experience", she recounts. Since the beginning of September, she has been living in North-Rhine Westphalia, 4,000 kilometres from home, but in safety.

"I like the university, the lectures and the teaching staff", says the Syrian enthusiastically. She doesn't feel foreign here either: on campus one in eight students has a non-German passport. International students are given extra support, in the form of Study Buddies, for instance. Buddies help the students find their way around the campus, become accustomed to routine procedures, and feel at home in their new surroundings. Mounera Jbara's buddy is from Uzbekistan. She is also studying Biomedical Sciences but has already completed her first year.

After graduating, the young Syrian can remain in Germany to earn her doctorate or look for a job. But the idea of staying in Germany forever is not an option for Mounera Jbara. She wants to return to Syria for one simple reason: "It's my home".

Exchanging experiences, building bridges

Implementing new media in teaching – workshop for lecturers at the University of Cape Coast, Ghana

In 2012, nearly 29% of university students in Ghana were unemployed for up to two years after graduation. How can this pressing issue even be approached? In the degree courses themselves, answers Regina Brautlacht, coordinator of the English programme at the Language Centre. To this end, she led a workshop in March 2015, for lecturers at the University of Cape Coast (UCC) in Ghana, one of the H-BRS's partner universities, within the scope of the DAAD-funded programme "German-Africa University Partnership Platform for the Development of Entrepreneurs and Small/Medium Enterprises". "Up to now, teaching methods in Ghana have focused heavily on theory," says Brautlacht. "Together in the workshop, we developed approaches for effectively integrating practical work into the curriculum."

Flipped Classroom model

The focus of this workshop: contact with new media. A lot of information is available and searched for digitally, a trend that lecturers must respond to. In the workshop, Regina Brautlacht introduced the "Flipped Classroom" model, in which students research material online, then adapt it themselves for use in the seminar. The learning-by-doing method is an integral part of this approach. "It's important to work through abstract concepts in a real-world context", says Brautlacht. "When students work on developing a topic themselves, they understand it better." Lecturers – in Ghana as well as at other H-BRS partner universities throughout Sub-Saharan Africa – are open to this approach. In fact, a workshop at the University of Nairobi in Kenya is being planned for August 2016.

Exchange is not only being promoted among lecturers. Students in Economics and Management Sciences at the H-BRS and the UCC have networked every year since 2014, at the ten-week

"Building a Bridge" project, initiated by Regina Brautlacht and Daniel Agyapong from the UCC. Via digital media like Skype, Facebook and WhatsApp, 30 students each from the German and Ghanaian universities discuss topics such as their studies, cultural identity and traditions.

In 2015, the theme was entrepreneurship: students conducted a survey on country-specific concepts of entrepreneurship, the results were compiled in Wikis, interactive online systems. This hands-on project also gave students the opportunity to familiarise themselves with online tools. At the same time, they built a virtual bridge of communication between the universities, enabling them to gather intercultural experience and communicate in English. This is not always easy since both technological difficulties and the language barrier must be surmounted. Regina Brautlacht sees this as an added value: "There are many hurdles, but once these are overcome, everyone benefits from the cooperation."

Pushed to the limit

Athlete network supports rising sports stars

In 15 seconds …

Since 2006, the Hochschule Bonn-Rhein Sieg has been cooperating with the Olympic Centre Rhineland (OSP) to boost support for competitive athletes who are studying. Professor Iris Groß, Vice President for Teaching and Learning, helps ensure that both learning and training are possible through offers such as the new Athlete Network, which enables sports officials, athletes and representatives of the university to exchange ideas and experiences.

Competitive sports and studying – are they compatible?

They have to be because the time in which an athlete can compete professionally is limited. Unless you're a football player, you probably won't be able to earn a living through sports long-term. Athletes need prospects for their life after sports, and a university degree is a good basis. Christian Heimann, for instance, one of the ten fastest German hurdlers, is studying Business Management with us because he'd like to work in sports management in the future.

How do the young athletes manage both?

Top athletes push themselves to the limit. This holds true for both physical performance and time management. Foil fencer Sebastian Bachmann, who studied Business Information Systems with us, trained up to six days a week and had to travel a lot. Taekwondo martial artist, Yanna Schneider, took part in competitions in over 20 countries in 2015, and wants to qualify for the 2020 Olympic Games. Her degree course in Business Psychology will take the back burner, and it isn't easy to organise both simultaneously. On behalf of the university, we want to help find solutions.

What are the solutions?

Since 2006, the university and the Olympic Centre Rhineland (OSP) have been bound together by a contract. As a result, we can better accommodate top athletes' schedules. Despite frequent absence due to competitions and training camps or courses, they can still graduate within a reasonable timeframe. It's all about flexibility. Not every course has attendance requirements. Students can make up for missed coursework on their own time. If an athlete is at a training camp in Barcelona, then the exam can be sent to the university there where the student can take it. We just have to come up with the idea; the Athlete Network helps in this regard.

What exactly happens in the network?

Once per semester, I meet with the young athletes, representatives of the AStA-Sportsreferat (General Students' Committee - Sports Department), the career advisor at OSP, and the director of the Competitive Sports Centre Bonn/Rhein-Sieg. We think about how to assist these athletes, and not only in terms of their studies. In the future, our PR Department will offer training for athletes on dealing with journalists. Another big topic is sponsorship. We as a university can use our business contacts to bring athletes and sponsors together.

The consequences of your actions

University takes part in European Sustainability Week

In 15 seconds …

The practice of social engagement has long been established in the business world –from the planning of environmentally-friendly logistical processes, to the development of employee-friendly working times. It is, therefore, important to begin raising awareness for sustainable business management among the leaders of tomorrow while they are still studying.

You don't know what the consequences of your own actions will be, said Mahatma Ghandhi – but if you do nothing, nothing changes. So in 2015, Germany, France, and Austria initiated the first European Sustainability Week, which focuses on the United Nations Sustainable Development Goals and promotes activities on sustainable development. As one of two German initiatives, the Language Centre, the International Centre for Sustainable Development (IZNE), and the student initiative "SAg! Nachhaltigkeit" ("SAy! Sustainability") from the Hochschule Bonn-Rhein-Sieg participated from 30th May to the 5th June.

Sustainability Conference

One of three university projects over the course of Sustainability Week was an English-language conference, organised by the Business English seminar. "The seminar is an introduction to entrepreneurship and sustainability", says Regina Brautlacht, coordinator for English at the Language Centre. The students discuss, among other issues, corporate social responsibility and ecological assessment. They also founded fictitious businesses that would trade sustainably. Through the concrete application of economic theory, they not only learned to communicate professionally and internationally, but also sharpened their awareness of sustainability.

European Dialogue

The "European Dialogue Project" also drew on the learning-by-doing method. Students from the university discussed issues online with 20 fellow students each from Italy, Portugal and France. Together they worked on questionnaires about responsible consumption, recycling and social justice, the answers to which will be published in a compendium. "On the basis of theoretical knowledge in communications teaching, the students gain practical intercultural skills", according to Regina Brautlacht.

Impromptu speeches on CSR

Rhetorical finesse was also in focus at the third sustainability project. At a meeting of the club "Toastmasters Bonn", graduates who had started businesses faced off with impromptu speeches on the topic of corporate social responsibility. They took the opportunity to make new contacts on the basis of their interests in sustainable business culture.

More activities:

➲ www.h-brs.de/en/izne/student-initiative-sag-nachhaltigkeit

More on European Sustainability Week:

➲ http://bit.ly/1T5QtQR

doubting

Annette Menke,

biology professor and official appointee for diversity at the H-BRS, firmly believes that diversity is not just a challenge but also an enrichment.

When biology professor Annette Menke talks about diversity, her own experience comes to the fore. “I was the first in my family to attend university”, says the official appointee for diversity at the H-BRS. First-generation students lack role models and the backing of family if doubts about their studies arise. National backgrounds, bodily constraints, or any other types of barriers to studying, the university takes away any doubts that either first-year or more advanced students may have. ”In order to raise awareness for heterogeneity among students and staff, we’ve planned many events on the topic of diversity. As a university, we ultimately have much more to teach than just course material”, stresses Menke.

Fit at Work

Yoga, Tibetan healing yoga, back exercises … just some of the various sports classes offered free to university staff. “We want to promote the physical, mental and spiritual health of our employees”, says Chancellor Dr. Michaela Schuhmann. At all three campuses, courses are held at lunchtime and after work. Demand was so high that after the pilot phase, the number of courses on offer was increased from 4 to 18. In 2016, an even wider selection of courses is planned.

Don’t miss your call

Beeping pierces the lecture hall; a student rushes out. Not a call for a ban on mobile phones in class, but an emergency call. Run to the dressing room in Block A, put on your uniform, boots and helmet, then sprint to the car park next to the main building where the bright red emergency vehicle is waiting. The university fire department is on call during the day as volunteer fire brigade (FF) for Sankt Augustin. This special duty was set up because the volunteer fire brigade of Sankt Augustin was understaffed, especially during the day. In the year of the initiative’s 10th anniversary, 14 students now carry a beeper. But studies still come first. An emergency call is no excuse for skipping an exam.

Polyphonic Repertoire

Dirk Eisenack regularly signals for action, too. He doesn’t need a beeper; he uses his hands. And sounds already fills the auditorium, first loud, then quiet, definitely polyphonic. Around 20 singers form the core of the university choir “HörsaalEINS”. They study or work at the university, are former students or even people unaffiliated with the H-BRS. Over the past ten years, a sizeable repertoire has been built up. At the anniversary concert on 26th September 2015, 20 pieces were performed, ranging from Renaissance dance music to current pop arrangements. “Music brings people together. It strengthens the community by involving students from all departments over a long period of time”, says choirmaster Dirk Eisenack.

Pitching in

University flies the flag for refugees

In 15 seconds …

A Technical Journalism student from Sankt Augustin has voluntarily programmed a homepage for regional refugee relief. Bonn-Rhein-Sieg has also opened up its extracurricular activity programme to refugees and is helping to solve the language issue.

The need is great, but so is the willingness to help. In order to assist refugees in Germany effectively, volunteers and those in need must be brought together to coordinate their efforts. Stefan Schurr, a Technical Journalism student in his third semester, is tackling the problem in the region. He has built a website for the Evangelical parish of Sankt Augustin. It lists offers and contacts, ranging from language courses and sewing workshops, to legal advice. Schnurr checks his e-mails daily, in which new offers are announced. The website also features useful tips and checklists, along with the option to donate money, time or goods, as well as requests for donations.

Stefan Schnurr came up with the idea after the parish called for volunteers to help with the refugees. At a meeting with the local pastor, the question arose as to what he could contribute. “I don’t want parallel communities to develop, so I have to take personal responsibility”, says the student. As volunteer helpers across the region were not networked in any way, it made sense to him to use his expertise in programming.

The Hochschule Bonn-Rhein-Sieg also has a presence on the website. “We see it as part of our duty to contribute to integration and offer what we as a university are good at”, says Professor Jürgen Bode, Vice President for International Affairs and Diversity. This includes didactic courses at the Language Centre for volunteers who want to teach German as well as helping to find translators among the vast pool of international students. The university has also opened up its sports activities to refugees. No budget has yet been set aside for refugee relief, says Bode, but thanks to the dedication of volunteers and a few donations from businesses, many things are possible.

Where help is needed and what the university can achieve is discussed in the refugee relief steering group. Members of the President’s Office, the departments and the student committee, as well as representatives from the community, the district, the church and the job centre sit down together at the table.

Alongside immediate needs, the long-term question of whether refugees will study at the university arises. Prospective students have received career counselling, but as of yet no applications have been submitted. Jürgen Bode explains, “The reason for this is that candidates for German-speaking courses must first learn the language, which is estimated to take one to two years.”

More on refugee initiatives:

- www.sanktaugustinhilftfluechtlingen.de
- www.h-brs.de/en/refugee-initiative-h-brs

Study Buddy Special Dinner

More than 70 Study Buddies volunteer at the university. They help international students to find flats, open bank accounts and deal with government agencies at the start of their studies and in their new daily routine. The university shows its appreciation: the students were very pleased to be invited to a champagne reception and dinner in the refectory at Rheinbach. “With this special evening we were able to express our gratitude”, say Adelheid Korpp and Sabrina Sadowski from the International Office. “We’d like to do it again”.

Alumna in the spotlight

Small prick, big impact

An alumna has developed a blood alcohol test and registered it for a patent

Master programme alumna, Elina Zailer, is earning her doctorate at the University of Würzburg.

In 15 seconds …

Elina Zailer, a graduate of the Hochschule Bonn-Rhein-Sieg, developed a new method for testing blood alcohol levels as part of her Bachelor's thesis. To ensure that it will be legally recognised in the future, it is being presented in January 2016 at the 54th annual German Traffic Court Day organised by the German Council on Jurisdiction in Traffic.

One small prick and the blood sample is taken. "Any police officer who gets traffic offenders to blow into a breathalyser on the side of the road could do this", says Elina Zailer. If only the courts approve the method. At the moment it is not that simple. The driver must see a health officer, who then takes a full vial of blood. That's how much is needed to conduct a conventional blood alcohol test involving gas chromatography in the lab.

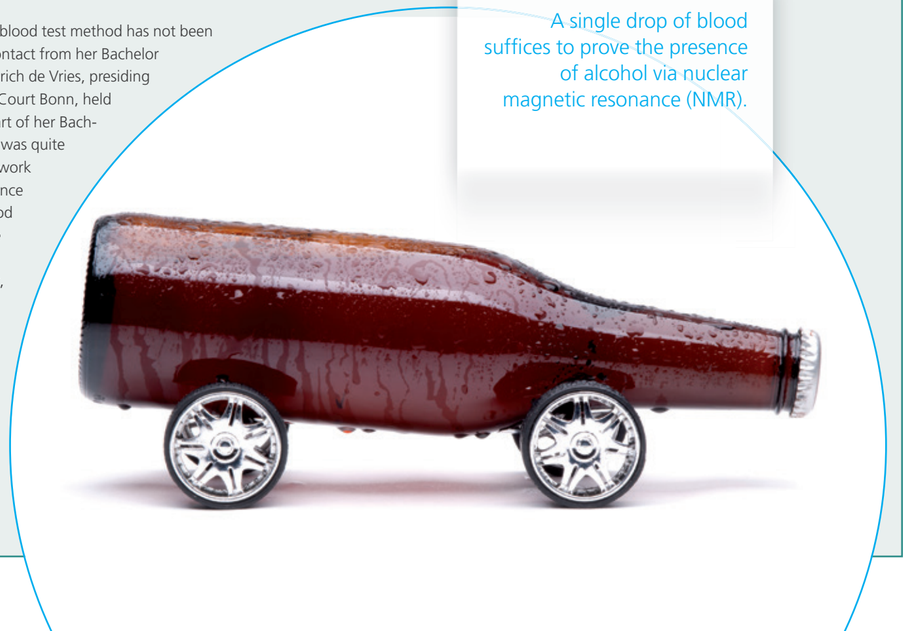
An easier way exists, as Elina Zailer demonstrated in her Bachelor's thesis in Forensic Sciences. A small drop of blood suffices to prove the presence of alcohol via nuclear magnetic resonance (NMR). This technique stimulates the cell nuclei in the sample by means of a magnetic field. Because each substance reacts differently to this procedure, the various substances can be identified – and in just three minutes. The conventional method of analysis takes at least ten minutes.

For Elina Zailer's procedure, however, the necessary technology is required. That is why the analyst, now 26 years old, cooperated with Spectral Service, a company in Cologne, for her Bachelor's thesis. Later as a Master's student of "Analytical Chemistry and Quality Assurance", she took a job there in the lab and further developed her method, ultimately enabling Spectral Service to apply for a patent. She now works at the company as a study and project director, evaluating lab samples for clients and researching methods on, for instance, the better and faster analysis of cooking oils. "This combination of routine and research is perfect for me", says Elina Zailer, who is also working on her PhD at the University of Würzburg.

For the fact that her blood test method has not been shelved, she has a contact from her Bachelor studies to thank. Hinrich de Vries, presiding judge at the District Court Bonn, held lectures on law as part of her Bachelor programme. He was quite interested in Zailer's work on proving the presence of alcohol in the blood through NMR, wrote articles for scientific journals on the topic, and expounded the advantages of this method at the 54th annual German Traffic Court Day, organised by the German Council on Jurisdiction in Traffic in January 2016.

The alumna of the Hochschule Bonn-Rhein-Sieg supported him in scientific matters. Whether or not the new method will become standard procedure remains to be seen. Elina Zailer: "The road is long. In the end, it's a matter of gaining trust, and that won't be not easy".

A single drop of blood suffices to prove the presence of alcohol via nuclear magnetic resonance (NMR).



Von uns, für uns – from us, for us: an analogue flyer advertises digital innovation

New website and intranet for employees

Modern, responsive and with a clear layout – this is the impression given by the Hochschule Bonn-Rhein-Sieg's new website. Since February 2015, it's also optimised for smartphones and tablets, which is especially attractive to current and prospective students. The re-launch has paid off: in the first quarter, the number of visitors to the website increased by ten per cent. A new platform for staff is available now too: the H-BRS Intranet. This new internal portal keeps staff members updated on university news, events and appointments. An address book lists the names and positions of all university employees; internal job vacancies are also posted. Under the heading "Hochschule A–Z", all important documents are available for download.

➲ www.h-brs.de/en

➲ www.h-brs.de/en/intranet

Keep in Touch

Over 10,000 alumni – the university invites graduates to a reunion and further education

In 15 seconds …

In the 20 years since its founding, the Hochschule Bonn-Rhein-Sieg – University of Applied Sciences has graduated more than 10,000 students. Through its alumni network, the university stays in touch with many of them and keeps them up to date on new courses of study, current research projects and staff appointments via newsletter. The "Hall of Fame" on the website features alumni profiles to demonstrate the wide variety of career paths travelled by H-BRS graduates. Around 1,500 alumni have joined the social media groups.

To mark its 20th anniversary in June 2015, the university invited alumni to a large reunion. Around 160 graduates from all departments came to visit their old alma mater and swap experiences over an informal brunch at the Sankt Augustin Campus. "There were, in fact, graduates from each of our 20 years", says alumni coordinator Barbara Wieners-Horst happily. In short presentations, a number of alumni reported on their career paths. One former Management Sciences student told of her involvement in "Managers without Borders". A graduate of the Technical Journalism programme spoke about his career as Head of Communications for a large advertising agency.

The Alumni Management wants to keep alumni in the university's extensive network, as friends in businesses and organisations and as role models for current students. A later Master programme or theses, joint research and development projects – many points of mutual interest make staying in contact beneficial to both sides. And the university doesn't just have local alumni in its sights. With funding from the German Academic Exchange Service (DAAD), 24 international graduates from four different departments and 18 different countries returned to the H-BRS for an alumni conference.

The individual departments also foster contact to their alumni – the Computer Science Department, for instance. In 2015, for a second time, an opportunity for advanced training was held before the long-established informal Alumni Come Together (ACT). This programme includes lectures by members of the university and alumni on topics ranging from aerodynamics to the implementation of 3D computer game technologies in product development. Alumnus Oliver Zilken, received a great response to his interactive speech on agile project management in a food company, which involved audience participation with balls. "It's about fostering contacts, but also an exchange of ideas between the departments and graduates," says Uta Wünsche-Preuß, one of the organisers of the ACT.

Explore the alumni website (English):

➲ www.h-brs.de/en/alumni

Fill 'er up, please: Rainer Gleß, Technical Adjunct Sankt Augustin, Marcus Lübken, EVG Director and Chancellor Dr. Michaela Schuhmann (left) officially open the EV charging stations.

Sustainably on-the-go

In 2015, the Hochschule Bonn-Rhein-Sieg was one of the first German institutes of higher education to install public EV charging stations. On the Rheinbach and Sankt Augustin campuses, students and university employees can plug in their electric cars at one of the two available "e-pumps". Those who come to Sankt Augustin by e-bike, can charge at one of seven e-stations. In addition, sheltered racks provide space for 100 bikes, inviting students and staff to hop onto the saddle, be it e-bike or pedal powered. Doubly sustainable is the term for the facilities at the Sankt Augustin campus. They are hooked up to the university's green power grid, which gleans energy from its own solar panels. In late 2015, the university purchased an e-car for staff commuting among its three campuses. Future plan: e-bikes for hire to employees for the commute to work.

64 collaborate

With vision: universities of applied sciences connect

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Science campus and international alliances

The H-BRS wants to make full use of the potential created by cooperating with regional research institutes, the community, businesses and international partners. The exchange that arises between science and business in the scope of a partnership is a driving force behind innovation and growth in the region itself and beyond. The following fields of action are first priority: people and competencies.

Against the backdrop of current demographic development, the university of applied sciences is expanding its outreach to future students – regional and international. It is confronting the quantitative and qualitative demands of businesses active in the region and using the region's international diversity to build its profile and boost its growth.

Knowledge transfer: the university of applied sciences is taking on the role of mentor for the Bonn-Rhein-Sieg region. To this end, we are intensifying knowledge transfer between the university and regional actors. In concrete terms, we're planning to establish a Science Campus to serve as a vibrant hub, facilitating cooperation in many fields of activity and enriching the region's economy and image. The university cannot master this project alone. Regional businesses and the community must contribute.

International Affairs: The university wants to continue to expand its network abroad and pay special attention during this process to developing strategic alliances. The Hochschule Bonn-Rhein-Sieg is already working with its university partners at the level of teaching and students and joins forces in cooperative work on projects in research and teaching. In the future, we want to expand our successful international university cooperation projects to include businesses and organisations abroad. Special focus is placed on cooperation with internationally active businesses in the Bonn-Rhein-Sieg region ("regional internationalisation").

Sustainability: The International Centre for Sustainable Development (IZNE) at the university maintains diverse partnerships with actors in the region and abroad. Through its projects, it promotes the sustainable development of the university and its partners. Not least of all, the H-BRS fulfils its responsibility to global sustainability through its cooperation with institutions in developing countries.

Prof. Dr. Jürgen Bode
Vice President for International Affairs and Diversity

Prof. Dr. Reiner Clement
Vice President for Regional Development and Innovation

"Long-term, this builds up a regional expert network in research, teaching and training for future scientists in radio astronomy and related technologies."

Professor Bernd Klein

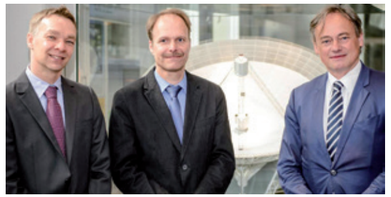
Signals from space

In astronomy, the Max-Planck Institute is cooperating with a university of applied sciences for the first time

Gigantic telescope facilities will be erected soon in Australia and South Africa. Consisting of several thousand dipolic and parabolic antennae, the "Square Kilometre Array" (SKA) should pick up signals from space that total some ten Petabytes of data per hour. If this data were stored on hard disk drives of one Terabyte capacity each, 10,000 would be needed.

The astronomers sift through this mass of data for traces of what is termed dark matter and clues to the origin of stars and galaxies. A new Division for Digital Signal Processing (DSP), being developed by Professor Bernd Klein from the H-BRS at the Max-Planck Institute for Radio Astronomy (MPIfR) in Bonn, works on fulfilling the prerequisites needed to filter through and process such large amounts of data.

An agreement between the Hochschule Bonn-Rhein-Sieg and the Max-Planck Institute makes this one-of-a-kind cooperation in Germany possible. Up to now, the Max-Planck Society has favoured working with universities rather than universities of applied sciences. The new agreement is beneficial to both sides. "The MPIfR focuses on astronomy yet needs competencies in information technology", says Klein. In this respect, the new Division for Digital Signal Processing benefits from the expertise of the H-BRS in computer science. Long-term, this builds up a regional expert network in research, teaching and training for future scientists in radio astronomy and related technologies.



Agreeing on cooperation: Prof. Dr. Michael Kramer from MPIfR, Prof. Dr. Bernd Klein, university president Prof. Dr. Hartmut Ihne (from left to right)

Useful in everyday applications

At MPIfR, Klein headed the Laboratory for Digital Technology for many years. The new Division now combines all areas of the MPIfR involved in digital technology. Klein says: "In our projects, we'll develop procedures that ought to be useful for everyday applications – that is to say, for any scenario in which large quantities of data must be processed. This in turn is interesting for the university with its close relations to business." In large-scale research projects like SKA, universities from several countries are involved. This presents numerous opportunities for students at the H-BRS to get involved with radio astronomy and the technologies it requires. "Prospective engineers don't often know that they are needed in the area of radio astronomy", says Klein. "As soon as they become involved, they realise that this can be an exciting field for engineers." In the coming months, Klein wants to fill the cooperation with life – and move forward with the exchange of scientists and students.

➲ www.mpifr-bonn.mpg.de

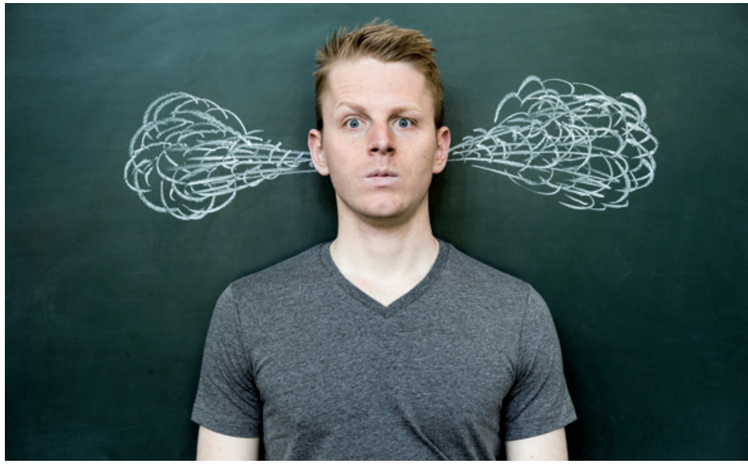
Work, the purpose of life?

Three universities of applied sciences – one lecture series

Do we live to work? Or do we work to live? Does work bring personal fulfilment? Because they grapple intensely with this issue, the current generation of 20 to 30-year-olds is often termed Generation Y (Why?) by the media.

But these are clearly cross-generational questions. That's why the public lecture series "Arbeitssinn – Lebenssinn?" ("Meaning of work, meaning of life"), about the role work plays in our lives, generated widespread interest. The lectures were organised by the Alanus Hochschule, the Hochschule Bonn-Rhein-Sieg, the University of Bonn and the regional newspaper "General-Anzeiger Bonn". Philosophers, sociologists, economists, medical professionals and psychologists spoke on topics such as volunteer work, self-employment, time off, existential crises, and reconciling job and family. Each institution provided three speakers. The Alanus Hochschule, for instance, procured Theo Wehner, a renowned work and organisational psychologist from the Swiss Federal Institute of Technology (ETH Zurich), for a lecture on the psychological aspects of volunteer work.

"The Alanus University initiated the idea of the lecture series because the science region Bonn/Rhein-Sieg and the universities of applied sciences benefit from this type of joint activity", says Julia Wedel, Head of Press and Public Relations at the Alanus Hochschule. "At this lecture series especially, it became clear how series of events are enhanced by the differences among the participating universities." Michael Flacke, Head of Communications and Marketing at the H-BRS, was inspired by this event. "This gives us the opportunity to invite a variety of different people to the university and stimulate exciting discussions."



It also rejuvenates our cooperation agreement with the Alanus Hochschule.

Professor Reiner Clement, Vice President of the Hochschule Bonn-Rhein-Sieg, sees positive results. "The joint lecture series started as a pilot project and former topics like "Alles geschenk?!" ("Everything given?!") and "Äußerer Wohlstand, Innere Armut" ("Outer Wealth, Inner Poverty") struck a chord", he says. "We wanted to repeat that. Our goal was to bring the universities closer together. This worked, and we plan to continue this successful series."

Robots for nursing homes

Engineers and long-term care researchers seek optimal assistants

In 15 seconds …

People with Alzheimer's disease or other types of dementia respond positively to robots that are attuned to their individual needs. Engineers often develop systems that require users to adjust their behaviour. Computer scientists at the H-BRS are approaching this issue from the opposite direction. They are cooperating with long-term care experts to gain a better understanding of patients' needs.

Zeno looks like a small, bright boy. His hair is tousled. He smiles a lot, blinks his eyes and wrinkles his forehead when he's irritated. But Zeno is not a boy, he's a robot. Eleven motors ensure that he can mirror human facial expressions and emotions.

For the interdisciplinary research project EmoRobot, four different robot systems are "on duty" at a nursing home. The research team, made up of long-term care specialists, sociologists, and computer scientists, wants to find out how robot assistants are perceived by people with dementia. An initial study has been carried out at the Katharinenstift nursing home in Wiesbaden, where people dealing with various stages of dementia live.

Four universities of applied sciences cooperate

The research project is headed by professor and nursing scientist Helma M. Bleses from the Hochschule Fulda. Participating are sociologists from the TU Dortmund and long-term care researchers from the FHS St. Gallen. A team headed by computer science professor Erwin Prassler from the Hochschule Bonn-Rhein-Sieg contributes technical competence to the project.

All participants benefit from the cooperation. "Engineers often develop new technology based on their own ideas and understandings, requiring users to adjust their behaviour", says Matthias Füller, project director at the Hochschule Bonn-Rhein-Sieg. "We take the opposite approach by putting ourselves in the shoes of the person who will actually be using the robot."

It's about identifying scenarios for and limits of the use of assistance systems while keeping the sensitivities of the target group in mind, says Helma Bleses. "It's important that we as nursing scientists apply our expertise."

In the project, robot systems are customised for individuals. What kinds of food do the residents like? What type of music do they listen to? The robots are programmed according to these requirements or controlled by remote for more complex tasks. They serve wine, play music or invite a resident to play a round of memory.

The researchers record the robots' activities on video and assess them. For now, the robots are still controlled via remote, but they should eventually work autonomously – and not just to reduce the strain on human employees. "In long-term care facilities, activities are organised between mealtimes, but long periods of time with no special programme still exist", says Füller. "The robots could fill this time meaningfully."

The scientists want to derive recommendations from the studies about how robots need to be built and programmed in order for people to accept them. The project is funded by the Federal Ministry of Education and Research (BMBF). The ethics committee of the German Society of Nursing Science (DGP) has approved the study.

More on EmoRobots:

http://emorobot.inf.h-brs.de

www.h-brs.de/en/inf/news/emorobot-robot-charitable-mission

Three robots hand-in-hand: the Double Robotic System, the humanoid Zeno and Jenny (from left to right)

Integration as a business model

Three start-up ideas honoured with the “CENTIM Social Business Award”

In 2015, due to the civil war in Syria, more refugees came to Germany than in the years before. Many are well educated, but they do not speak German and integration is difficult for them. Two groups of students from the Hochschule Bonn-Rhein-Sieg developed business plans that have solid economic bases but are also intended to facilitate integration. For this work, the Centre for Entrepreneurship, Innovation and SMEs (CENTIM) at the university presented Amina Schild and David Elema with the highly acclaimed “Social Business Award”.

The team suggested establishing an international hotel – the “ADA Kune Hotel”. “Kune” means “together” in Esperanto, reflecting the spirit of the hotel project. Refugees from around the world with experience in the hotel and gastronomy industry could find work there, and the guests would benefit from the diverse linguistic and cultural knowledge of the employees. The students have already chalked up their first success: the District Mayor of Bonn-Bad Godesberg, Simone Stein-Lücke, showed great interest in the project.

Elema und Schild study CSR and NGO Management in Rheinbach. An assignment within the scope of their MBA programme was to work out business plans that combine economic efficiency with social responsibility. “The plans cannot fall out of the blue”, says programme coordinator Max Bolz. “They must deal with relevant topics and work in practice.”

The “CENTIM Social Business Award” was also presented to two other projects. “Food Stories” also takes up the topic of refugees. The business model plans a community meeting place, in which people introduce dishes from their home countries and offer cooking classes. In the project “ShinE”, women in the Indian state of Bihar craft lamps from old newspapers and other wastepaper, which are then sold worldwide. The glue and paints are also to be produced in India – from raw materials farmed organically.

The prize-winning teams with their ideas: ADA Kune Hotel, Food Stories and ShinE

Dare to risk

CENTIM Start-up Week kindles the pioneer spirit

When Achim Rehahn saw plastic lamps in Italy several years ago, he came up with the idea of developing illuminated stars and angels as Christmas decorations. This was the birth of his company “8 seasons design”, which is now a market leader in this area, with a product palette that includes flowers, moons and bunnies. Achim Rehahn is a graduate of the Hochschule Bonn-Rhein-Sieg and reported on the snags and successes of his company at Start-up Week in Sankt Augustin.

Start-up Week is a nationwide event focusing on the topic of entrepreneurial initiative. The Centre for Entrepreneurship, Innovation and SMEs (CENTIM) at the H-BRS came up with the idea of organising four days of activities in the Bonn/Rhein-Sieg region for this event week. “Why always just Berlin?” is the motto. “We’ve realised that the region is lacking entrepreneurs”, says Frank C. Maikranz, founding director of CENTIM, an academic institution that advises students, professionals and companies on everything to do with entrepreneurship, innovation and business start-ups. “That may be because the employment rate in our region is high, but that doesn’t mean we should just sit back and relax.”

For four days in November 2015, various aspects of establishing a business were debated, from funding start-ups, to pension schemes and the question as to what the government could do to kindle the pioneer spirit. Reports on real-world experience were especially in demand. In addition to Achim Rehahn, entrepreneurs Robert Kronekker (flapjack producer Hafervoll), Max Weber (performance comparison website GradeView), and Louis Bahlmann and Burak Dönmezer (interdental brush manufacturer Luoro), provided a closer look into their start-up year.

Snags and successes

“They talked about what went smoothly and what went wrong”, says Maikranz. “One entrepreneur recounted how a minor product that was just meant to fill the stand at the trade fair surprisingly developed into a top seller.” After their talks, the founders were happy to answer individual questions from students and colleagues – a good opportunity to hear fresh ideas and make new contacts.

The event was open to anyone interested in business start-ups and will be held annually in the future. “We’re also planning an idea market where young entrepreneurs can present their business and product ideas”, reports Maikranz. The audience will vote on the best idea, and the founder will be awarded a prize. Above all, this will give entrepreneurs the opportunity to reach a wide public and get honest feedback.

More on CENTIM:

➲ www.centim.org

Former Minister President of NRW, Jürgen Rüttgers, was among the guest speakers at the CENTIM Start-up Week

doubting

"Doubt is the motor for development", says Lukas Gemein. The mechanical engineer studying for his Master's degree must know that. He has been a member of the H-BRS racing team since his studies began and developed new tires for the university's racing car in the scope of his Bachelor's thesis. Since 2015, they have been bringing the Bolide successfully over the finish line. "We doubted whether the old tires were optimal", says the student. They were three inches larger than the new models and required more energy. The solution: lower mass through smaller tires. Was the concept doubted? "In mechanics, it's never possible to say for certain whether a development will be successful", says Lukas Gemein. "But the step paid off – results have improved significantly."

Excellent career opportunities await him after completing his Master's degree in Mechanical Engineering at the end of 2016, of that **Lukas Gemein** has no doubt.

Practical Research and Teaching

H-BRS expands partnership with the Universities of Cape Coast and Nairobi

In 15 seconds …

A joint platform for business and research connects the Hochschule Bonn-Rhein-Sieg with its partner universities in Ghana and Kenya. Focuses are joint practical research and teaching to promote business start-ups and improve career readiness, and advising German SMEs on African markets.

The project "German-African University Partnership Platform for the Development of Entrepreneurs and SMEs" is funded by the Federal Ministry for Economic Cooperation and Development (BMZ). "Universities of applied research have not played a significant role in African countries up to now", says Professor Jürgen Bode, Vice President for International Affairs and Diversity. "For this reason, we'd like to create structures with our partners that will better prepare graduates for the job market. At the same time, practical research will benefit regional development." To achieve this, research and teaching "tandems" are planned. University lecturers from all three institutions can cooperate on projects or offer joint courses. In this process, African and German students get to know one another and gain intercultural experience.

Idea competition for entrepreneurs

Moreover, an idea competition for entrepreneurs will be held. Teams from the universities in Ghana and Kenya will present their business plans, and the winner will be awarded a prize by the German Investment and Development Corporation (DEG) and the German Society for International Cooperation (GIZ). The competition is open to students, alumni and staff of the universities.

The German economy will benefit from the partnership, too. "We'd like to show German SMEs how attractive African markets are", says Bode. "Here in Germany, Africa is imagined as a problem continent. Businesses from France, England, the USA and China have long been active in many countries there. German companies, especially SMEs, are gradually falling behind." For this reason, the partner universities in Ghana and Kenya want to act as consultants in the future, advising SMEs in market research and on questions about which product ideas have a chance for success in the region. At the same time, students benefit from internships or practical thesis work in Ghana and Kenya.

Long-term, the university partnerships should spawn a German-Ghanaian-Kenyan network with representatives from research and business. A start is the annual conference, which alternately takes place in Ghana, Kenya and Germany. In 2015, projector partners from universities and businesses met in Ghana. In November 2016, 400 participants are expected in Sankt Augustin.

Intercultural speed dating

In speed dating, participants sit across from one another, converse for a few minutes, and then move on to the next candidate. At the end, they decide whom they would like to stay in contact with. This principle was introduced by Claudia Ruiz Vega from the university's Language Centre in several different courses to promote the development of tandem language learning partnerships. Students from the Master programme in Technology and Innovation Communications met at the start of their course for a round of speed dating for intercultural practice – and in the resulting language tandems received insight into cultures that were previously unfamiliar to them. Ruiz Vega also sets up language tandems for students regardless of department.

➲ www.h-brs.de/spz/sprachtandem

➲ www.h-brs.de/en/spz/tandem-language-learning

Corporate responsibility in SMEs

Students at the Institute for Social Innovations (ISI) at the Hochschule Bonn-Rhein-Sieg have examined how widespread Corporate Social Responsibility (CSR) is in SMEs. They inspected the websites of 958 companies – to gauge their involvement in ecology, sports or other socially beneficial activities. "We assume that companies publicise the integration of CSR into their management strategies", says Professor Christoph Zacharias from ISI, explaining this approach. The analysis shows that only about 31 per cent of the businesses are concerned with CSR-related topics. There's a need to raise awareness, says Zacharias. The ISI advises businesses on how to implement CSR strategies.

➲ www.h-brs.de/en/isi

Showcase of IT security

Mobile devices, cloud computing, big data, biometrics – at the conference "D-ACH-Security", 100 IT experts from industry, management and research debated the ever more complex requirements for data security and privacy protection. The conference is considered a showcase of IT security in the German-speaking world. It is organised annually by the University of Klagfurt at changing venues. In September 2015, it was held for the first time at the Hochschule Bonn-Rhein-Sieg. Professor Kerstin Lemke-Rust and Professor Markus Ullmann coordinated the event, at which new technologies and the improvement of training and further education were topics.

➲ www.syssec.at/dachsecurity2015

Driving force for the economy

Universities of applied sciences found alliance to boost visibility

In 15 seconds …

Politics has not yet fully acknowledged it: with their practical focus, regional networking and knowledge transfer, universities of applied sciences are the backbone of the German economy. These universities now want to raise more awareness in the public consciousness for their achievements – an alliance for SMEs.

Around 1 million students – that is what the universities of applied sciences in Germany proudly have to show. The tendency is increasing, and that for good reason: the students know that they are getting a practical education. "Our students are less likely to break off their studies, are better received in the job market, and generally get higher starting salaries", says Hans-Hennig from Grünberg, President of the Hochschule Niederrhein.

Grünberg is chair of the "Hochschulallianz für den Mittelstand (HAfM)" ("University Alliance for SMEs"), a nationwide association of currently nine universities of applied sciences, which was established in 2015. These universities are united under the tenet of providing young people with academic studies closely attuned to the needs of the job market and boosting knowledge transfer in the regional economy. The Hochschule Bonn-Rhein-Sieg, with President Ihne on the board, is one of the HAfM's founding members.

Driving force for the economy

"Politics, in particular, has not yet fully acknowledged that universities of applied sciences are a driving force behind the German economy", says Michael Flacke, Head of Communications and Marketing at the H-BRS. "Students have been deciding in favour of this type of education for years, but the political system is still not geared toward promoting exemplary universities. The Alliance now wants to show politicians and stakeholders what our universities of applied sciences already achieve and contribute." To this end in late 2015, the Alliance invited politicians to a parliamentary breakfast, to talk with them about the leading role that universities of applied sciences play for SMEs and thus for Germany's entire economy.

Sitting on the Alliance's advisory board are also representatives from SMEs, such as the Volksbank Mittelhessen, the Carl Knauber Holding and advacon. "It's crucial that entrepreneurs take part", says Flacke. "They keep the Alliance updated on current topics affecting SMEs – what's important in research and education, for instance. The Alliance can then develop accordingly."

Plans include networking the transfer offices of the universities more closely and creating cooperation platforms for joint funding applications. The alliance wants to incorporate more universities of applied sciences next year.

The founding members:

- Hochschule Niederrhein
- Hochschule Bonn-Rhein-Sieg
- Hochschule Bremerhaven
- Hochschule Koblenz
- Hochschule Magdeburg-Stendal
- Technische Hochschule Mittelhessen
- Technische Hochschule Nürnberg

In January 2016, the following members joined:

- Technische Hochschule Brandenburg
- Hochschule für Technik und Wirtschaft des Saarlandes (htw saar)

➲ www.hochschulallianz.de

Big potential for small companies

Universities prepare immigrant academics for the German job market

They come from Ukraine, Belarus, Syria, Afghanistan or Colombia – the Hochschule Bonn-Rhein-Sieg is preparing 18 immigrant academics for the German job market. The H-BRS Institute for International Studies is carrying out an eleven-month advanced training programme with the goal of countering the shortage of skilled personnel in Germany.

"The selected participants have already earned a business degree in their home countries and gained professional experience", says Professor Klaus Deimel, who is directing the project along with his colleague Andreas Wiesehahn. "But they're lacking certain skills that are required by German SMEs."

This training measure will build on the prior knowledge of the academics, expanding their qualifications in areas such as business basics, fiscal control mechanisms and statutory regulations in Germany. Alongside discipline-specific business German, they learn how to make a good impression at companies and apply for jobs.

The training is heavily focused on practice. The university organises visits to companies, and toward the end of the programme, a three-month internship phase is scheduled. The participants apply at a company of their choice – the university supports them in this. "Above all, we want to promote initiative so that after the training, the students can approach potential employers self-confidently", says Deimel. The Management Sciences professor is convinced that companies will benefit from the academics. "These people are highly motivated and, in addition to their competency in the field, they have intercultural knowledge, which is valuable to any company involved in exports", supplements Professor Andreas Wiesehahn.

The programme, which ends in November 2015, is funded by the Otto Benecke Foundation, the Federal Ministry of Labour and Social Affairs, and the EU European Social Fund.

In stride with the university

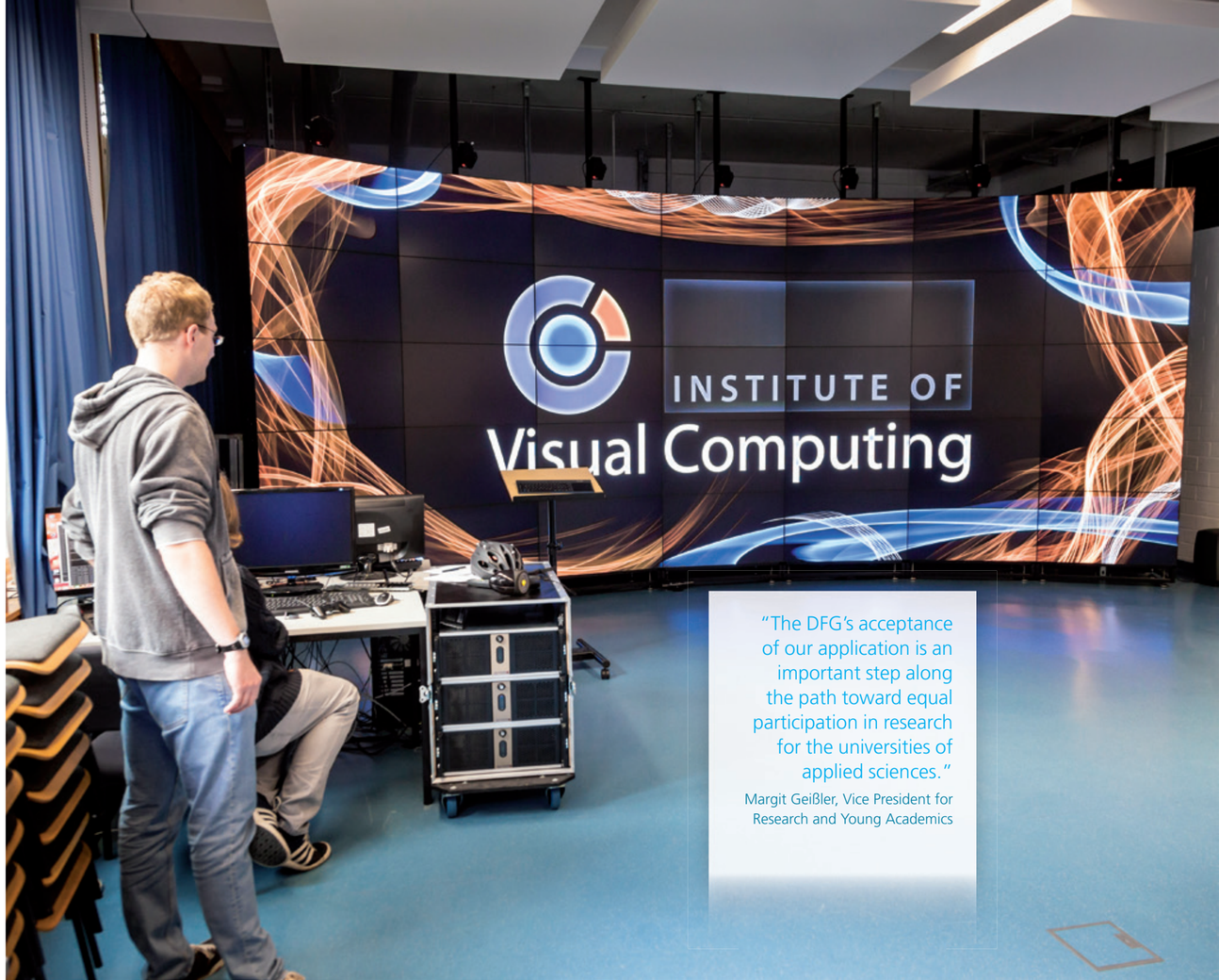
H-BRS joins the University of Siegen's research training group

Since summer 2015, the Hochschule Bonn-Rhein-Sieg is part of the research training group "Imaging New Modalities" of the University of Siegen. The HBR-S is the first university of applied sciences to be accepted for a new line of funding from the German Research Foundation (DFG). "The H-BRS and the University of Siegen have been working closely together for several years on doctoral sponsorship", says computer science professor Rainer Herpers from the Institute of Visual Computing. "When in 2014, the opportunity first arose of applying for collaboration with an existing research training group as a university of applied sciences, we tackled the issue jointly with the University of Siegen".

The Sieg connects: the University of Siegen and the Hochschule Bonn-Rhein-Sieg lie at opposite ends of the river.

Scientists from the H-BRS have now joined the subprojects image data processing, sensor development, and multimodal procedures for civil security of the Siegen research training group. Research projects in these fields are steered by Professor Herpers and his colleague Professor Peter Kaul from the Department of Natural Sciences. Especially notable: the two professors are placed on equal terms with their colleagues from the University of Siegen and even act as advisors to doctoral candidates. "The DFG's acceptance of our application is an important step along the path toward equal participation in research for the universities of applied sciences", says Margit Geißler, Vice President for Research and Young Academics at the H-BRS.

The research training group is based in the Department of Electrical Engineering and Computer Science at the University of Siegen and in the NRW Centre for Sensor Systems (ZESS) and is funded by the DFG with a total of one million euros per year. The project, which has been running since 2009, was extended in 2014 for another four and a half years; that is the maximum funding period for a project. Professor Herpers is satisfied: "Three doctoral students are currently working on projects connected with the research training group. Two of the positions are funded by the DFG, one by the H-BRS."



"The DFG's acceptance of our application is an important step along the path toward equal participation in research for the universities of applied sciences."

Margit Geißler, Vice President for Research and Young Academics

80 report

A part of studies and a part of the Annual Report: charts, graphs and lists

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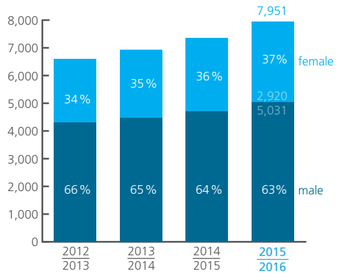
Facts and figures

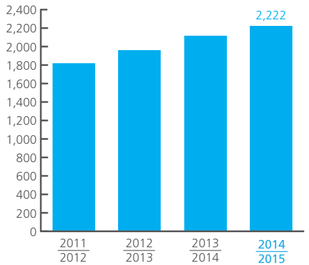
Number of students

Winter semester 2015/16



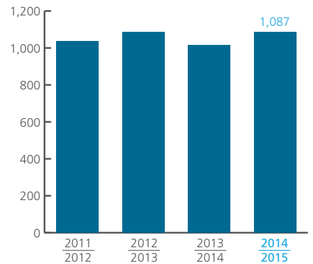
First-semester students

Academic year 2014/15



Graduates

Academic year 2014/15



Degree courses at the H-BRS

Bachelor programmes

- Applied Biology
- Business Administration
- Business Management
- Business Information Systems
- Business Psychology
- Chemistry with Materials Science
- Computer Science
- Electrical Engineering
- Electrical Engineering (cooperative)
- Forensic Sciences
- Mechanical Engineering
- Mechanical Engineering (cooperative)
- Social Security Management
- Technical Journalism/PR

Master programmes

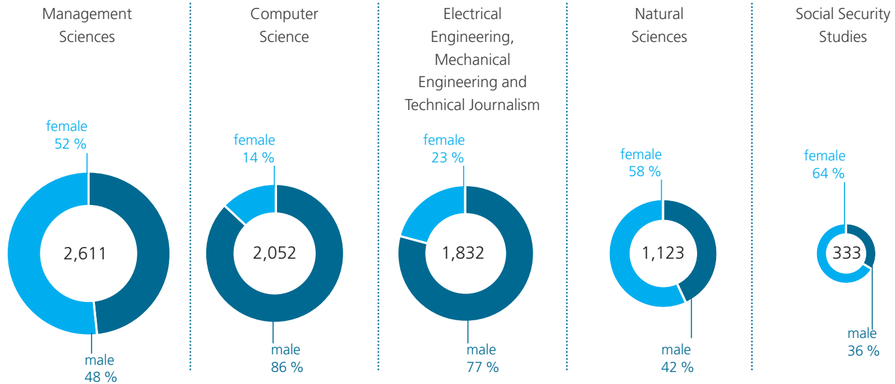
- Analysis and Design of Social Protection Systems
- Analytic Chemistry and Quality Assurance
- Autonomous Systems
- Biomedical Sciences
- Controlling und Management
- Electrotechnical Systems Development
- Computer Science
- Innovation and Information Management
- International Media Studies
- Mechanatronics
- Corporate Social Responsibility & Non-Governmental Organisation (CSR & NGO) Management
- Technology and Innovation Communications
- Business Psychology

New in 2015

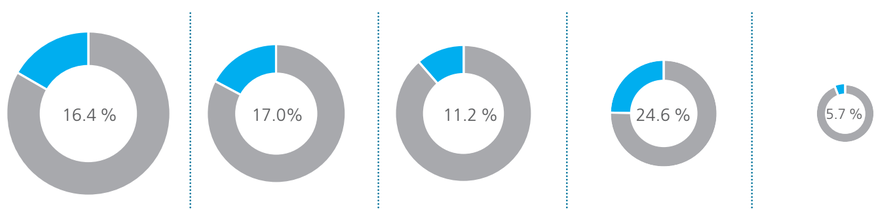
PhD Programme at the Graduate Institute

Students Winter Semester 2015/16

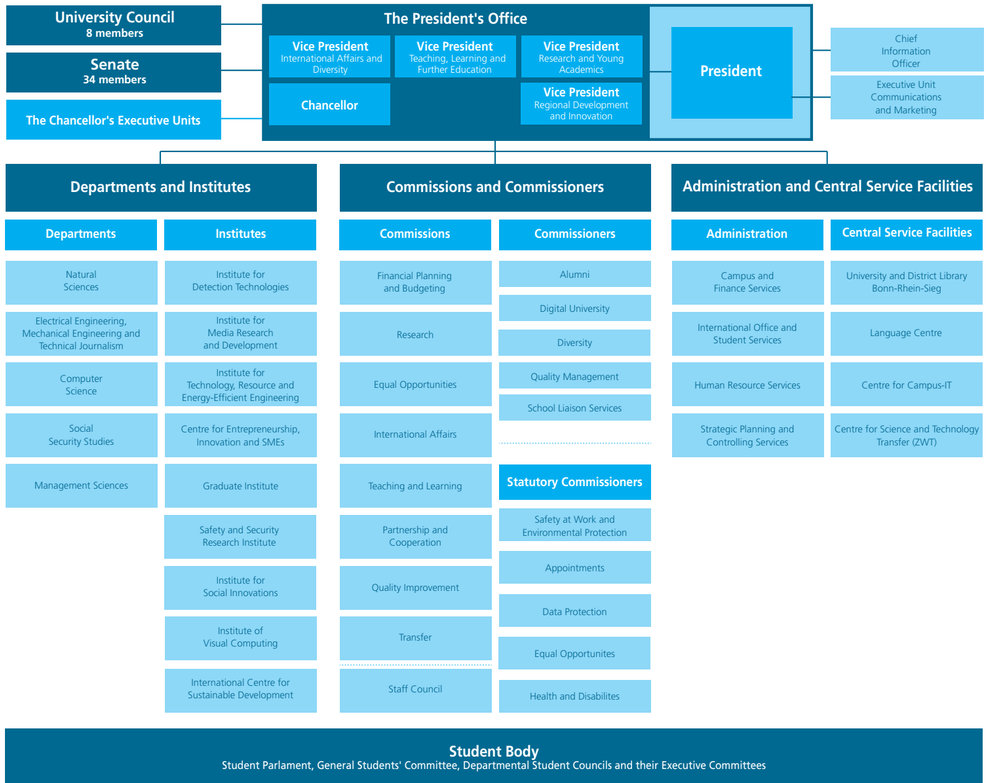
Students by department and gender



Percentage of international students by department



Structure of the University



New appointments

01/06/2015 **Prof. Dr. Ingo Groß**
Professor of Engineering, especially Automation Technology, in the Department of Electrical Engineering, Mechanical Engineering and Technical Journalism

01/10/2015 **Prof. Dr. Britta Krahn**
Professor for Business Psychology, especially Finance, Marketing and Social Psychology, in the Department of Management Sciences

01/01/2015 **Prof. Dr. Jörn Oliver Sass**
Professor for Biology, especially Bioanalytics and Biochemistry, in the Department of Natural Sciences

New honorary professors in 2015 for the Department of Social Security Studies

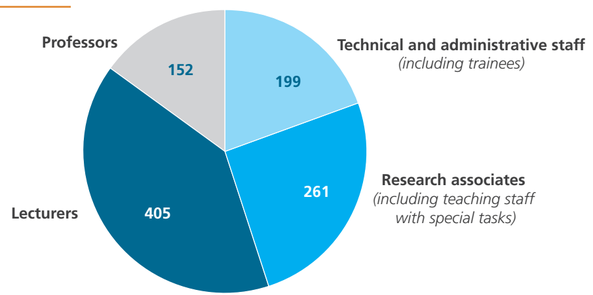
- Gerd Bigge
- Dr. Franziska Gassmann
- Dr. Krzysztof Hagemejer
- Bodo Hombach
- Dr. Andreas Koch
- Dr. Andreas Kranig
- Dr. Axel Weber

The University Council

The current members of the University Council were appointed in August 2007 and confirmed for a further term in 2012: four external members and four members of the university. The University Council is responsible for all strategic matters relating to the university. It advises the President's Office and monitors the way business is conducted. Furthermore, it appoints the President of the Hochschule Bonn-Rhein-Sieg – University of Applied Sciences and acts as a supervisory body. The eight voting members of the University Council are:

- **Dr. Ines Knauber-Daubenbüchel**
  Chair, entrepreneur, Knauber company
- **Prof. Dr. Rupert Gerzer**
  Chair till 10/12/ 2015, Director of the Institute of Aerospace Medicine at the German Aerospace Centre
- **Prof. Dr. Jakob Rhyner**
  Vice Rector in Europe of the United Nations University (UNU) and Director of the Institute for Environment and Human Security (UNU-EHS)
- **Dr. Andrea Niehaus**
  Director of the Deutsches Museum Bonn
- **Prof. Dr. Tobias Amely**
  Hochschule Bonn-Rhein-Sieg
- **Prof. Dr. Elvira Jankowski**
  Hochschule Bonn-Rhein-Sieg
- **Prof. Dr. Karl W. Neunast**
  Hochschule Bonn-Rhein-Sieg
- **Prof. Dr. Gerd Knupp**
  Hochschule Bonn-Rhein-Sieg

University employee structure



Partner universities around the world

https://www.h-brs.de/files/fhbrs/partnerhochschulen_en.pdf

Partner universities with double degrees:

- Victoria University, Melbourne, Australia
- University of Sunshine Coast, Queensland, Australia
- Queensland University of Technology Business School, Australia
- Université Paris-Est Créteil Val de Marne, France
- Dublin Business School, Ireland
- University of Palermo, Italy
- Università degli Studi dell'Insubria, Varese, Italy
- York University, Toronto, Canada
- Hogeschool van Arnhem, Nimwegen, Netherlands
- Zürcher Hochschule für Angewandte Wissenschaften, Winterthur, Switzerland
- Pfeiffer University, Charlotte, USA
- Robert Gordon University, Aberdeen, Scotland
- University of Aberdeen, Scotland
- University of Dundee, Scotland
- Hunan University, Changsha, China

In Shanghai Ranking:

Top 200:
- University of California, Riverside, USA

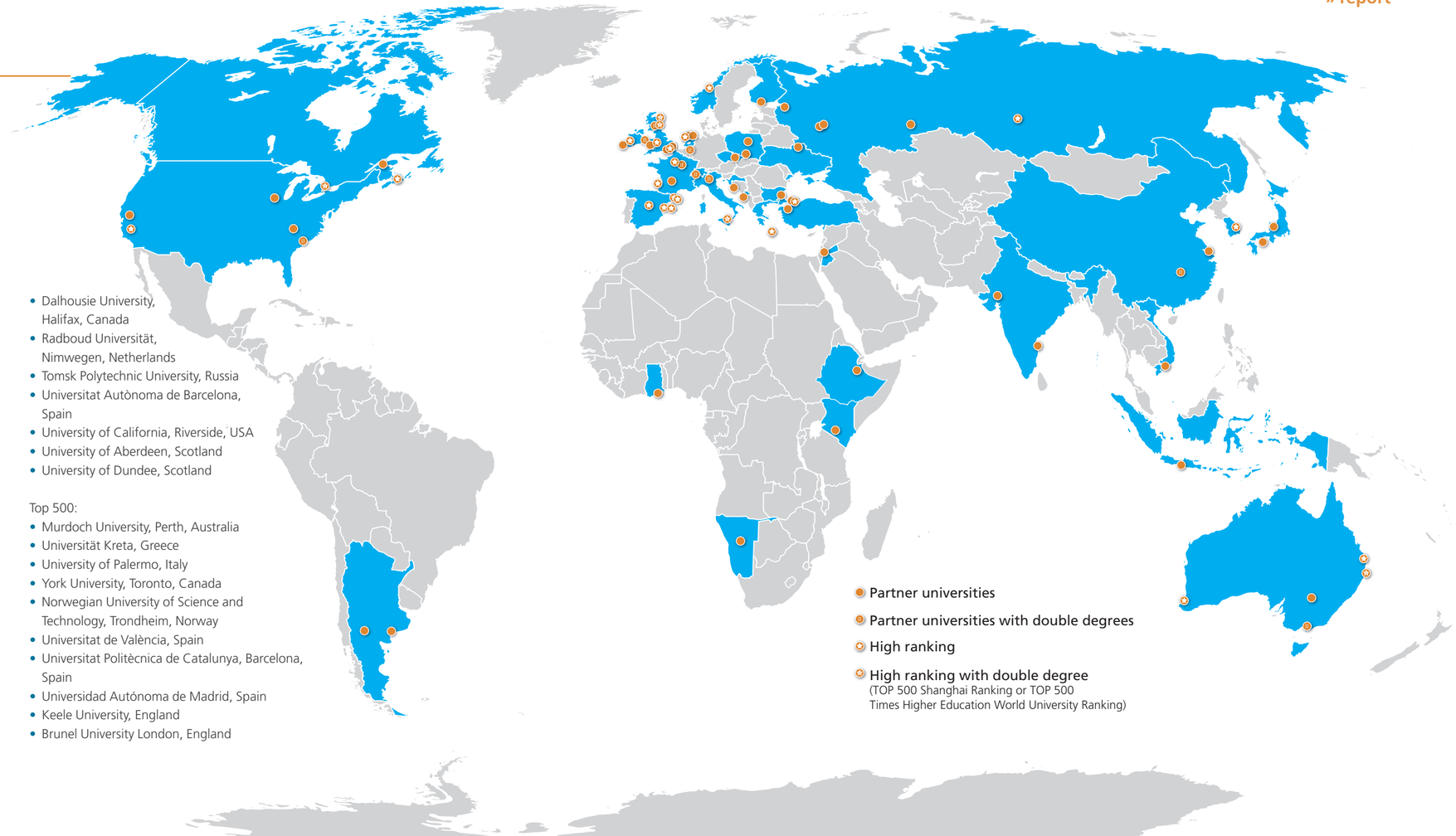
Top 300:
- University of Dundee, Scotland
- University of Aberdeen, Scotland
- Dalhousie University, Halifax, Canada
- Universitat Autònoma de Barcelona, Spain
- Universidad Autónoma de Madrid, Spain

Top 500
- Queensland University of Technology, Brisbane, Australia
- University of Palermo, Italy
- Kyungpook National University, Daegu, Korea
- Universidad de Valencia, Spain
- Universitat Politècnica de Valencia, Spain
- Universitat Politècnica de Catalunya, Barcelona, Spain
- Universität Istanbul, Turkey
- Brunel University London, England

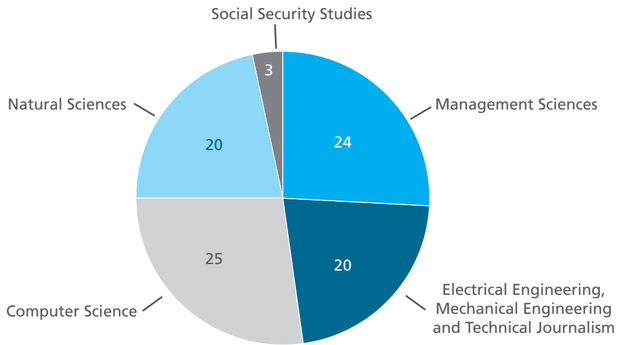
Im Times Higher Education World University Ranking:

Top 300:
- Queensland University of Technology, Brisbane, Australia
- Institut Universitaire de Technologie, Paris, France
- Université de Bordeaux, France
- National University of Ireland, Galway, Ireland
- Dalhousie University, Halifax, Canada
- Radboud Universität, Nimwegen, Netherlands
- Tomsk Polytechnic University, Russia
- Universitat Autònoma de Barcelona, Spain
- University of California, Riverside, USA
- University of Aberdeen, Scotland
- University of Dundee, Scotland

Top 500:
- Murdoch University, Perth, Australia
- Universität Kreta, Greece
- University of Palermo, Italy
- York University, Toronto, Canada
- Norwegian University of Science and Technology, Trondheim, Norway
- Universitat de València, Spain
- Universitat Politècnica de Catalunya, Barcelona, Spain
- Universidad Autónoma de Madrid, Spain
- Keele University, England
- Brunel University London, England



Number of international partnerships by department



Country	University	Departments
Argentinia	Universidad Nacional de San Luis	Electrical Engineering, Mechanical Engineering and Technical Journalism
	Universidad Tecnológica Nacional in Buenos Aires	Electrical Engineering, Mechanical Engineering and Technical Journalism
Australia	Murdoch University in Perth	Natural Sciences Management Sciences
	Victoria University in Melbourne	Natural Sciences Management Sciences Electrical Engineering, Mechanical Engineering and Technical Journalism Computer Science Social Security Studies
	University of Sunshine Coast, Queensland	Management Sciences
	Griffith School of Engineering	Electrical Engineering, Mechanical Engineering and Technical Journalism
	Queensland University of Technology, Business School	Management Sciences
Bulgaria	Wirtschaftsuniversität Varna	Management Sciences

Country	University	Departments
Canada	York University in Toronto	Computer Science
	Dalhousie University in Halifax	Computer Science
	University of New Brunswick in New Brunswick	Computer Science
Croatia	University of Dubrovnik	Computer Science Management Sciences
Czech Republic	Tomáš-Baťa-Universität in Zlín, Faculty of Technology	Natural Sciences PhD-Programme: Alle Fachbereiche
Ethiopia	Agro Technical and Technology College in Harar	Electrical Engineering, Mechanical Engineering and Technical Journalism
Finland	Helsinki Metropolia University of Applied Sciences in Espoo, Institute of Technology	Computer Science
France	Université de Poitiers, Institut d'Administration des Entreprises	Management Sciences
	Institut Universitaire de Technologie Paris Descartes	Management Sciences
	Université Paris-Est Créteil Val de Marne	Natural Sciences
	Université de Bordeaux	Natural Sciences
	École d'Ingénieurs informatique de Limoges	Computer Science
Ghana	University of Cape Coast	Management Sciences
Greece	University of Crete	Computer Science
India	Indo-German Center for Higher Education	Computer Science Electrical Engineering, Mechanical Engineering and Technical Journalism
	Mudra Institute of Communication Ahmedabad, Gujarat	Electrical Engineering, Mechanical Engineering and Technical Journalism
Indonesia	Universitas Atma Jaya Yogyakarta in Yogyakarta	Electrical Engineering, Mechanical Engineering and Technical Journalism
Ireland	Institute of Technology Tralee	Management Sciences
	National University of Ireland in Galway	Management Sciences
	Dublin Business School in Dublin	Management Sciences
Italy	Università di Palermo, Dipartimento di Biologia Cellulare e dello Sviluppo	Natural Sciences
	Università degli Studi dell'Insubria in Varese	Natural Sciences
Japan	Kagawa University in Takamatsu	Natural Sciences Computer Science Electrical Engineering, Mechanical Engineering and Technical Journalism
	Nagaoka University of Technology	Computer Science
Jordan	Deutsch-Jordanische Hochschule/German-Jordanian University	Management Sciences

Country	University	Departments
Kenya	University of Nairobi	Natural Sciences Computer Science Management Sciences Electrical Engineering, Mechanical Engineering and Technical Journalism Social Security Studies
Montenegro	University of Montenegro, Podgorica	Computer Science
Namibia	Polytechnic of Namibia in Windhoek	Social Security Studies
Netherlands	Hogeschool van Arnhem in Nijmwegen	Natural Sciences
	Hogeschool van Amsterdam	Computer Science
	Van Hall Larenstein, University of Applied Sciences in Leeuwarden	Natural Sciences
	Radboud University Nijmegen	Natural Sciences
Norway	Høgskolen I Sør-Trøndelag in Trondheim	Computer Science Electrical Engineering, Mechanical Engineering and Technical Journalism Natural Sciences
People's Republic of China	Nantong University	Computer Science Electrical Engineering, Mechanical Engineering and Technical Journalism
	Hunan University in Changsha	Management Sciences
Poland	Jagiellonen-Universität in Kraków	Natural Sciences
	Politechnika Warszawska	Computer Science
Republic of Korea	Kyungpook National University, Daegu	Management Sciences
Russian Federation	Staatsuniversität für Informationstechnologien, Mechanik und Optik in Sankt Petersburg	Electrical Engineering, Mechanical Engineering and Technical Journalism
	Moscow State Institute of Radioengineering, Electronics and Automation (Technical University)	Computer Science
	Moscow Institute of Electronic Technology (Technical University) in Zelenograd, National Research University of Electronic Technology	Electrical Engineering, Mechanical Engineering and Technical Journalism
	Ufa State Aviation Technical University	Computer Science
	Tomsk Polytechnic University in Tomsk	Computer Science
Socialist Republic of Vietnam	Vietnamesisch-Deutsche Hochschule in Ho-Chi-Minh-Stadt	Computer Science

Country	University	Departments
Spain	Universitat de València	Natural Sciences
	Universitat Politècnica de València	Electrical Engineering, Mechanical Engineering and Technical Journalism Computer Science
	Universitat Politécnica de Catalunya, Barcelona, School of Informatics	Computer Science
	Universitat Autònoma de Barcelona	Management Sciences
	Universidad Autónoma de Madrid	Computer Science
Switzerland	Zürcher Hochschule für Angewandte Wissenschaften in Winterthur	Electrical Engineering, Mechanical Engineering and Technical Journalism
Turkey	Istanbul University	Electrical Engineering, Mechanical Engineering and Technical Journalism
	Yeditepe University in Istanbul	Natural Sciences
	Yalova University	Management Sciences
Ukraine	Chernihiv State Technological University in Chernihiv	Electrical Engineering, Mechanical Engineering and Technical Journalism
United Kingdom	Robert Gordon University in Aberdeen	Natural Sciences
	University of Aberdeen, Schottland	Natural Sciences
	University of Dundee, Schottland	Natural Sciences
	Keele University in Staffordshire	Management Sciences Natural Sciences
	Glyndŵr University in Wrexham/Wales	Electrical Engineering, Mechanical Engineering and Technical Journalism
	Brunel University London	PhD Programme: all Departments
	University of Westminster London	Management Sciences
	Regent's University London	Management Sciences
	Abertay University in Dundee, Schottland	Natural Sciences
USA	Coastal Carolina University in Conway	Management Sciences
	Pfeiffer University in Charlotte, North Carolina	Management Sciences
	California State University in Sacramento	Computer Science
	University of California, Riverside	Management Sciences
	Wartburg College in Waverly, Iowa	Electrical Engineering, Mechanical Engineering and Technical Journalism

Prizes and awards

AFCEA Bonn e.V. Student Award (User forum for Telecommunications, Computers, Electronics and Automation and e-user forum for Telecommunications, Computers, Electronics and Automation)

1st place: Matias Alejandro Valdenegro Toro, Computer Science

2nd place: Sergej Alexandrov and Tobias Haubrich, Computer Science

DAAD Prize (German Academic Exchange Service)

Magali Paradis-Dufour, Management Sciences

DRIVE-E Student Award

Adam Gaier, Computer Science

University Innovation Prize 2015

Professor Dr. Gerd Knupp, Natural Sciences

Next Step into the Future of Entrepreneurship Education

Regina Brautlacht, Language Centre

VDI Sponsorship Award 2015 (The Association of German Engineers)

David Scherfgen, Computer Science

Best Student Paper Award of the International Conference on Information and Communication Technologies for Ageing Well and e-Health

Ashok Meenakshi Sundaram, Computer Science, Melanie Ludwig, Computer Science and their advisors Matthias Füller, Prof. Dr. Alexander Asteroth and Prof. Dr. Erwin Prassler

Award for Sustainability and Responsibility

Basma Hansen, Natural Sciences

Master Prize of the Association for Biochemistry and Molecular Biology (GBM)

Timo Heß, Natural Sciences

Equal Opportunity Officer's Award for the best Master's thesis

Melanie Ludwig, Natural Sciences

VDMI - Bestes Maschinenhaus

Electrical Engineering, Mechanical Engineering and Technical Journalism

Advancement Award from H-BRS Donors

- Patrick Hessler, Management Sciences
- Astrid Fuchs, Management Sciences, Computer Science
- Maurice Velte, Computer Science
- Matias Valdenegro, Computer Science
- Lutz Langel, Electrical Engineering, Mechanical Engineering and Technical Journalism
- Jorge Xavier Tapia Daza, Electrical Engineering, Mechanical Engineering and Technical Journalism
- Michael Wiehlpütz, Electrical Engineering, Mechanical Engineering and Technical Journalism
- Léonie Herder-Issig, Electrical Engineering, Mechanical Engineering and Technical Journalism
- Tim Hausen, Natural Sciences
- Christiane Hayes, Natural Sciences
- Gerrit Winter, Natural Sciences
- Renata Divkovic, Social Security Studies

RoboCup World Cup, Bronze

Prof. Dr. Gerhard K. Kraetzschmar, M.Sc. Frederik Hegger, Ashok Meenakshi Sundaram, Oscar Lima Carrion, Arka Mallick, Santosh Thoduka, Padmaja, Vivek Kulkarni, Jose Manuel Sanchez Loza, Shehzad Ahmed, Deebul Sivarajan Nair, Alexander Moriarty

RoboCup German Open, Silver

Oscar Lima, Shehzad Ahmed, Santosh Thoduka, Alexander Moriarty, Ashok Sundaram, Arka Mallick, Padmaja Kulkarni, Deebul Nair (all Computer Science), Advisors: Frederik Hegger and Prof. Dr. Gerhard Kraetzschmar

InformatiCup of the GI (German Informatics Society)

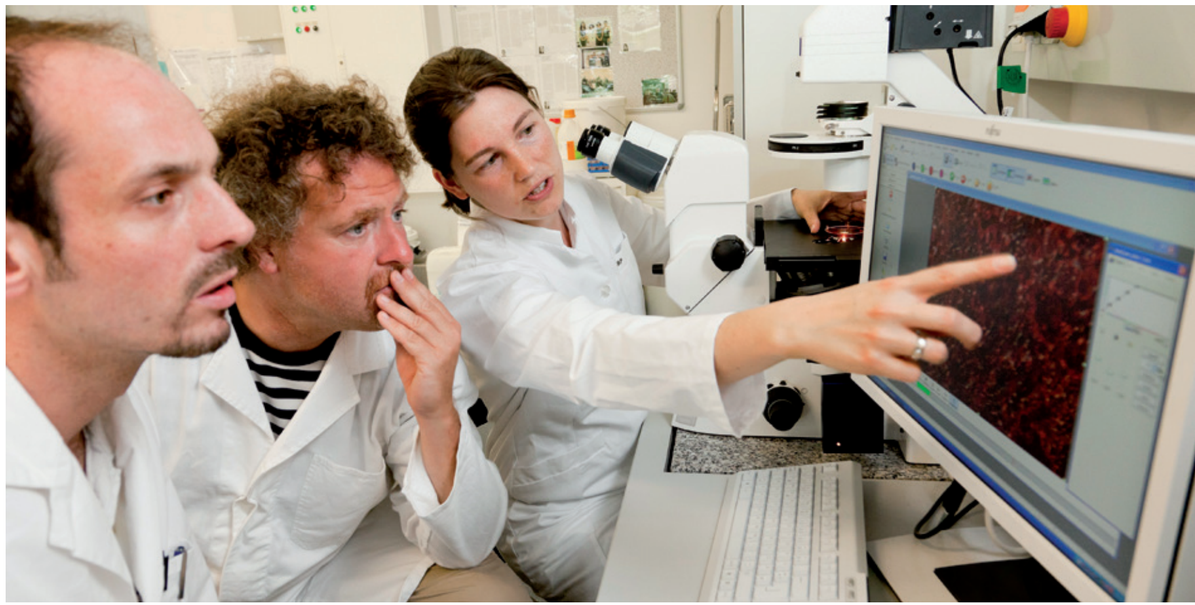
Helge Spieker, Computer Science, with Neele Halbur, Educational Sciences (Bielefeld University)

Best Paper Award from the IEEE VR (Institute of Electrical and Electronics Engineers)

David Scherfgen, Computer Science

IEEE William E. Sayle Award for Achievement in Education

Prof. Dr. Marco Winzker, Electrical Engineering, Mechanical Engineering and Technical Journalism



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Miriam Lüdtke-Hanjery (H-BRS): 4, 28, 24/25
Jörg Heupel: 4
Yorck C. Weber (H-BRS): 5, 6, 7, 16, 50/51
Eric Lichtenscheidt: 5, 14, 25, 80/81, 93
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Highlights 2015

Unique: MPI cooperates with H-BRS

A top scientist for the Max Planck Institute for Radio Astronomy and exciting research projects for H-BRS – both institutions benefit from this partnership which is unique in all of Germany (p. 66)

Pioneer Spirit

With the "Social Business Award" and the first Startup Week in Bonn, the Centre for Entrepreneurship, Innovation and SMEs (CENTIM) supports entrepreneurship in the region (p. 70)

View to the Future

Environmental awareness and sustainable technologies remain in focus: Opening of the university's own electric filling station (p. 63) and establishment of the "Bio Innovation Park Rheinland" for green technologies for the agricultural and food industries with many regional players
www.bio-innovation-park.de

100,000 Euros for Teaching

With its practice-oriented teaching concept, the Department of Electrical Engineering, Mechanical Engineering and Technical Journalism wins the competition "Best Machine House 2015" from the German Engineering Federation (VDMA) (p. 21)

Cutting-Edge Research

The developers of "micrOzone", a micro disinfection system for water distribution systems, win the University Innovation Prize 2015 (p. 29)

Recognising Potential

The H-BRS is co-founder of the "University Alliance for SMEs". Goal: Drawing more political attention to the economic and social potential of universities of applied sciences (p. 76)

Record High

In Winter Semester 2015/16, 1,700 first-year students are starting, more than ever before. At nearly 8,000, the total number of students also sets a new record (p. 74)

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