HILE AND DRINK SOME TEA FIRST DEMOCRACY AND SCIENCE HOW ABOUT LATER ANNUAL REPORT 2016 BE PAT

Hochschule
Bonn-Rhein-Sieg
University of Applied Sciences

dare

DEMOCRACY AND SCIENCE
ANNUAL REPORT 2016

Imprint

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University of Applied Sciences

FIELD OF RESEARCH DNA ANALYSIS (P. 28)

A pioneering DNA analysis procedure is in use at the H-BRS. Research results are relevant both to disease diagnosis and medical jurisprudence.

UNIVERSITY SOCIETY (P. 53)

The former "Gesellschaft der Förderer der H-BRS" has undergone a transformation process. New are name, board, charter and programme. Friends, sponsors and alumni are welcome to join the network.

SIMULATION IVC (P. 32)

Scientists at the Institute of Visual Computing are developing a virtual learning environment for paramedic training. It realistically simulates the events of an emergency, helps trainees practise teamwork, and gives them experience in dealing effectively with emotional situations.

FIRST ALUMNI DAY (P. 56)

A day at the former university – emotions and memories run high. The first big Alumni Day offered space and a great atmosphere to meet up with old acquaintances, find out what's new at the university, and talk with professors and students.

OVER 70 PARTNER UNIVERSITIES IN MORE THAN 30 COUNTRIES

3 LOCATIONS

plus B-IT together with the University of Bonn and RWTH Aachen

RHEINBACH

BONN (B-IT)

SANKT AUGUSTIN

HENNEF

15 PER CENT INTERNATIONAL STUDENTS

CONSTRUCTION IN RECORD TIME (P. 57)

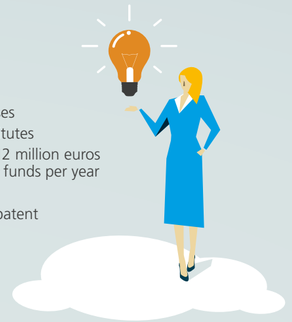
The H-BRS is expanding with two new buildings, totalling an additional area of 5,600 m2. At the close of 2016, the shells of the buildings were standing in Rheinbach and Sankt Augustin. By winter semester 2017/18, they will be open for teaching and research.

COOPERATION WITH LANDESKRIMINALAMT (P. 70)

Both sides benefit: students research real-world problems for their theses in the forensic analysis lab of the State Office of Criminal Investigation (LKA) in Mainz. The LKA stays on the cutting-edge of research.

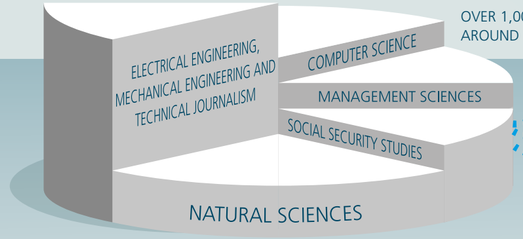
OVER 8,000 STUDENTS
AROUND 1,900 FIRST SEMESTER

- 4 research focuses
- 12 research institutes
- Approximately 12 million euros from third-party funds per year
- 25 spin-offs
- 1 international patent



OVER 1,000 EMPLOYEES
of these
- 152 Professors
- 263 Research Assistants
- 207 Employees in Technology and Administration
- 393 Lecturers from professional practice

5 DEPARTMENTS



OVER 1,000 GRADUATES PER YEAR, AROUND 12,000 SINCE THE FOUNDING IN 1995

Science must assume responsibility

Dare – Democracy and Science: University President Professor Hartmut Ihne on the theme of the Annual Report 2016

Science has an obligation to society

Science carries an indisputable co-responsibility for shaping and developing our society. Science must become involved, above all when common sense does not suffice. This is especially true in complex, interdependent and extremely risky contexts. Examples include the effects of climate change, the society-altering dimension of digitalisation, the establishment and maintenance of a safe society, economic stability and peace – in other words, those very issues in which many different factors seem hopelessly intertwined in time and space and – tragically – are hardly understood or hardly able to be understood by decision-makers in politics and industry. Today we see from a disciplinary, an interdisciplinary or even a transdisciplinary perspective, that the demands placed on science are increasing.

Scientific knowledge is the most highly developed, most reliable form of human knowledge in existence. The unique nature of this position carries special ethical responsibility and special responsibility toward society.

What, then, is science's responsibility to society? In essence, that we answer the questions about what is and what should be as truthfully as possible. Today more than ever we must distinguish facts and arguments from gossip and all that is fake, sense from nonsense. To do so, science must keep itself fundamentally and structurally open to questions about reality – and that implies social reality too.

Its portfolio of topics should include not only questions of a fundamental nature (as in basic research) but also practical questions with regards to people's ability to live and survive in a complex world (as in applied and transfer-oriented research).

For this reason, science, and this means organised science systems too, must ensure two things in particular: first, that the knowledge it gains flows effectively into the real world of society, and second, that requirements, in other words the needs and wants of society, flow in the other direction and are heard by and find support in science.

Democracy needs science and science needs democracy

We live in a country characterised by a high level of civic participation, freedoms, the rule of law, prosperity, and a sense of responsibility toward the global community. But the basis of our constitutional democracy and our peaceful coexistence must, as we see today, continually be reaffirmed and anchored in the minds of the people and in our institutions.

Solidarity, respect for the opinions of others and for human dignity, these are all values on which the peaceful coexistence in our society and the stability of our democracy rest.

In this context, it is also the duty of educational institutions like universities to sharpen young people's sense of social responsibility. This includes handling scientific knowledge appropriately, because trust in the results of science often serves as the basis upon which personal and political decisions are made.

An integral part of a socially-committed science that addresses the diverse dimensions of change in the 21st century is considering how its own actions will affect both present and future generations. More than ever before, science must see itself as a major source of knowledge and advice on which decisions are based, an important actor on the path toward a sustainable democratic society. For science to fulfil its role in the transfer of knowledge, new and effective institutional bridges are necessary…

…because cooperation and dialogue between science and civil society requires space, space in which various systems and ways of thinking can meet productively. As a university of applied sciences, the Hochschule Bonn-Rhein-Sieg does not operate in a bubble for itself alone. We see ourselves as a driver of innovation for the economy and the region with its citizens. Cooperation projects were and are important to us. But just as important to us is transparency and responsible use of the possibilities that modern science offers.

After two world wars and many horrible dictators in the course of the 20th century, science must be aware of its responsibility in the 21st century. Science carries shared responsibility for the further development of humanity. The legendary words of Willy Brandt's State of the Union Address in 1969, "Dare to have more democracy", ring true once again. Democracy is the "high end" of the socio-political spectrum. If we want democracy, we must work for it.

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Prof. Dr. Hartmut Ihne

10 study

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our logo graces much more than sweatshirts.
All offers here:
shop.h-brs.de

If we dare to take new paths, we expand the horizon

It is always fascinating to see how our creative and curious university sets off on the path toward trying something new – also and especially in the area of teaching. Be it new communication technologies like "Pingo", new testing methods that are closer to the way life actually tests us, new course contents or new programmes, the H-BRS continues to develop and dares to try new things.

In 2016, several groups of colleagues dared to engage in Peer Coaching. They granted other colleagues access to the protected space of the classroom, allowed them to participate in their own experience and, upon request, received feedback on their concepts. This requires courage, self-confidence and a certain amount of trust in the peer coaching partner. Compliments to all who took this new path – we will proceed along it.

With content too, the H-BRS is taking new paths. In addition to three new Master programmes, we now have a new study focus as well as a certificate of advanced training in "Prevention and Employability" (see page 16). And with the new Career Service, the university has created yet another instrument to pave the path from graduation to professional life for our students.

To ensure that the many good teaching concepts created at our university are also discussed and continued, we organised a Day of Teaching on October 27th for the third time and discovered many exciting approaches. The 2016 Award for Teaching was presented to Regina Brautlacht and Professor Klaus Lehmann (see page 23). My sincere thanks goes to the Pro-MINT-us team who not only organised this day but also enriched it with their innovative contributions. In 2017, Pro-MINT-us will be entering the second round of funding (see page 27).

Teaching at the H-BRS produces many highlights. This achievement is affirmed by the University Innovation Prize – in 2016 awarded to the team led by Professor Katharina Seuser for the lecture series "Technology and Environmental Technology" (see page 13).

And so that each individual can forge new paths, the University Development Programme continues to support instructors in digitalisation through tablets and promotes creative teaching concepts by funding the necessary student assistants.

My sincere thanks to all colleagues for their commitment!

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

High marks

H-BRS achieves positive evaluations: CHE ranking, graduate surveys, social media

More:

Each year within the scope of KOAB some 70,000 graduates of higher education institutions are surveyed approximately one and a half years after graduation on topics concerning their studies and professional career paths. The survey is developed by the International Centre for Higher Education Research (INCHERKassel).

➲ koab.uni-kassel.de

Top rankings for the departments AnNa and EMT

Ranking year 2016 was very successful for the H-BRS. The Centre for Higher Education (CHE) ranking took a close look at the Department of Natural Sciences (AnNa) and the Department of Electrical Engineering, Mechanical Engineering and Technical Journalism (EMT). AnNa students from the Bachelor programmes Applied Biology, Chemistry with Materials Science, and Forensic Sciences gave high marks to studies abroad, laboratory conditions and range of courses at the university. The Bachelor programmes Electrical Engineering and Mechanical Engineering in the EMT department scored well in the areas of support for students, orientation phase and contact with professional practice. And once again on the winners' rostrum: the University and District Library.

Satisfied graduates

The H-BRS is similarly well positioned when it comes to general study conditions. This year's survey in the scope of the Graduate Survey Cooperation Project (KOAB) shows: about 80 per cent of graduates praise the organisation and scheduling of courses, the examination system and the programme structure – 24 percentage points higher than the national average. Gratifying too is the evaluation of practical orientation. 59 per cent of those surveyed feel well prepared for daily professional life thanks to up-to-date, practice-related content, teaching staff with close relations to business, and mandatory internships. Also rated above average were the university facilities and library. It comes as no surprise then that the overall evaluation score was outstanding: 85 per cent of graduates are either satisfied overall or very satisfied overall when they look back on their studies.

Info channel social media

A Facebook survey among students and prospective students of the H-BRS shows: over 85 per cent of participants find social media at the university important or very important. Facebook is by far the most popular channel, followed by YouTube, Twitter and Instagram, which were visited by students equally often. More than half of those surveyed rated the work of the Social Media Team positively and praised the quick and competent processing of questions and comments. As far as content, participants view topics relevant to students (84.6 per cent), current information (83.3 per cent), and of general interest to the age group (74.4 per cent). But full potential has not yet been achieved. "The majority of those surveyed expressed interest in a WhatsApp Newsletter", says Yorck Weber, Coordinator of In-House Communications and Social Media.

H-BRS on Facebook:
➲ www.facebook.com/hsbrs

H-BRS on Twitter:
➲ twitter.com/h_bonnrheinsieg

Developing technologies, taking on responsibility

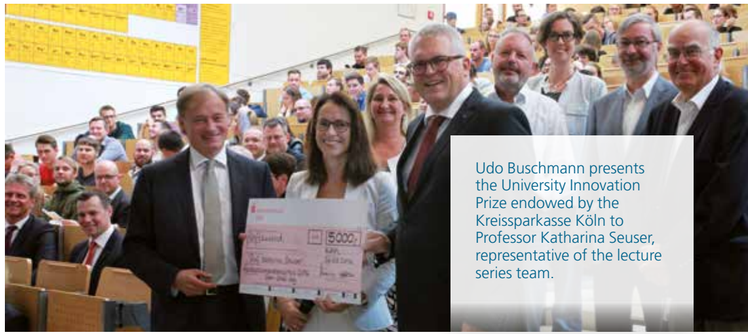
Lecture series on technology ethics wins University Innovation Prize

Industrialisation, automation, digitalisation – technology asserts an ever greater influence on our lives. Today the consequences of industrialisation are both visible and perceptible through climate change. This development has led to the proposal that our epoch be called the Anthropocene, "from people made new". On this topic, former Federal Minister Klaus Töpfer opened the lecture series "Technology and Environmental Technology" in April 2016. The H-BRS awarded the series its Innovation Prize. The prize money – endowed by the Kreissparkasse Köln (Cologne District Savings Bank) – is 5,000 euros.

"Developing technology with no thought to its consequences is no longer appropriate for the times", says Katharina Seuser, Professor in the degree course Technical Journalism. She initiated the lecture series together with colleagues from the Department of Electrical Engineering, Mechanical Engineering and Technical Journalism (EMT). Alongside basic technical knowledge, the lecture series teaches students at the H-BRS about the impact of technology and what must be considered during its development. "Sustainability and a sense of responsibility for effects on the environment play an important role, and our graduates should carry these values into businesses", emphasises Seuser. "For this reason, we're glad that the university has recognised the significance of these current topics by awarding the prize to this series."

Learning from other perspectives

Students are inspired by these topics. This becomes more than clear during lectures. Heated discussions occasionally arise because many different disciplines meet at this public event. When seminal topics like biodiversity or nature conservation are in focus, opinions are especially split. "A technical journalist might say that nature must be protected at all costs", says Seuser. "An electrical engineer, on the other hand, can imagine recreating chlorophyll and developing artificial trees."



Udo Buschmann presents the University Innovation Prize endowed by the Kreissparkasse Köln to Professor Katharina Seuser, representative of the lecture series team.

Who is right? No one, because there is no right answer. Ethics does not prescribe but instead offers the tool for developing norms through careful consideration. That is why the lecture series provides a platform for a variety of perspectives. "Students should build a well-informed opinion about technological innovations themselves", says Katharina Seuser. "Technology must neither be praised uncritically nor demonised."

➲ www.h-brs.de/emt/ringvorlesung-technik-und-umweltethik
➲ www.h-brs.de/hochschulinnovationspreis

> "Developing technology with no thought to its consequences is no longer appropriate for the times."
>
> Katharina Seuser, Professor in the degree course Technical Journalism

Those who have the choice ...

H-BRS expands its range of courses

In 15 seconds ...

Still on course for growth, the H-BRS added three new Master programmes in 2016: Business Psychology and Marketing in the Management Sciences Department and Materials Science and Sustainability Methods in the Department of Natural Sciences. The new study focus, Sustainable Management, in the Management Sciences was also launched as was a new certificate programme in the Department of Social Security Studies.

The psychology of business

How do you develop an assessment centre that can identify the best applicants? What can a football team do to raise its appeal to certain groups of fans? Answers to such questions are offered by Business Psychology. Punctually upon graduation of its first class of Bachelor students, the H-BRS has launched a Master programme in the discipline. In addition to compulsory courses that provide deeper knowledge of management sciences and methodology, the programme lets students choose three to six compulsory elective subjects – from Human Resources Psychology through Market and Advertising Psychology to Environmental Psychology.

Special feature of the programme is that the compulsory elective courses stretch over two semesters, allowing for in-depth project work in small groups. "In the Master programme, scientifically-reflected practice is of even more paramount importance than in the Bachelor programme", says Professor Peter Muck, Vice Dean of the department. "Students learn exactly what they will later use in their daily professional lives, in Human Resource Management or Marketing." How to develop competence training for managers is one example. First the prospective business psychologists work out the basic structure, then they flesh out the training and record all the steps in a manual.

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

> "Students learn exactly what they will later use in their daily professional lives, in Human Resource Management or Marketing."
>
> Peter Muck, Professor for Business Psychology

Know the market

Also launched is the new Master programme in Marketing within the Department of Management Sciences. This degree course, taught in English, was created in consultation with the Advisory Board of the Department of Management Sciences, whose members include representatives from companies such as Bayer AG and Haribo Holding GmbH. It prepares students for the demands of a marketing career. In three semesters, the future marketing experts learn everything to do with business models, marketing strategies, sales and market research. Through real-world examples and project work, they analyse the challenges posed by business practice, set goals and develop solutions. Always in mind: new technologies and trends – the best preparation for future marketing requirements.

➲ www.h-brs.de/en/wiwi/marketing-msc

Possible yes, but does it make sense?

From global market to the materials from which products are made – the composition of materials and their sustainability is the focus of the Master programme Materials Science and Sustainability Methods. "Every product that we buy is made up of a variety of materials", says Dr. Johannes Steinhaus, Programme Coordinator. "A lot of know-how is required to discover innovative combinations or analyse unknown materials."

Innovation endeavours to make products lighter or more robust – a great challenge for researchers and developers. But that is not the only goal. Focus of all considerations is the question as to whether development makes sense. An example: the E5 standard prescribes, among other requirements, that motor vehicles must reduce emissions of nitrogen oxides. In order to achieve this, however, much more platinum must be used in catalytic converters, and the extraction of platinum in turn impacts negatively on the environment. "We need holistic balancing, critical consideration of all steps in the process, from the raw materials to the finished product", says Steinhaus. "Our students learn not only what is possible in terms of materials science but also to reflect on whether an innovation is sustainable and makes ecological sense."

➲ www.h-brs.de/en/anna/materials-science-and-sustainability-methods-msc

Lecturers and participants in the certificate programme "Prevention and Employability"

Managing sustainably

Holistic balancing is also the central theme of the new study focus Sustainable Management in the Management Sciences. How can a business outsource steps in the production process internationally without harming the ecological balance of another country? And how can a company take on social responsibility? In order to answer these questions, students examine topics such as procurement and supplier management, recycling, and logistics under the premises of sustainability. Another core element is the steering of sustainability. A module dedicated to this topic imparts knowledge of both traditional methods and new management systems. In this way, students in the Management Sciences can anticipate problems and work out suitable solutions.

Counselling competence in prevention

A similarly holistic goal is followed by the further education course "Prevention and Employability". How can jobs be structured so as to maintain or even foster the health of employees? What courses of action can human resources and organisation development take to deal with issues such as older employees? These questions are answered in the new certificate programme offered by the Department of Social Security Studies. It is aimed at employees in human resource departments, professionals in occupational health management and people working in social services and healthcare who want to make jobs safer and healthier. "Businesses in general already apply statutory requirements for the workplace very well, but preventive measures harbour huge potential and this often falls by the wayside", says Vincenzo Cusumano, Director of the certificate programme.

This is where the programme starts. Five two-month modules offer both classroom phases for networking and intense discussion as well as distance learning phases in which the students deepen their knowledge independently. They learn concepts and methods of prevention, aspects of human resources and organisation development, and communication strategies. The team of lecturers is just as interdisciplinary as the content. "We've recruited specialists in Management and Communication Sciences as well as in Prevention", says Cusumano. "The programme was developed in cooperation with the Employers' Mutual Indemnity Association (VBG), the Institute of Work and Health of the German Social Accident Insurance (IAG), the Department of Management Sciences, and the Department of Electrical Engineering, Mechanical Engineering and Technical Journalism, each of which is in charge of an entire module."

Information and registration:
➲ www.h-brs.de/sv/praeventionsberatung

Mastering the leap into professional life

Kickoff of the H-BRS Career Service: personalised career counselling and guidance

In 15 seconds ...

From job fair to start-up advice – the Hochschule Bonn-Rhein-Sieg has been supporting its students and graduates in career planning for many years. Now the Career Service brings everything together.

The search has come to an end. Anyone at the university who wants to know about entering professional life can now turn to the Career Service as a central port of call. Once a week, the employees offer individual counselling to students at the Sankt Augustin and Rheinbach campuses. "A resource like this is an integral part of any modern institute of higher education", says Alexandra Lopes da Silva, Director of the Career Service. Students have a lot of questions. How do I find a suitable job? Can I start my own business with my concept? And: How can I optimise my CV? "Most counselling sessions are currently about checking application portfolios", says Lopes da Silva.

Workshops show what matters

This need is also met through lectures and workshops on key competencies, career orientation, and the entry into professional life. As a flanking programme to the university Job Fair and Career Summer, organised by the Career Service, the events are already firmly established. Now ways of expanding these events and spreading them regularly throughout the entire year are in discussion, because student demand for seminars to improve their soft skills is high.

Moreover, the need for talking must be met. "In many counselling sessions, we notice that students are really looking for confirmation", says Lopes da Silva. Formalities surrounding application documents are usually clear to them, and the expertise is there too. What the advice seekers need is coaching, someone to help them identify their strengths and motivate them. This is the main focus of individual talks during open consultation hours.

Identifying strengths: the Career Service supports and coaches students

In addition by mid-2018, the end of the development phase, a new online job portal is scheduled to go live. "We already have many contacts with regional businesses, and we know which companies offer great jobs", says Alexandra Lopes da Silva. "Since we're familiar with the companies and what they have to offer, we can judge the quality of the jobs, and this makes us stand out from other service providers." Thanks to this preparation, the job search practically takes care of itself.

Daring to push yourself can be hard, but it can also pay off. Competitive sports and degree course – are both possible? “I have a 60-hour week”, says Yanna Schneider. She looks completely relaxed, but deciding to study was taking a dare. “I asked myself: Can I do this? Can I really earn a degree?” The university supports her athletic career – flexible scheduling makes this possible. “That’s what really swept my concerns away. I believe in myself – on the mat and in the lecture hall.”

Yanna Schneider

is reigning junior world champion in Taekwondo and currently ranked 7th in the world. She tackles the strenuous, time-consuming training alongside a challenging Bachelor programme in Business Psychology.

dare

TIENT CAUTION IS THE MOTHER OF WISDOM LET’S SEE MAYBE WE CAN DO IT BUT WE DON’T HAVE TO JUST WAIT A WHILE AND DRINK SOME TEA FIRST HOW ABOUT LATER

Commitment to refugees in the region

Building bridges to studies in Germany

"The refugees' basic needs are met, but their lives are very monotonous. Our initiative kept the kids busy, built up their self-esteem and was just plain fun."

Professor Dirk Reith, Professor for Engineering

Language classes for refugees in Germany display a serious shortcoming. Integration courses up to level B1 are offered – but level B2 is required to qualify for a preparatory course to take the German Language Exam for University Admission (DSH). The H-BRS has filled this gap. Under the slogan "Bridge to Studies", the university's Language Centre offered the course "German as a Foreign Language" in summer 2016. "The idea emerged in 2015, when the large wave of refugees arrived", says Rebecca Grünfeld, Lecturer for Special Responsibilities at the Language Centre. "In 2016, we started a six-week intensive course designed for refugees who had begun a degree programme or even graduated from one in their home country."

Demand was and remains so high that a second intensive course was scheduled to follow in May 2017. Starting in August, courses that stretch over one or two semesters are planned. With these measures, the university is building on the success of the pioneering project. "Almost all of the participants passed the final exam", says Rebecca Grünfeld. "Some of them began the preparatory course immediately afterwards, others now want to follow."

Building toys and self-confidence

Bridges of another kind were proposed by Dirk Reith, Professor for Engineering, with his students. During the Project Weeks, they designed toys that are robust, inexpensive and easy to make. The prospective engineers then built the self-designed toy cars, football goals and wagons together with the children at the refugee accommodation centre in Sankt Augustin.

"The refugees' basic needs are met, but their lives are very monotonous", says Reith. "Our initiative kept the kids busy, built up their self-esteem and was just plain fun."

The students also benefited from the practical experience because they were able to apply the theory they had learned. "The project cuts right to the core of mechanical engineering", says Reith. "Students had to ask themselves: how do I realise my design, and in which order should the product be assembled?" Since the prospective engineers developed the ideas for the toys themselves, they had to learn to deal with occasional lack of inspiration and the accompanying sense of frustration. The joint craft project, however, went off without a hitch. "The older children helped the younger ones, so our students just offered support here and there", says Reith. "The project was a great success for everyone involved."

Building toys themselves: the project group of Dirk Reith (3rd from left) worked with refugee children in Sankt Augustin

Success through the DAAD Matching Funds scholarship

Every year since 2011, the university has awarded five DAAD Matching Funds scholarships to foreign students. Half of each scholarship is funded through DAAD resources and the other half by businesses and foundations. The 2016 scholarship holders come from Venezuela, Sri Lanka, Namibia, Morocco and Ukraine. The success rate is high: 95 per cent of the scholarship holders from the first four years have already graduated successfully from their degree programmes.

Copyright law in teaching – what is allowed?

Lecturers in higher education can quickly lose their path in the forest of laws surrounding copyright. The advisors of the E-Learning Team at the University Library, Miriam Wegener and Melanie Klöß, offer support. At the event "Basic Knowledge of Copyright Law in Teaching", lecturers learn what they need to keep in mind when preparing teaching materials. After a recent dispute involving remuneration pursuant to § 52a UrhG (German Copyright Act), between German institutes of higher education and VG Wort (a non-profit umbrella organisation of authors and publishing houses), demand for the workshop was so high that it was held five times in 2016. More events are planned. Information and additional reading material is available on the H-BRS learning platform LEA.

Touchscreen replaces blackboard – teaching equipment

From blackboard and chalk to PowerPoint to interactive digital teaching – the library's E-Learning Team provides support through workshops and new demo devices that help lecturers find the most suitable tools along the path to digitalising the university. Digital pens and touchscreen laptops can be borrowed, enabling lecturers to familiarise themselves with the possibilities offered by this new technology. Moreover, in special courses, the E-Learning Team demonstrates the potential of presenting class content digitally.

Secondary school students explore the library

Digitalisation is also revolutionising library use. 175 secondary school students from the Rhein-Sieg Gymnasium and the Albert-Einstein Gymnasium in Sankt Augustin are up-to-date on developments thanks to numerous workshops organised by the library team. On the topic, "How do I find literature for a research paper?", the secondary school students learned special search strategies, research in the online catalogue, and use of a statistics database. Schools interested in cooperating can register at the library.

➲ bib.h-brs.de

Teaching and learning together

Two 1st place Awards for Teaching in 2016

In 15 seconds …

The Hochschule Bonn-Rhein-Sieg - University of Applied Sciences (H-BRS) places great importance on good teaching. For this reason, especially successful teaching concepts have been awarded prizes since 2012. In 2016, two ideas shared the Award for Teaching: the Student Workshop of Professor Klaus Lehmann and the Business English course of Regina Brautlacht.

Your own flat, financial responsibility, time management – studying promotes independence. To support this process academically, Klaus Lehmann, Professor for Chemistry, initiated the "Studierwerkstatt" (Study Workshop), a form of assisted self-study. "This offer is aimed at first-year students", says Lehmann. "It guides students in independently coping with the everyday tasks surrounding their studies." The students meet in the "Studierwerkstatt" and work on their tasks. If they encounter a problem, someone is there to support them. From methodological processes like writing up the minutes of meetings or housework to issues involving class content and studies, the "Studierwerkstatt" covers every topic.

This variety is tied to a high standard. First, problems should be clarified as soon as possible. Second, talks are structured in a way that helps students come up with their own solutions. This helps them learn strategies for dealing with future issues independently. These tasks are tackled by a colourful team of professors, academic assistants and experienced students in higher semesters. "Student tutors are close to the issues, which makes them very effective helpers," says Lehmann. "At the same time, students appreciate the contact with professors – it shows that we take them seriously and care about their success."

Economical, sustainable, understandable

Time to get down to business for the students of Regina Brautlacht, Coordinator for English in the Language Centre. In the scope of the module Business English, they establish a company focused on sustainability. The company is fictional but effective. "The course imparts many competencies in a creative way," says Brautlacht. Students draw up a business plan, come up with a company name, and build up the web presence – all in English. In the role of entrepreneur, students develop sustainable products, which – as a highlight of the course – they present and sell at a simulated trade fair.

Parallel to this simulation game, some course participants work together with fellow students from various foreign institutes of higher education. In 2016, they carried out a study on genetically modified food. The teams presented the results in November at the Sankt Augustin campus in the form of posters at the international Africa Conference "Universities, Entrepreneurship and Enterprise Development". "This project didn't just introduce students to digital tools like Skype or Wikis", says Brautlacht, "it also gave them first-hand experience working in international teams."

Fit for the job – promoting talent in the EMT Department

"Young Professionals" – a new programme in the EMT Department, supports high-performing students. In a three-day summer session, they experienced just how important creativity and fantasy are – especially for engineers and technicians. Also part of the programme: practice in project teamwork while building a stable cardboard bridge, as well as a thought experiment on the social expectations of women and men. "The first Young Professionals Summer Session was a complete success", says Anouschka Strang, Programme Coordinator.

24 research

Institute of Visual Computing: virtual reality simulation for realistic paramedic training

Is research political?

Does research have anything to do with democracy? The answer is a resounding yes! Research always stands in the tension zone between politics and society. How much research can and should we undertake as a society? How independent are our researchers? What do they want to achieve with their research?

At the H-BRS, we discuss research frequently, among ourselves and with colleagues from other universities of applied sciences. How do we want to research? Should we conduct basic or applied research? What exactly does applied research mean? Is the goal primarily to increase the profits of businesses or more about researching topics that have a social and economic impact on everyone's well-being?

The state invests in higher education so that research can be conducted. At the H-BRS, as at other universities of applied sciences, we take on the biggest social challenges: energy consumption, an ageing society, security, sustainability. These are just a few of the exciting topics that our researchers worked on in 2016, to increase society's knowledge and contribute to alleviating social grievances.

In the age of "alternative facts", research and science, which collect facts and yield objective insights, are more valuable than ever. They guarantee the survival of democracy. Our credibility is high. The institutes of higher education carry a great responsibility that we, above and beyond our day-to-day work, should always bear in mind.

Scientists always dare because they are treading unknown terrain with their research questions, without knowing what the results will be. Despite this or even for this very reason, research is undertaken. Curiosity is the driving force behind research. Research generates knowledge based on facts, and thus it is and always has been political.

I wish us all many new, exciting insights!

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

Project Director Stephan Maurer: passengers will undergo a non-contact security check for chemical substances

Sensitive infrastructure

German and French researchers seek security concepts for ICE and TGV trains

In 15 seconds …

The German-French research project is examining how vulnerable the high-speed trains of both countries are to terrorist attacks. For this purpose, the Hochschule Bonn-Rhein-Sieg – University of Applied Sciences (H-BRS) has developed a test environment in which passengers undergo a non-contact security check for hazardous gaseous substances.

Terrorists have carried out devastating attacks on commuter trains in the past few years in both London and Madrid. The risk that such an act could be perpetrated on a European high-speed train, like the ICE or the TGV, is very real. A joint German-French research project, in which the Hochschule Bonn-Rhein-Sieg is participating, has taken on the task of increasing the security of this sensitive infrastructure. Since 2016, the partners have been working on the project "RE(H)STRAIN – Resilience of the Franco-German High Speed Train Network" to develop new concepts and technology for preventative and emergency measures against the threat of terrorism.

All possible attack scenarios

"It's not just about the trains themselves but about the entire infrastructure: railway stations, track systems and tunnels", says Stephan Maurer, Project Director and staff member in the Department of Natural Sciences at the H-BRS. "We look at all possible attack scenarios in order to identify and eliminate vulnerabilities." The scientists also ask themselves: How can security requirements be adapted to the continually changing threat level? And how can first-response teams react efficiently in the chaotic conditions following an attack?

The Hochschule Bonn-Rhein-Sieg contributes its expertise in detection technology. "Our test setup deals with monitoring people through non-contact security checks", says Maurer. "With a chemical detection system, we identify traces of chemicals on the clothing or bags of a suspect and evaluate them. This enables us to deduce whether someone may be carrying explosive materials or other chemical substances." Technology like this could be installed in the entrance area of a railway station. Following the movements of a suspicious person is then possible via a sensor network and suitable tracking procedures.

RE(H)STRAIN is jointly funded by the German and French governments. In addition to several research institutes, experts from the police forces and railway companies of both countries are participating in the project.

The project runs to the end of 2017. "We're now in the phase of fitting the individual building blocks of the research partners together into an overall scenario", says Maurer. Insights from the project can be carried over to other stretches of the European local and long-distance transportation system.

CeBIT: prize-worthy ideas

Two H-BRS research projects score well at the computer trade fair

Students win Innovation Award for their cryptomator

Many people save their data on cloud servers, such as Dropbox, Google Drive or OneDrive. The advantage is obvious: data in the cloud is always accessible. The user can view it on any device. But who guarantees that third parties won't access the data too? We just have to hope that cloud service providers securely encrypt the documents.

Computer science student Sebastian Stenzel did not want to depend on this. Together with fellow student Tobias Hagemann, he developed the cryptomator, an open source tool that can be used in combination with most commercial cloud services. The cryptomator makes a virtual vault-drive available. All documents that the user places there are automatically encrypted and saved to a local folder before being uploaded to the cloud. Because each data file is individually encrypted, it is not necessary to synchronise the entire folder each time the user changes something in a file.

The H-BRS found the idea of the cryptomator so good that it even promoted it in the university magazine "doppelpunkt:". But it wasn't just the H-BRS that was impressed. When the two students presented their idea at the computer trade fair CeBIT, they won the special prize for "Usable Security and Privacy". They now market the software professionally and offer personal security services.

Ministry of Education and Research selects FeGeb as Project of the Month

No less successful was the project "FeGeb – Fälschungserkennung für die Gesichtsbiometrie" ("Spoofing Recognition for Facial Biometrics"). It was funded by the Federal Ministry of Education and Research (BMBF), selected as Project of the Month in January 2016, and presented at the Ministry's stand at the CeBit computer trade fair.

In the project, a team of computer scientists, led by Professor Norbert Jung from the Safety and Security Research Institute, worked on the further development of a technology that is already being used in German airports. Here automatic border controls (e-gates) are installed where passengers scan their IDs. A camera snaps a picture of the traveller's face, and software compares the image with the passport photo. A near infrared sensor that can identify human skin also checks to see if the person actually shows his or her own face or is trying to spoof the camera with a mask. In FeGeb, the sensor and camera are being combined into a single device. The Federal Ministry supported the project with approximately 324,000 euros in the scope of the programme "Research at Universities of Applied Sciences".

➲ www.bmbf.de/files/Projekt_des_Monats_Januar_2016.pdf

High quality teaching

The successful programme Pro-MINT-us at the H-BRS continues. 2012 was the launch; 2016 it successfully moved into the second round of funding, which the federal government is financing with 5.7 million euros. Pro-MINT-us improves teaching quality in the STEM subjects ("MINT" subjects in German) at the H-BRS. These subjects exhibit a very high national dropout rate. To counteract this trend, new approaches in teaching are being implemented at the H-BRS. In the Department of Electrical Engineering, for instance, lecture hall experiments better communicate the connection between theory and practice. Another measure is the "Studierwerkstatt", where students can find competent support. "From statistics and surveys, we know that Pro-MINT-us has a positive impact on learning success", says Project Director, Professor Marco Winzker. The existing support measures will be expanded and supplemented until 2020.

Deeper insights into the genome

H-BRS gains expertise in Next Generation Sequencing

In 15 seconds …

In the new research focus Functional and Forensic Genomics, the Hochschule Bonn-Rhein-Sieg (H-BRS) is acquiring expertise in what is called Next Generation Sequencing, a groundbreaking procedure in DNA analysis. The research is relevant to forensics as well as clinical diagnostics.

Project team members Sarah Heß (left) and Dr. Claudia Till: analysis of the sequence library with a microchip electrophoresis system

DNA is the carrier of genetic information. It contains four different nitrogenous bases that are generally labelled with four letters: A, G, T and C. The DNA of all humans has these bases arranged in almost exactly the same order, but there are minor differences in a few places – that is what makes each person unique. Such variations – also called polymorphisms – make not only our genetic fingerprints recognisable but can also influence the emergence and course of diseases.

In order to examine polymorphisms, researchers must determine the base order of the DNA, the so-called DNA sequence. This was very time-consuming, until now: in the conventional procedure each segment of the DNA chain had to be examined individually. But in recent years, Next Generation Sequencing (NGS) has become established. "With NGS we can examine many segments within a short time and filter out characteristic attributes more quickly," explains Richard Jäger, Professor for Biology in the Department of Natural Sciences.

Cooperation with Medical Jurisprudence at the University of Bonn

At the H-BRS, the use of NGS is a new field of research. In the scope of the programme "FH Struktur 2016", the federal state of NRW is funding the expansion of the required competencies through the project "FunForGen – Functional and Forensic Genomics via Next Generation Sequencing". Participants include forensic experts, biochemists, biologists and bioinformaticians at the university. Moreover, Jäger and his colleagues work together with Medical Jurisprudence at the University of Bonn, where special equipment for NGS is available.

"In the first phase of the project, we developed standardised reaction processes for the regions of DNA that we want to examine more closely", says Jäger. "Now we can pursue our research projects and introduce the procedure in future courses."

The research projects encompass several focuses. "We'd like to identify polymorphisms that play a role in hereditary Acyl-metabolic disorders or help determine the course of and therapy for Parkinson's Disease", says Jäger. That could help in developing new therapeutic approaches.

The researchers would also like to improve DNA analysis in Forensics, where up to now DNA variants could only be determined based on sequence length. This relatively rough method doesn't always yield satisfactory results. "When we speak of DNA testing, many people think of paternity tests with clean samples taken from a mouth swab", says Jäger. "But in criminology, traces of DNA are often damaged – because they are too old or have been exposed to the elements." With the new procedure, fine differences could still be detected, making it possible to identify the perpetrator.

5 years of the Graduate Institute

Positive marks on the evaluation and praise from the NRW Ministry of Science: the Graduate Institute (GI) at the H-BRS is five years old. 70 supervised doctoral candidates and nine successfully completed Ph.D. degrees send a clear signal. During a ceremony at the end of 2016, the GI presented the milestones that had been achieved and touched upon the significance of the Institute's establishment for higher education policy. 30 doctoral candidates displayed posters of their research, presented their projects and answered the guests' questions. The anniversary celebration marked the end of the Institute's establishment phase. What remains to be done? The GI's achievements are to be continued and expanded, which will also support the NRW Graduate Institute, founded in 2016, in which the H-BRS is an active participant.

➲ www.h-brs.de/gi

The environmentally-friendly velomobile – a primarily human-powered vehicle – could become a common means of transportation. This is Alexander Hagg's dream. In this way he wants to contribute to reducing emissions of greenhouse gases. To turn his dream into reality, the doctoral candidate spends a lot of time researching. "Recumbent tricycles have to become more aerodynamic and efficient. We're developing algorithms that do this automatically, creating new models." Alexander Hagg and his team are on the right track technically, but he still has to persuade the public. "The biggest challenge is to get people excited about this type of vehicle," says the researcher.

Alexander Hagg

is a research assistant at the Institute of Technology, Resource and Energy-Efficient Engineering (TREE). As a researcher, he dares to venture into the field of automated development in the hope of creating new and more optimised vehicles.

dare

T CAUTION IS THE MOTHER OF WISDOM LET'S SEE MAYBE WE CAN DO IT BUT WE DON'T HAVE TO JUST WAIT A WHILE AND DRINK SOME TEA FIRST HOW ABOUT LATER

Training for emergencies

At the Institute of Visual Computing a realistic simulation for paramedic training is being developed

Partners and funding

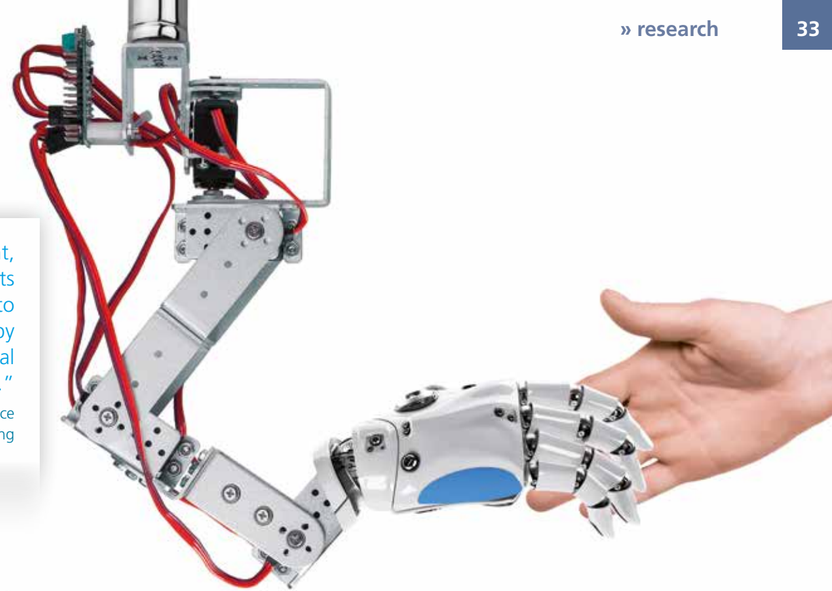
EPICSAVE is funded by the Federal Ministry of Education and Research (BMBF) and the EU within the scope of the programme "Digital Media in Vocational Training" with 1.6 million euros. Project partners are the Fraunhofer Institute for Experimental Software Engineering (IESE), Maltese Emergency Services, the Academy for Emergency Medicine and the company TriCAT, which is helping to create the virtual learning environments.

Allergy sufferers are always at risk of going into anaphylactic shock. This can be triggered by insect stings, food or medicine. In the most severe cases, it can lead to massive cardiovascular disturbances or respiratory arrest. It's not easy for paramedics to prepare for such emergencies – especially when children are involved. Emergency responders work under tremendous time pressure to rescue the patient, whose symptoms may take on very different forms. At the same time, they have to deal with the fear and panic of the parents. In training, such situations can only be partially simulated with the help of actors or by using dummies.

In the project EPICSAVE, Professor Jonas Schild, scientist at the Institute of Visual Computing, and his team from the Hochschule Bonn-Rhein-Sieg are developing a virtual learning environment in which the events of an emergency can be realistically simulated. "We want to supplement current training by adding cognitive and emotional elements to the scene", says the computer scientist. "In the simulation, paramedics have to recognise symptoms such as hives or respiratory distress and begin emergency treatment, to which the patients then react, sometimes with new symptoms. Via gaming technologies, the trainees experience the emotionally-charged atmosphere and see how loved ones can have a positive impact on treatment."

In the simulation, researchers use a commercial virtual-reality system with which the users can freely move about in an area of 25 m². Their movements are detected via laser sensors and transferred to the virtual world. This allows several people to take part in the simulation at once – helping the paramedics to practise teamwork.

Virtual reality system simulates emergencies



"In the virtual learning environment, we realistically simulate the events of an emergency and want to supplement paramedic training by adding cognitive and emotional elements to the scene."

Jonas Schild, Professor for Computer Science at the Institute of Visual Computing

Educational portal for practice

EPICSAVE is initially scheduled to run until 2019. "We first determined the trainers' demands and the technical status of virtual reality and serious gaming", says Schild. "In the coming months, we'll develop the initial prototype of the virtual learning environment. Later, we plan to expand the functions so that trainers can adjust various parameters and create their own scenarios, especially since paramedics in Germany will be given more scope for action in the future. They'll be permitted to administer adrenaline in the case of allergic shock, for instance – until now they were required to follow the instructions of the emergency doctor."

➲ www.h-brs.de/epicsave

Safe interaction between human and machine

Close cooperation between robots and people in industry – this is what Professor for Computer Science, Norbert Jung, and his team are trying to achieve through research in the project "beyondSPAI". The scientists have discovered that human skin exhibits a specific spectral pattern in the near-infrared range, which artificial materials do not. This insight is now being applied in new algorithms for image processing. The use of various sensors dramatically increases the chance that a robot will reliably recognise a person and react appropriately. In 2016, the project received a grant of 485,000 euros from the Federal Ministry of Education and Research (BMBF) under the funding programme "FHprofUnt". With this line of funding, the federal government aims to support knowledge transfer to businesses. Partner of the university is the company, K. A. Schmersal GmbH, which contributed another 45,000 euros to the research.

Researching for a sustainable future

At the TREE Institute, responsible use of materials and energy is high priority

In 15 seconds …

The Institute of Technology, Resource and Energy-Efficient Engineering (TREE) was established in 2013 in the Department of Electrical Engineering, Mechanical Engineering and Technical Journalism (EMT). Since 2016, it has been a central scientific institution and a research focus of the university. TREE engages in interdisciplinary materials, process and systems research with special emphasis on the sustainability goals in research and technological development.

Black liquor is a waste product of the paper manufacturing industry. It contains large quantities of lignin, which after cellulose, is the most important organic component of all plants. Despite the valuable substances it contains, black liquor was at most sent for thermal recovery – until now. In the project "LignoBau", a team of researchers headed by Professor for Chemistry, Margit Schulze, is developing a chemical procedure for producing special polymers from the lignin. These could be used as insulation materials in housing construction.

"TREE follows the principle that technology should serve people, not people technology."

Dr. Johannes Steinhaus, CEO of TREE

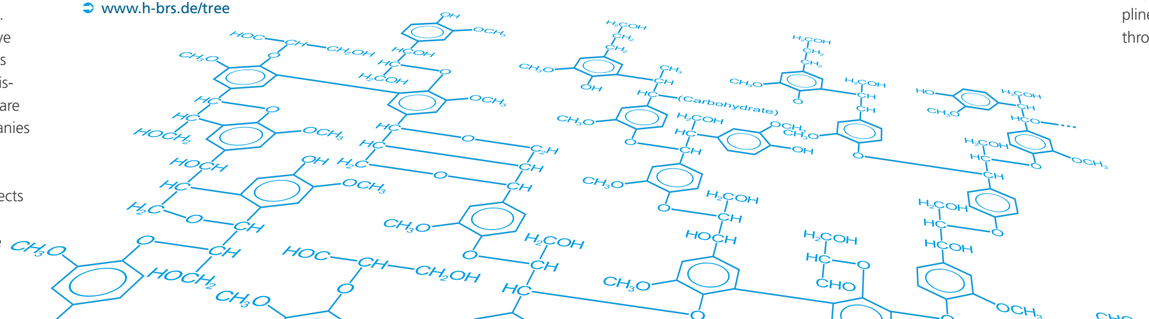
The project is a typical research topic for the Institute of Technology, Resource and Energy-Efficient Engineering. "TREE follows the principle that technology should serve people, not people technology", says CEO Dr. Johannes Steinhaus. About 50 professors, as well as research assistants and student employees from three departments, are involved. Business partners include the chemical companies BASF, Henkel and Dow Corning.

Steinhaus provides some examples: "Our research projects revolve around sustainable materials, resource-friendly manufacturing processes and efficient mobility". In the project "ReBAuVES", for instance, a team of researchers led by Professor Dirk Reith are modelling the blow moulding process used in plastic packaging for chemical and cosmetic containers or automobile tanks. By optimising this manufacturing process, they hope to reduce the amount of material used. In a further project, "AktivPuzzolan", a team headed by Professor Steffen Witzleben is developing procedures that cut down on the amount of CO_2 produced in cement manufacturing. The cement industry is responsible for some 8 per cent of all global carbon dioxide emissions – the research results could thus make an important contribution to climate protection.

All together, the Institute has already released more than 150 publications and raised more than two million euros in research funds. But research is not TREE's only strength. In 2016, the Institute supported around 40 projects as a service provider for industry, including damage analysis of building components, material development and testing. The Institute also contributes its know-how to seminars and workshops.

More:

➲ www.h-brs.de/tree



Open for cooperation

DAAD funds German-Moroccan open source software

Countries with emerging economies face great challenges. One of these is digitalisation. In many emerging nations, pirated licences for operating systems or software are commonplace. This works until the economy improves. Then software companies no longer tolerate the practice and file lawsuits against the businesses.

To avoid legal disputes, emerging countries have begun to depend more on open source solutions, software that can be used free of charge. That's what Morocco is doing – in cooperation with the Hochschule Bonn-Rhein-Sieg within the scope of the DAAD-funded project "Opportunity Platform towards transformative higher Education and innovative research Network" (OPEN). The team, headed by Professor for Computer Science, Rainer Herpers, works with the Mohammed V University in Rabat, the National School of Applied Sciences in Marrakesh and the National Center for Scientific and Technical Research in Rabat, on alternative platforms and open source solutions like LibreOffice. "The new insights will be applied in development as well as in teaching", says Rainer Herpers.

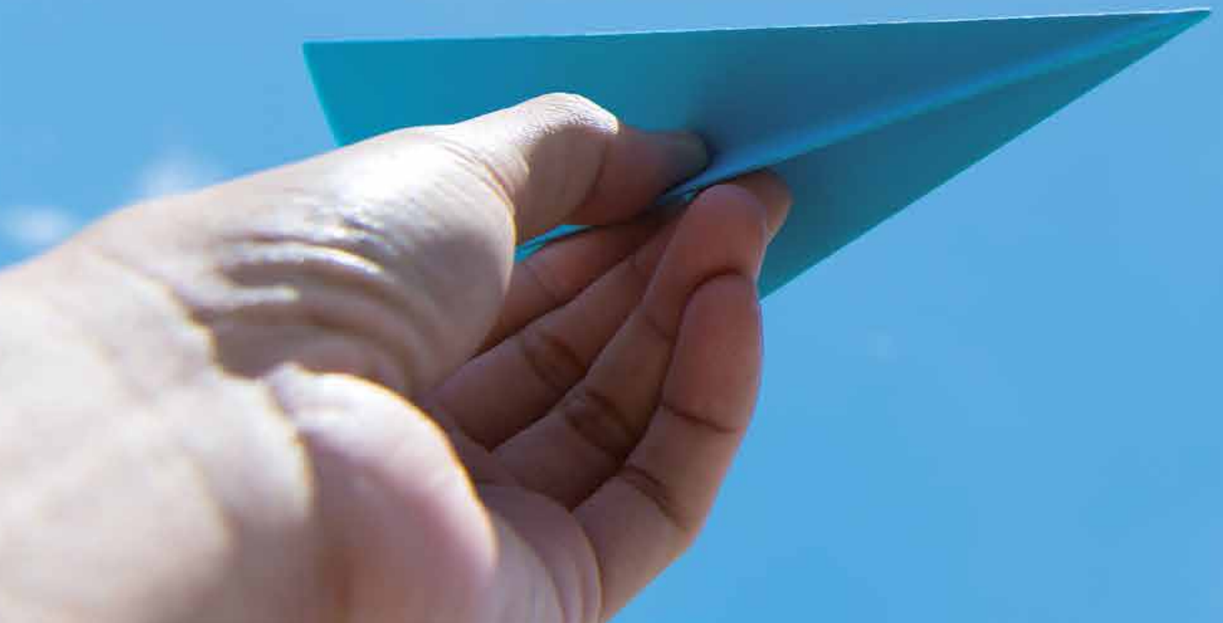
Project team meets in Germany

Appropriate to the topic, the majority of the project team's communication takes place via digital media, such as Skype or e-mail. But team members don't miss out completely on face-to-face meetings. "Moroccan guests frequently come to the Institute of Visual Computing. Last time, two doctoral candidates from Marrakesh and a Master's student from Rabat visited", says Herpers. "They experience first hand how we deal with IT solutions and then apply these tools in their own scientific work." In August 2016, the entire project team met in Germany: on the occasion of the Free and Open Source Software Conference (FrOSCon), the Moroccon delegation visited the H-BRS. Following the largest open source conference in Europe, a week of workshops was held in which team members approached cloud solutions and practised Android programming languages.

The Moroccans are taking this knowledge back to their home country – and not just to their own discipline and institution. "Although the project was established in the field of computer science, it addresses all academics", emphasises Herpers. "OPEN gives students from all disciplines access to digital products – from statistical analysis through word processing to spreadsheet applications."

dare

the magazine on this year's theme



Free science requires democracy

Thomas Krüger, President of the Federal Agency for Civic Education, and University President Hartmut Ihne discuss the relationship between science and society with regards to civic education and democracy >>

Thomas Krüger

has been President of the Federal Agency for Civic Education since 2000. The theologian, born in 1959, began his political career in 1989 as a founding member of the Social Democrats of the GDR. After 1990, he held various offices in Berlin, among others Senator for Youth and Family. From 1994 to 1998, Krüger was a member of the German parliament, the "Bundestag". He is currently engaged in extensive volunteer work, serving for over 20 years now as President of the Deutsches Kinderhilfswerk (German Children's Fund) and since 2012 also supporting the Commission for Protection of Minors in the Media (KJM).

"Dare to have more democracy" – this is what Willy Brandt proclaimed in his State of the Union Address of 1969. What is it that makes these words so current almost 50 years later?

Hartmut Ihne: Willy Brandt connected this enlightening sentence with the terms "information" and "knowledge". Democracy requires informed, knowledgeable citizens. In view of the complexity of the present day and age, this is a challenge for which we need science. Universities and colleges are complexity-deciphering institutions. They are obligated to put knowledge in the hands of society – knowledge that society needs to maintain itself as a democratic polity. Partially also out of self-interest: without a democratic framework, science cannot function in the long term.

Thomas Krüger: Citizens' activities are not limited to the act of voting, afterwards come participation, suggestions and challenges, demonstrations. The Federal Agency for Civic Education was founded in 1952 with the specific mission of promoting understanding for political issues and processes and strengthening democracy. Democracy is not a hereditary trait that is simply passed from one generation to the next. It must be earned anew each day.

Where is democracy primarily learned?

Krüger: There are three big areas: formal education in school, non-formal education – everything that happens outside of school – and informal education. This latter refers to self-learning and processes of exchange, in the family, for instance, or in peer groups. Formal education plays a key role, even if this has changed in the last years through the exposure of education to economic forces. Class schedules have cut back on the subjects politics, social studies and history. But they cannot be done away with completely because society requires not only Homo economicus, economically functioning people, but also Homo politicus, to work through negotiation processes and organise democracy.

What role do institutes of higher education play in the task of "civic education"?

Ihne: Institutes of higher education are the most important places that society has established for the acquisition and transfer of knowledge. If you look at the development of universities in Europe, then the methodical interplay of argument and counterargument is – along with evidence achieved through empirical methods – a fundamental principle of science. Jürgen Habermas stated this very succinctly in his discourse ethics with the famous metaphor of the "unforced force of the better argument". Democracy is based, among other things, on the ability to reason, and as such has fundamental logic built into it. Only reasoning can solve conflicts of interest (at least cognitively).

But beyond the context of historical ideas, universities educate young people who will one day occupy important positions in society. As such we are obligated to foster, alongside their acquisition of technical knowledge, their rationality, their ethical competence and their capacity for democracy. The task of the institute of higher education is both to sensitise its own people, those involved in degree courses, teaching and research, and initiate discourse with the public. German institutes of higher education particularly hold back in the area of public discourse. We have to change that and actively take part as scientists. Science is not a purpose in and of itself. It must also play an active role in society.

After a sharp decline, voter turnout is clearly increasing again – have we overcome our disenchantment with politics in Germany?

Krüger: We observe that, above all, young adults are showing an increased interest in politics. Two tendencies are apparent. First, the re-activated voters almost all tend toward the middle. Second, political forces that do not feel represented are forming. This can benefit democracy because marginalised groups can then be addressed.

Ihne: No, it is not overcome. But how legitimate is disenchantment with politics really? I'm convinced that political disenchantment is a tragic phenomenon, strongly initiated through the media. How many disenchanted citizens seek direct discussion with the politicians? Almost none. Notions about politics originate in the media, and political disenchantment is partially their echo. The constant negative criticism of democratic politics and its actors has contributed to hollowing out the belief in their meaning and purpose. The achievements that we have fought for and anchored through great effort in the democratic world must be publicly portrayed as intrinsically valuable. Moreover, direct communication with elected representatives must be improved. Both parties owe this to each other: politicians and citizens.

Krüger: We underestimate the role of emotions. In civic education we ban "overpowering", under the assumption that only reasonable argumentation should lead to the formation of political opinions and judgments. But emotions are always part of political decision-making processes and judgments. This is illustrated by the concept of "frames". Frames are images that are conjured up inside of us in reaction to certain impressions. They trigger streams of consciousness that call forth quick emotional assessments of the issues, such as fear or encouragement. A good example is the word "refugee crisis". This is a frame that produces troubling images. If the word "arrival crisis" had been used instead, the development would likely have been perceived quite differently.

How do you view movements like the March for Science and the Pulse of Europe?

Krüger: Pulse of Europe is a good example of how representatives from civil society are on the path toward discussing European issues in the big public squares of the cities. Plural societies are characterised by contradiction; there is more than one truth. Democracy withstands a diversity of opinions. Dictators do not. When authoritarian voices form in a democracy, then the question arises as to whether these voices will gain the upper hand or not. More and more people are coming to understand this and want to show these forces their limits. I believe that in the end, a strengthened Europe can emerge, but only if people grasp that this requires them to become active.

Ihne: Democracy is not simply a given. It is dependent on a lot of work at various levels. We have to move away from an, unfortunately widespread, consumerist understanding of democracy. Democratic processes must be kept alive through participation and above all through a positive attitude toward them. Europe is not sufficiently succeeding in this double step: on the one hand consolidating the joint democratic substance in joint institutions – the failure to establish a European constitution comes to mind – and on the other hand, winning over the opinions of a sufficient number of people for Europe. Pulse of Europe

is a movement that does good. I am thoroughly convinced that the populists and the simplicists have no chance in the long run. Democracy is stronger in the end. Europe, the joint space of law, politics, economy, education and science, is the most successful human project of all time. Endangering that is an act of insanity.

Unfortunately, the spirit of unfreedom is apparent even in the lecture halls of many countries nowadays. Scientists who publicly criticise the government or stand up for democracy are persecuted. How do you assess the situation?

Ihne: One example: we cooperate with several Turkish universities. Of course, the current political and academic situation has a negative impact on our cooperation. Nonetheless, we don't want to end cooperation because that would primarily affect our colleagues in the universities. In this difficult situation, they count on these relationships; they are lifelines. The academic community sees itself as a global whole that reaches beyond national viewpoints. Free science strengthens a society's capacity for truth. That's why in times when media is denounced as "fake" and when well-targeted false reports circulate quickly and widely through social media, science is especially challenged to make society hear its voice.

Krüger: Brandt's policy toward the East – the principle of change through rapprochement – is an example of how to deal with less democratic or even dictatorial regimes. It emphasises communication without reconciling itself to the counterpart's position. It seeks dialogue and tries to build trust, hold osmotic channels open to create a basis for peaceful coexistence even under difficult conditions. Equally relevant, if not more

so, is understanding media education in certain instances as civic education. What journalists do in their daily work – researching and checking a second source – are basic values that every recipient should have these days. In the times of social media, we are all recipients and co-producers. Each click creates a filter bubble and holds something for true or not. As such it's important to use media responsibly and to understand that we are all responsible – not just for the production of media but also for the reception of media. In democracies it's also important to produce civic activity in the net. This means not simply looking away and letting filter bubble be filter bubble, but disputing and objecting. A public without objections is not a public.

Dare to teach digitally

Professor Marco Winzker paves the path for innovation in digital teaching: the Remote Lab lectures

Digitalisation fundamentally changes institutes of higher education. Place of learning and university no longer have to be one and the same. Lectures and even laboratory experiments can be watched and carried out anywhere. What is technically possible; what makes sense?

The H-BRS dares to venture into this field with Remote Lab lectures. The Remote Lab, a real laboratory whose technology can be used anywhere thanks to the Internet – is to be integrated as a learning aid in classroom teaching. Supplementing an online laboratory experiment with a previously recorded lecture is also possible. Theory and practice in the Internet can be combined in a completely new way. This gives students more opportunities to relate to and better comprehend class contents.

➲ www.h-brs.de/fpga-vision-remote-lab

The inventor, Professor Marco Winzker, was conferred an award endowed with 50,000 euros by the Stifterverband in 2016. This is an incentive for him to continue pushing forward with digital teaching, but Winzker also warns of the risks: "Such projects require a lot of work and are expensive. You have to ask yourself whether digitalisation of the class contents is even useful. It's not a fix-all".

But his idea is well received: in the test phase, already half of the students accessed and used the prototype of the Remote Lab, and they were enthusiastic about its applications. The professor now wants to use the prize money to improve the hardware and software and shoot videos for the accompanying online lectures.

This drive and motivation has inspired other lecturers at the H-BRS to delve deeper into the field of digital teaching. "I discuss the Remote Lab and other ideas with my colleagues", reports Winzker. "Digitalisation is an exciting process and offers plenty of potential for experimenting with new ideas. Keep this in mind…and dare! Students will quickly let you know whether your idea works or not."

Time for decisions

What have students dared to do? Survey at the Sankt Augustin campus

"I came from India to study at the H-BRS. I don't have a scholarship, which makes this step abroad a risky decision. Up to now, I've been satisfied, but only the future can tell whether or not my studies in Germany will pay off."

Aniraddha Pal studies Autonomous Systems

"I completed some training and then worked for a year before starting this degree course. I carefully considered whether I could afford a degree course and if I wanted to live without a regular income. Thanks to BAföG (federal student loans), I dared to take this step, and I haven't regretted it."

Latifa Bouaich studies Business Information Systems

"The biggest challenge for me was becoming independent and organising the degree course without support. I learned a lot from this in my first semester."

Kevin Kirch studies Computer Science

"It took quite an effort for me to move away from my family. At first it was hard to live alone and master everything, but I got used to it relatively quickly."

Vanessa Schreuder studies Business Information Systems

"We dared to choose a degree course in a field traditionally dominated by men. Now we're very happy and getting on well with everybody and everything."

Marina Preiss studies in the cooperative degree course Electrical Engineering,

Lina Franziska Dick studies Electrical Engineering

"Deciding on a degree course in Business Administration was a risk, because I knew that it wouldn't always be fun. Now I'm in the fifth semester and have job perspectives that suit me well."

Ana Michels studies Business Administration

Of business and risk-taking

Where does daring stop and overly risky behaviour start? In which ways can business dare more? Business Psychologist, Professor Peter Muck, answers

From a psychological perspective, how do you recognise a daring person?

Daring people are extroverted and open to new things and ideas. They can be very assertive and persuasive and achieve their goals. But at the same time, they don't feel the need to consider all the consequences of their actions. Overall, they can deal with the uncertainty that comes with risk better. And certain situations call for the willingness to dare. Entrepreneurs have to dare in the start-up phase without letting their daring turn into overly risky behaviour. For a company to succeed, daring must always be tempered with self-control, resilience and perseverance.

In human resource management there are numerous interactive procedures intended to minimise the risk of hiring the wrong applicants. How effective are these methods?

Interactive formats like assessment centre and interviews require the applicant to balance self-promotion and authenticity. On the one hand, he or she wants to impress the future employer and demonstrate strengths. On the other hand, the danger is always present that certain competencies are merely pretended. Nonetheless, an assessment centre is very helpful because it creates situations relevant to daily work. The ideal candidate is best found through a combination of selection procedures.

What wins in the job application process: tradition or innovation?

That depends on the company and the position to be filled. Some companies purposely hire lateral or unconventional thinkers to create new impetus. Management consultancies don't just hire experts in business administration, but also theologians or philosophers. But applicants can't be too different from the average worker because then the risk is too high that they won't fit in with the rest of the team. The same is true for the cover letter of an application. It's good to make it stand out from the rest, but having it fall too far outside the norm actually reduces chances.

The economy lives from innovation – do you plead for more courage?

Market research generally reduces the risk of introducing a new product or service, but not every survey guarantees this. Survey participants often give the answers that they think society expects from them but then act completely differently in the real world. Sometimes demand for a product is not created until after production because consumers weren't even aware that they might want it. In this case, daring pays off for entrepreneurs!

Role models that encourage

Margit Schulze, Professor for Industrial Organic Chemistry and Polymer Chemistry

When Margit Schulze started her degree course in Chemistry at the Technische Hochschule Merseburg in 1981, she was one of many – many women! Contrary to popular stereotypes, women made up more than half the students in her natural science degree course. "I only had female chemistry teachers in school, and they inspired me", says Schulze. "From my own experience, I know how beneficial role models can be."

The same holds true for degree course and career. In the GDR where Margit Schulze grew up and studied, the right to earn a doctoral degree was never taken for granted, particularly if the political system was not favourably disposed towards you. She thanks her mentor and advisor, Horst Hartmann, for the fact that she was able to go on to earn her doctorate. The degree laid the cornerstone for her future career. "Without this title, after reunification I'd have been standing in West Germany with no recognised qualifications", says Schulze.

My Swedish role model: a woman like a storm

Instead stations at the Max Planck Institute for Polymer Research in Mainz and at the Royal Institute of Technology in Stockholm followed. In Sweden too, Schulze worked closely with a role model. "The dean of the institute was a woman like a storm, someone who fought the path free for the young female scientists. If my female students need someone like that today, I'll gladly do the same for them."

As a professor, Margit Schulze emphasises the combination of teaching and research "that keeps courses up-to-date and exciting". She takes away students' "fear of contact" with applied science by letting them help her with projects. "They're more motivated when they realise that they're not just learning for their university transcript marks."

The academic career path – her dream profession. In order to motivate students in this direction, Margit Schulze participated in the film "Female Professors – Where Are You?" The joint production by the Hochschule Bonn-Rhein-Sieg and the Hochschule Bochum depicts the benefits of a professorship at a university of applied sciences. "Two things are important to me. It's getting easier and easier, not just at traditional universities but also at universities of applied sciences, to combine teaching and research, and the freedom that I enjoy as a professor in structuring this process is irreplaceable", says Schulze.

Recognition for her work on new materials from renewable resources came when the network "Sustainable Research at Universities of Applied Sciences in NRW" named Margit Schulze Researcher of the Month in October 2016."

I hope that this helps to motivate my students", she says. "Maybe it will give someone who is still doubting the final push."

Female Professors – Where Are You?:

➲ youtu.be/CYIeBjoCEaE

Researcher of the Month:

➲ www.h-brs.de/news/forscherin-des-monats-margit-schulze-von-der-h-brs

BildungsMehrMut

Professor Elvira Jankowski grew up a working class child. On her career path to Mechanical Engineering Professor, she often heard how great it was that she stood by her background. To pass this recognition on to other first-generation students, Jankowski established the initiative BildungsMehrMut ("DareMoreEducation").

"We want to bring people together who are or were the first in their family to study – from professors and students to entrepreneurs", she says. The network provides encouragement. Jankowski recalls students who are happy to have "outed themselves". Rightfully so, believes the professor. "First generation students should dare not only to start a degree course, but also to stand up with pride and say that they are the first."

➲ www.bildungsmehrmut.de

Self-initiative pays off

Erik Solda and Jürgen Wichert dare to go it alone with WESpE

Special feature of the research project WESpE: it's completely in the hands of research assistants Erik Solda and Jürgen Wichert. They are developing WESpE, which stands for Waterjet cutting system Expansion through Sensors for Process reliability in distance Evaluation. It focuses on a non-contact procedure for measuring the distance between the nozzle of a waterjet cutting system and the material to be cut – be it plastic, metal or glass.

"Industry is in great need of this", emphasise the graduate engineers. The challenge: keeping the cutting process constant. Conventional approaches have their deficiencies, as Solda explains: "Keeping the distance as exact as possible is critical for high precision cutting. The conventional approach currently in use involves mechanical scanning which can damage sensitive surfaces".

Solda and Wichert searched for a solution. "We wanted to try something new and show what a little self-initiative can make possible", explains Erik Solda. And that paid off: Wichert and Solda successfully applied for a research grant at the Federal Ministry for Economic Affairs and Energy (BMWi) in the scope of the "Central Innovation Programme for SMEs". Now, along with budget management, they're mainly focused on developing the non-contact sensors that measure the distances to the material and also alert when discrepancies are detected. Later implementation in industry is already planned.

The research project WESpE started in May 2016 and ends in February 2018.

OUTSIDE THE BOX

"You don't change the world by doing what you're told"

Joi Ito, Director, MIT Media Prize for daring in science, research and society

Norms, rules and laws organise our social interaction. They ensure stability and security, but often creativity, flexibility and progress fall by the wayside. Thus existing regulations can limit research and scientific dialogue. For this reason the MIT Media Lab, a department at the Massachusetts Institute of Technology, is sending a signal. To honour unconventional thinkers for their daring, the Media Lab created the Disobedience Award. The award is conferred for disobedience-robust work that impacts society positively. It is endowed with 250,000 dollars. The jury is made up of members of the MIT Media Lab network.

"Disobedience Award"

Nominees can be living people and groups in all disciplines. The award ceremony takes place on 21st July 2017.

➲ www.media.mit.edu/disobedience/

50 live

Diversity Summer: the H-BRS lives diversity, not just on campus

Competencies and structures strengthened

The H-BRS – like all German institutes of higher education – is confronted with rapidly changing conditions and challenging social developments. In addition to digitalisation, these include the increasing national and international competition among universities for students, employees and third-party funding; demographic change, and the integration of refugees. These complex topics can only be addressed through modern science management.

For this reason, the H-BRS has implemented numerous structural, staffing and content-related measures in the university administration. These facilitate service-oriented management that, in cooperation with the departments and institutes, can achieve the university's goals. In particular, by establishing internal auditing and a staff position for strategic project and change management, the university has created the structural framework necessary to support service areas in the development of processes, organisational procedures and projects.

New challenges also emerge from the growing number of third-party funded projects, which are tied to ever more complex requirements. To continue to face these successfully now and well into the future, the university has come up with a series of supportive measures. These include the restructuring and expansion of the third-party funding team, the targeted promotion of transversal competencies, the improvement of cooperation and communication among all participating actors as well as the development of an electronic project file.

To provide targeted support and disburden the departments when it comes to new appointments, we have generated new capacities and optimised processes in the human resources service. Stronger integration of IT in the administration has laid the groundwork for successfully implementing projects, such as the launching of a campus management system.

Basis for the successful structuring of these diverse tasks is a competent and healthy staff. Through individual coaching and team-building measures, we have further developed soft skills such as communication and conflict resolution, and intensified occupational health management.

Dr. Michaela Schuhmann
Chancellor

Many cultures, many ideas, one university

Viva diversity! H-BRS sends a clear signal for mutual respect

Experiencing diversity first hand – talking and laughing with each other, eating together, enjoying music – this is what the university-wide series of events "Respect! Time for Diversity, Time for Sustainability", stands for. Students and staff of the H-BRS organised the comprehensive four-week programme that deals critically and creatively with aspects of sustainability and diversity. Through sustainability, social responsibility is lived on campus and "the appreciation of others and otherness is a pillar of our democratic society", explains Professor Jürgen Bode, Vice President for International Affairs and Diversity. "Diversity leads to ideas and innovations, opens new perspectives and expands the horizon – that is especially important at a university."

Summer of Diversity promotes respect and sustainability: a culinary journey takes hungry guests around the world

Professor Jürgen Bode (left) and Joyce Treptow enjoy Mexican mariachi

University Society expands its outreach

New name says it all: University Society Bonn-Rhein-Sieg – Friends, Sponsors, Alumni

In 15 seconds ...

The former "Society of Sponsors of the Hochschule Bonn-Rhein Sieg" has completed its transformation. New are name, charter, board and event formats. With these changes, the society is shifting its focus from fundraising to networking.

The second line of the society's new name, "Friends, Sponsors, Alumni", makes the goal it has set clear. Founded in 1998, the society with over 100 members – a good two thirds of whom are from regional businesses – has opened its doors to new target groups. In the future, scientists and entrepreneurs, alumni and students should feel welcome to join a university network that offers them real added value.

Summer soirée and fireside chat

The society's kick-off event in June 2016 brought all those interested together for a summer soirée in a festive atmosphere on the Rhine Terrace of the Königshof Hotel. Albrecht Hornbach, Chair of the Hornbach Baumarkt Gruppe and President of the IHK Pfalz, held the keynote talk on the knowledge and responsibility-based society. A similar meeting is now to take place annually. Chair of the University Society, Matthias Rupf, Technical Managing Director of Rupf Industries GmbH, emphasises: "We would like to offer the friends and sponsors as well as the alumni and staff of our university, an extensive and interesting network with contacts from society, politics and industry". In the scope of events like the fireside chat planned for 2017 – at this informal gathering, representatives from industry and a small group of students are to discuss career and field related topics.

Prizes for theses

The Society is continuing successful projects that support the university's development. Financial resources are available upon application, whether to help new research projects off the ground, organise summer schools and conferences, or promote international exchange among students and budding scientists. Moreover, the Society endows German scholarships and awards prizes for outstanding theses. The 2016 award ceremony took place for the first time in a festive atmosphere at the German Museum in Bonn. Eleven theses were honoured with 1,000 euros each, donated by the member companies.

Hochschulgesellschaft Bonn-Rhein-Sieg
Freunde | Förderer | Alumni

Chair Matthias Rupf, his predecessor Wolfgang Grießl, Vice Chair Ulrike Lüneburg, Sven Volkert, Professor Klaus Deimel, University President Hartmut Ihne (left to right)

Reflecting at the Responsibility Forum

Forum Verantwortung (Responsibility Forum) is a focused "Studium universale" held in the spirit of a well-rounded education. It raises questions and stimulates dialogue and reflection. The lectures and seminars centred around ethics topics and socially relevant issues are aimed at students and other members of the university community. In 2016, the university appointed Grimme Prize laureate, philosopher and TV presenter, Gert Scobel, as Honorary Professor for the Forum Verantwortung. His special task: improving communication between departments.

20 years of the Department of Computer Science

On the 20th anniversary of the Department of Computer Science, alumni, students and university staff are looking toward the future. How does computer science contribute to mastering the imminent challenges of an all-encompassing digitalisation? "Computer science has long been more than a purely technical field. It has been handed the task of structuring human cooperation socially while also grappling with current ethical issues", said University President Hartmut Ihne at the anniversary celebration. There is no shortage of topics for research and teaching.

More:

➲ www.h-brs.de/en/inf

H-BRS is family-friendly

Balancing studies and family is stressful and requires a good amount of courage. The Hochschule Bonn-Rhein-Sieg – University of Applied Sciences (H-BRS))offers support to students and staff who have a child or another family member in need of care. In 2016, the H-BRS was again awarded the certificate "Family-Friendly University". Examples: in Sankt Augustin the team of the Equal Opportunities Centre facilitated the building of a playground on the campus and remodelled the parent-child workroom. The team also designated more parent-child parking spaces and increased the availability of information for family caregivers at all locations. The certificate is valid until October 2019.

Beethoven, the app

"BTHVN" is how he signed his compositions. He never could have imagined just how modern this would look in Twitter times. Now his life in Bonn is an app: the Beethoven Walk. "I'm sure he'd like the app", says Professor Thorsten Bonne and his students Yannick Herrmann, Fabian Vieten and Frank Thielen. They developed the app with BTHVN Year 2020 in mind. It invites Bonn residents and visitors on a tour of significant sites in Beethoven's life. The app includes informational texts for each site, a calendar of events and a scavenger hunt. The idea for the app came from Goodarz Mahobi, CEO of the IT consulting firm axxessio. It was realised within the scope of the Digital Hub and the project "Digital Bonn", which both support the establishment of start-ups and digital innovation.

Download the app here:

➲ play.google.com/store/apps/details?id=de.bonn.hbrs.beethovenapp&hl=de

Institute for Management offers further education

Without support, dual study programmes are extremely challenging. For this reason, the Institute for Management (IfM) of the H-BRS develops and carries out further education events for professionals in management studies. The IfM acts as a platform for forging contacts between academics and businesses. One of the results is a dual study programme in Business Management in cooperation with the Deutschen Postbank AG. An optimal mix of theory and practice: the students apply theoretical knowledge learned in the IfM during their practical hours in various departments of the Postbank.

➲ www.h-brs.de/en/ifm

We stay in touch

Successful début for the University's first Alumni Day

Back on campus – 200 alumni jumped at the chance. Meeting old friends, finding out what's new at the H-BRS, talking to professors and students, in short, networking. And that fit the spirit of the first Alumni Day at the Hochschule Bonn-Rhein-Sieg – University of Applied Sciences. "Networks are important in professional life and for holding society together", emphasised University President Harmut Ihne during his welcoming speech to the alumni.

The alumni management offered a diverse programme that spanned the entire day. Career planning, corporate social responsibility, first steps in the job market – Alumni Coordinator Barbara Wieners-Horst organised exciting workshops and lectures. The alumni pitched in too. Some explained how to train soft skills or provided important tips for entering professional life successfully.

Barbara Wieners-Horst was satisfied with the début. "Many people helped out on our first Alumni Day and cooperation went very smoothly. That contributed to the event's success." More alumni meetings are planned.

Oliver Zilken, Team Leader Software Development at REWE Digital:

"Events like Alumni Day are great. I enjoy catching up with former fellow students. Sharing professional experiences is also enriching for everyone involved. That's why I held a workshop in which I introduced new procedures in software development from REWE Digital, where I work as a team leader."

Max Domels, Student in Management Sciences:

"As I student, I really benefited from Alumni Day. Alumni from my department explained their career entry experiences and gave me valuable tips. I also learned a lot from the workshops."

Vanessa Schell, DHL, Logistics and Procurement:

"I had fun telling students about my work in Latin America and Asia. I'd heard a similar lecture at the university many years ago, and it made a lasting impression."

"Good science requires good spaces"

Topping out ceremony for new buildings in Sankt Augustin and Rheinbach

Two new buildings with approximately 5,600 m² of usable space, total cost 36 million euros including 24 million euros funding from the federal state of NRW. Evidently the H-BRS is still growing. By the end of 2016, the shells of the unfinished buildings were already standing at both the Rheinbach and Sankt Augustin campuses. The new space for teaching and research should be finished and ready for moving in this coming winter semester 2017/18.

The first time the university expanded was in 2005, and space is already tight again. The originally planned number of 2,500 students has grown to over 8,000; ten research institutes drive application-oriented research and cooperative doctoral degrees forward. "The required expansion buildings at both campuses are a visible sign of the positive development of the H-BRS. I'm glad that through state investment, application-oriented research and good teaching can continue to develop", emphasised NRW Minister of Science, Svenja Schulze, at the cornerstone laying ceremony in Rheinbach.

University President Hartmut Ihne is enthusiastic about the building shell in Rheinbach. "It's all much bigger than I imagined." University Chancellor Michaela Schuhmann is also satisfied; the H-BRS is still within projected costs and timeframe. She also points out an important detail of the construction activities. The Hochschule Bonn-Rhein-Sieg – University of Applied Sciences is "the only institute of higher education permitted to take the role of construction project coordinator ("Bauherr"), while building for the federal state of NRW. We're proud of that. The university is more flexible in making decisions, has a say in what materials are used, but also carries greater responsibility". A further highlight is the project's focus on sustainability and amenity value.

"It's all much bigger…", University President Hartmut Ihne and Chancellor Michaela Schuhmann are impressed by the Rheinbach construction

"The campus quad is designed as a car-free zone. We're also building according to the standards set forth by the German Sustainable Building Council (DGNB) for the category "Silver", which means that we must fulfil 46 criteria with 164 individual assessment points", says Project Director Reinhard Groth.

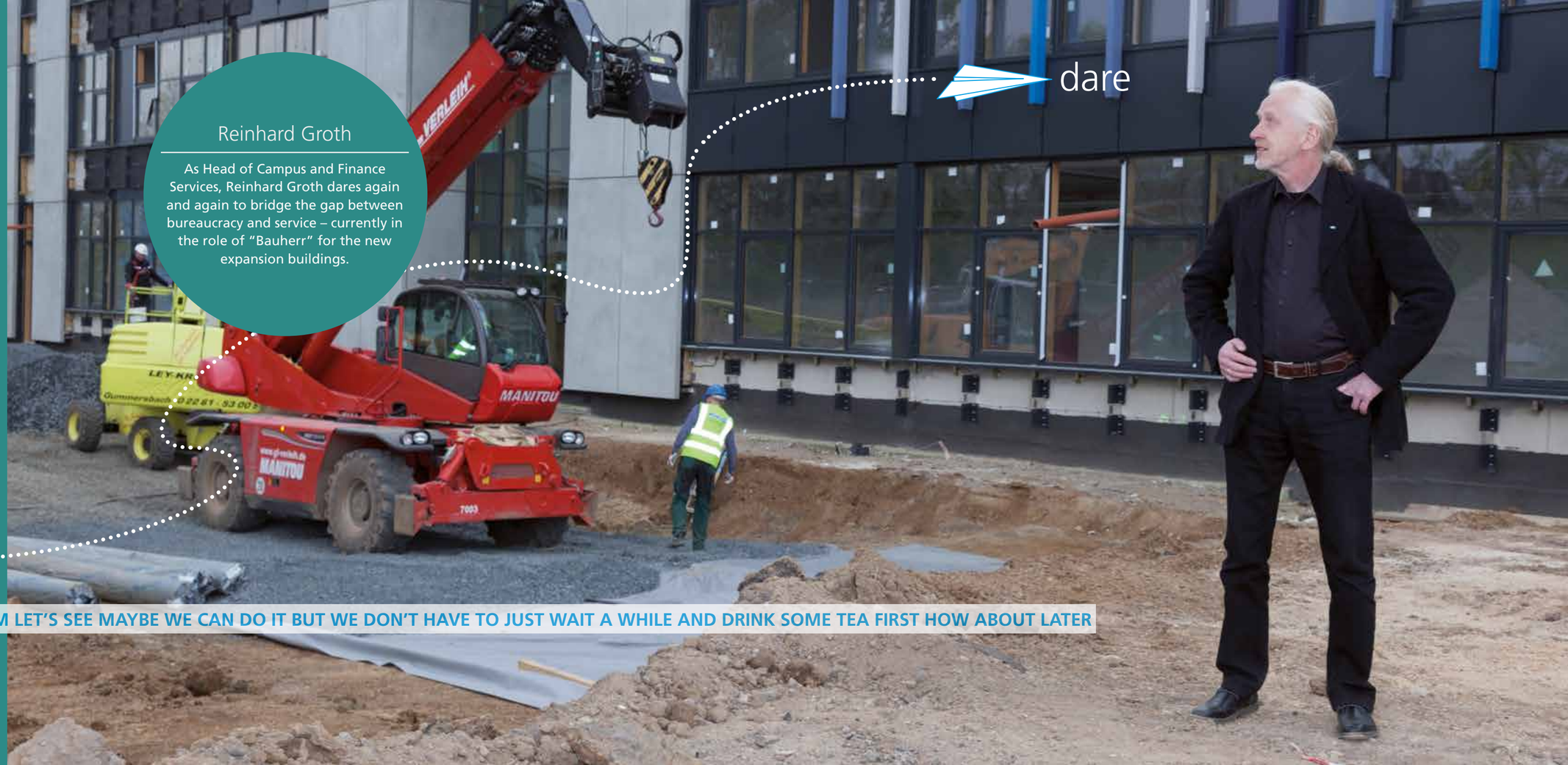
The new building at the Rheinbach campus will be used as a research laboratory for the Natural Sciences and also house the Department of Management Sciences. The building in Sankt Augustin will house the Management Sciences located there as well as the University Administration. A section of each building is reserved for the Centre for Applied Research (ZAF). Here cooperation between applied research at the university and regional businesses will be supported. "Good science requires good spaces", says University President Ihne. "Our science campus will bring science and business together in a dynamic way."

“We in administration often face conflicting goals. On the one hand, we want to support professors and employees by making university routine easier. On the other hand, we have to comply with explicit regulations”, says Reinhard Groth. Sometimes making progress means striking out along new paths. The current campus construction projects are a good example. The H-BRS is the only institute of higher education in NRW that is acting as construction project coordinator (“Bauherr”), a huge responsibility. “This was taking a risk. But as we see now, it was a complete success.”

Reinhard Groth

As Head of Campus and Finance Services, Reinhard Groth dares again and again to bridge the gap between bureaucracy and service – currently in the role of “Bauherr” for the new expansion buildings.

dare



T CAUTION IS THE MOTHER OF WISDOM LET’S SEE MAYBE WE CAN DO IT BUT WE DON’T HAVE TO JUST WAIT A WHILE AND DRINK SOME TEA FIRST HOW ABOUT LATER

Alumnus of the year 2016

Career in the automobile industry

Alumnus Alexander Barth developed a new image analysis procedure while a student at the H-BRS

Alexander Barth laid the cornerstone for his career at the H-BRS

When Alexander Barth began studying at the Hochschule Bonn-Rhein-Sieg – University of Applied Sciences (H-BRS) in 1999, he wanted "to do something with videos and films". He decided on the degree course in Computer Science and specialised in image processing. This topic has a hold on him even today. He also made his first international contacts while studying. Professor Rainer Herpers, for whom Barth worked as a student employee, brought him closer to the international dimension of research during several stays together at the Canadian partner school, York University, in Toronto.

Master's thesis brings the breakthrough

As part of his Master's thesis in 2006, Barth developed a procedure for measuring the length of heat-shrink tubes. These heat-resistant tubes are used for applications such as cable insulation. The student worked with the world's second largest manufacturer of plastic tubing – DSGCanusa in Meckenheim. The company implemented his new image analysis procedure, which recognises tubes that are too long or too short and automatically discards them – a job that had previously been done manually by taking random samples. Barth's invention was awarded a prize in 2006 for best thesis in the area of Computer Engineering. The prize is awarded by the Fachbereichstag Informatik ("Computer Science Department Day") organised by the universities of applied sciences in Germany. The procedure was also presented at the Industrial Trade Fair in Hannover. "The best exhibit that we ever had", praises Barth's advisor Herpers.

International career in the automobile industry

After completing his Master's degree, Barth went on to earn a doctoral degree at the University of Bonn. He developed image processing algorithms for Advanced Driver Assistance Systems (ADAS) and automated driving, first at Daimler in Sindelfingen during the experimental phase of his doctoral studies, later for Mercedes Benz at the research facility in Silicon Valley in the USA. Since 2014, he has been employed at the German headquarters of Delphi in Wuppertal, a large supplier and development partner of the auto industry. He is currently working on a 3D camera that recognises the driver's hand gestures and implements them as commands, such as "turn up the radio" or "accept/reject call".

What the computer scientist really enjoys about his profession is that he comes into contact with new technology and plays a role in influencing development. He also likes communicating with clients and service providers around the world. Despite his international career, he hasn't lost his relation to the product. "In computer science, I believe it's important to get involved in some hands-on programming once in a while. Anyone can just copy solutions from the Internet."

The advice he gives to students at the H-BRS – look beyond your own discipline. "Part of being a computer scientist means dealing with hardware and its configurations – even if you don't understand all the details."

"H-BRS, everything else is cold coffee"

In one of these mugs, the morning pick-me-up tastes even better – plus it strengthens university spirit. The coffee mugs are a top seller at the Webshop, which opened in October 2016. The range of merchandising products stretches from fair trade cotton t-shirts and organic cotton bags to writing materials and accessories – the university's logo even graces powerbanks and umbrellas. H-BRS fans can purchase all products from the shop website or in the university library. The slogan on the mug was suggested by an employee in the scope of a Facebook competition.

➲ shop.h-brs.de

15 years of university newspaper “doppelpunkt:”

Interview with Editor-in-Chief Eva Tritschler and Project Director Professor Andreas Schümchen

Why did you launch “doppelpunkt:”?

Eva Tritschler: As a journalist, I know how valuable a newspaper is for communication. You can present the university differently than in an official brochure.

Andreas Schümchen: In “doppelpunkt:” our Technical Journalism students can gain practical experience and publish their first articles.

What do you associate with the title?

Tritschler: When we established the paper, we held a naming competition and voted on the suggestions. “doppelpunkt:” (“colon:”) won by a small margin. The name fits. This punctuation mark is typically used to indicate emphasis or introduce an explanation. It even resembles our university logo, which is also made up of two dots.

What role does “doppelpunkt:” play at the university?

Schümchen: We write for a broad target group that also includes people outside the university. For alumni, employers and students’ relatives, in particular, “doppelpunkt:” is entertaining and a good source of information. Readers learn what’s going on at the H-BRS. And it’s all summarised on a manageable number of pages – a sort of *BILD-Zeitung* for the university.

Tritschler: The “doppelpunkt:” is the official university paper, but it’s not an official mouthpiece with a set agenda. Students write the articles, and the editorial team is reshuffled every semester.

How do you integrate the students?

Tritschler: Anyone is free to join the editorial team, even if most of those interested are technical journalists. The students suggest topics, conduct research, write articles, take pictures and learn to manage their time wisely. Team spirit is also required. You can’t just throw in the towel and not submit articles.

Schümchen: The students are very enthusiastic about the work because the end result is a real newspaper that you can hold and show the grandparents.

➲ doppelpunkt-online.de

Ms. Tritschler, Mr. Schümchen, a word, please!

Production day is always…

T: … a different length. We start at 10am and finish when the newspaper is completed. That may be at midnight or even later.

S: … very fun and very long.

My pet peeve is when …

T: … someone misses the submission deadline for an article without informing us.

S: … the picture captions in “doppelpunkt:” don’t include a doppelpunkt (“:”).

My highlight in 15 years of “doppelpunkt:” is …

T: … the interview with campus cat Piet.

S: … our perseverance during late night production.

I almost lost my head once, when …

T: … I realised on production day that two people had not yet submitted their articles.

S: … I’m a patient person. Sometimes when we encounter technical problems, but I calm down again quickly.

Eva Tritschler

studied German Language & Literature as well as Sports at the CAU in Kiel. In 1983, she began working as a freelance journalist for clients such as the *Kölner Stadtanzeiger*, a daily newspaper. She has been Press and PR Officer at the Hochschule Bonn-Rhein-Sieg – University of Applied Sciences (H-BRS) since 1997.

Prof. Dr. Andreas Schümchen

studied German Language & Literature, Media Studies, Psychology and Art History at the TU Berlin. Afterwards, he completed an editorial traineeship, wrote for ten years as a journalist on the topic of media for special interest magazines, daily and weekly newspapers, and served as press officer at the Grimme Institute. At the H-BRS, he is Professor for Journalism with a focus on Print Media und Editorial Management.

Maintaining strengths and moving forward

Guidelines till 2020: University Development Plan II with new funding programmes

Science, sustainability and social responsibility – these are the three keywords with which the Hochschule Bonn-Rhein-Sieg – University of Applied Sciences has laid down the direction it will be taking for the next five years. "Our goal is to continue to occupy a top position among Germany's universities of applied sciences in the future together with students, lecturers and staff, through high quality teaching and research and innovative forms of knowledge transfer", says University President Hartmut Ihne. The second University Development Plan is to serve as a guideline for this purpose from 2016 to 2020.

The university as a whole follows four strategic principles: facilitating and supporting innovation, strengthening and using networks, structuring and living internationality, and fostering and developing traditions. In line with these principles, the university set concrete goals in each of its key tasks: teaching, research, knowledge transfer and social responsibility. These goals are to be achieved through the support of 20 internal funding programmes. The participants plan to monitor progress at annual conferences.

From the university's perspective, innovation in teaching means initiatives such as implementing new media. With assistance through the funding programme "Digital Support for Teaching", future learning will take place not only in conventional classroom environments but also in virtual classrooms, chat rooms and video conferences. Innovative teaching also means developing further education options at the university and establishing professional management structures. The funding programme "Further Education Opportunities – Investment in Knowledge" is designed to provide training for professionals, graduates and the university's own staff in economic, technological and social development trends.

Research database and Science Campus

Creating more scope for innovative research is another goal that will be supported by a special funding programme. The plan is to reduce the teaching load of lecturers involved in research projects, provide research start-up funding for new appointees, and refine the incentive scheme. Moreover, research will become more visible. Measures include research marketing and displaying competencies and achievements in a research database.

Last but not least, the university is working on developing the H-BRS Science Campus. This centre of excellence for applied research and transfer, unique in the region, will also make the potential and innovation capacity of the university more visible, both nationally and internationally.

➲ www.h-brs.de/hep2

66 collaborate

Forensics: students benefit from cooperation with the State Office of Criminal Investigation in Mainz

No dare, no innovation

Are you familiar with the situation? You have a new idea, you want to strike out on a new path, you want to change something, but your friends, colleagues or coworkers won't go along with it? Change planning suffers from asymmetrical security: what will be lost through the change seems secure, and what will be won by it seems insecure. A risk-averse personality places great weight on what is already secure in the present and underestimates the chances of what may be gained in the future.

People who don't like to dare will achieve nothing new. Innovation and the willingness to dare are inextricably linked. Despite this, cautious people are important in the innovation process, too. The best work groups are made up of a variety of personality types. Daring adventurers meet hesitant worrywarts and wrestle for the optimal result.

New cooperation projects are also innovations – organisational innovations. They exemplify the innovative spirit of a university. The H-BRS delivers the ideal framework for this. By funding spin-offs, the BusinessCampus Rhein-Sieg GmbH has established itself as a start-up centre. In 2016, this joint venture of the H-BRS, Kreissparkasse Köln and Rhein-Sieg-Kreis supported 38 businesses with around 140 jobs. The cornerstone for the Centre for Applied Research (ZAF) at the Sankt Augustin and Rheinbach locations was also laid. Through the ZAF, the university will intensify its strategic partnership with business and industry. Further cooperation projects of the H-BRS: the Digital Hub Region Bonn AG, which funds digital business ideas, and the bio innovation park Rheinland. This latter project unites the University of Bonn, the Alanus University of Arts and Social Sciences and the H-BRS with municipalities and businesses in the agricultural and food industries, as well as in fruit growing and horticulture. In addition, the H-BRS with its model of municipal innovation partnership has started a new form of cooperation – currently with the municipality of Neunkirchen-Seelscheid.

Internationally, the H-BRS entered into numerous new exchange agreements – over 70 partner schools in 30 countries now worldwide. Since 2016, students, researchers and lecturers can visit Split, Riga, Valencia or Maroochydore in Australia. The university uses its know-how to support the development of universities in developing and emerging countries, such as Morocco, Ghana and Kenya. The benefits we get from this reach far beyond intercultural experiences. For this reason, the Hochschule Bonn-Rhein-Sieg – University of Applied Sciences will always dare to explore new cooperation opportunities: for its students, its lecturers and researchers, and for its partners.

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

High-flyers flown in

International scholarship holders enrich research at the H-BRS

Internationality is written in capital letters and supported by the Hochschule Bonn-Rhein-Sieg. 1,200 students from over 100 countries enriched teaching and research at the university in 2016, among them numerous highly qualified scholarship holders. From Jordan came future molecular geneticist Ayesha Alkofahi on a scholarship from the Middle East funding programme, issued and financed by the federal state of North Rhine-Westphalia (NRW). For her Master's thesis, Alkofahi researched in the stem cell laboratory of Professor Edda Tobiasch, where together with doctoral candidate Dorothee Schipper, she examined the molecular formation mechanism in the recurrence of blood vessel restriction (restenosis).

From the USA came Christopher Konow to provide support in the lab. He received one of the coveted scholarships from the German Academic Exchange Service (DAAD) in the scope of the programme "Research Internships in Science and Engineering" (RISE). Under the direction of doctoral candidate Michel Bergs, the chemistry student extracted and characterised the lignin of Miscanthus plants in the laboratory of Professor Margit Schulze by using an ethanol-organosolv procedure. Not only did he deepen his knowledge of specific processing technologies, but he also experienced the daily routine of a researcher. "My main goal was to become familiar with the lab work to prepare for my doctoral thesis. At the H-BRS, I learned how to work as a member of a laboratory group and the responsibility that comes with that."

The international scholarship holders left a good impression. "They're highly motivated, bring their own knowledge and skills, and at the same time they learn many new things in our laboratories – a win-win situation", sums up Edda Tobiasch.

> "Our international scholarship holders are highly motivated, bring their own knowledge and skills, and at the same time they learn many new things in our laboratories – a win-win situation."
>
> Edda Tobiasch, Professor for Genetic Engineering and Cell Culture

Academic goals achieved

The intercultural experience outside the lab is another plus. "It surprised me that I, as a student, was allowed to have a say in matters and my words were taken seriously", praises Shatha Al Eman Sawalha, Master student at the Palestinian Al-Quds University in Jerusalem. She too was awarded a scholarship from NRW's Middle East funding programme. In the chemistry lab of Margit Schulze, she found a topic for her Master's thesis thanks to support from her advisor Markus Witzler and her study buddy Abla Alzagameem. "The university's good organisation and the helpfulness of the employees make it easier for students to achieve their academic goals. I've definitely done that here at the Hochschule Bonn-Rhein-Sieg."

From engineer to vocational teacher

University of Siegen and H-BRS provide teacher training for engineers

German vocational schools need more teachers. To counteract this shortage, the University of Siegen, together with the Hochschule Bonn-Rhein-Sieg and other universities of applied sciences in the state of North Rhine-Westphalia (NRW), has developed a cooperation model: AGORA. This NRW initiative enables Bachelor students in engineering to prepare for their Master of Education at the University of Siegen parallel to their degree course.

A unique educational concept for the field, "Lehramt Berufskolleg" ("Teaching Degree for Vocational Schools") arose through cooperation between universities and universities of applied sciences. Daniel Pittich, Junior Professor at the University of Siegen, teaches Technology Didactics at the Sankt Augustin campus. The courses in Educational Sciences are taught by his colleague from Siegen, Eckart Diezemann. "The portions of the programme that we offer at the H-BRS are in line with the structures at the University of Siegen", explains Pittich. "We're currently working on enabling the students to use the study credits they earn toward their Master's degree." Daniel Pittich studied vocational teaching himself. He sees earning this supplementary qualification as a worthwhile investment, since the teacher shortage in technical vocational training is projected to continue over the next few years. "Particularly in the fields of Metals Technology and Electrical Engineering, aspiring teachers have very good chances of finding a permanent position", according to Pittich.

Technology Didactics for engineering students with teaching ambitions: Professor Daniel Pittich from the University of Siegen instructs

The best motivation: pleasure in teaching

The AGORA project is primarily aimed at Bachelor students, but professionals can also earn a teaching qualification through AGORA, as the example of alumna Verena Stentenbach shows. After completing a degree in 2014, Stentenbach worked as an engineer and started a family. She found out about AGORA by chance. "Daniel Pittich and his colleagues support their students and adapt flexibly to individual needs", says the 37-year-old. This is the only way that she's been able to balance work, family and studies. Her main motivation for sitting down at her desk even late in the evenings and at weekends – she finds pleasure in teaching. "I love the profession and always wanted to teach."

More:

➲ www.berufsschullehrer-werden.info

Sealing cooperation: President of the State Office of Criminal Investigation Rheinland-Pfalz Johannes Kunz (left) and University President Hartmut Ihne

Student sleuths

Cooperation with the State Office of Criminal Investigation in Mainz

In 15 seconds ...

How can drugs be detected? How can smudged fingerprints be made visible again? H-BRS students researched these questions and more at the State Office of Criminal Investigation (LKA) Mainz. The cooperation is now official: in September 2016, University President Hartmut Ihne and LKA President Johannes Kunz signed a cooperation agreement.

Since 2013, the criminal scientists and technologists at the LKA Rheinland-Pfalz have been exchanging perspectives and ideas with colleagues in the Department of Natural Sciences at the H-BRS. The students of Forensic Sciences and Analytical Chemistry and Quality Assurance are familiar with the legal fundamentals and have basic knowledge of toxicology and drug analysis. "The education of our students in these two degree programmes is tailored to the requirements of the LKA, BKA (Federal Criminal Police Office) and forensic institutes", reports Jürgen Pomp, Professor for Quality Assurance and Forensic Analysis at the H-BRS.

> "The education of our students in the Forensic Sciences and Analytical Chemistry and Quality Assurance is tailored to the requirements of the LKA, BKA and forensic institutes."
>
> Jürgen Pomp, Professor for Quality Assurance and Forensic Analysis

Both sides benefit from the cooperation. The students conduct research for their final theses on real problems in the forensic analysis lab at the State Office of Criminal Investigation, and they acquire valuable competencies. The LKA Rheinland-Pfalz stays on the cutting-edge of research and gets employees with skills perfectly tailored to its needs. Two graduates of the university are now employed at the LKA in Mainz.

National advanced training platform planned

The cooperation is to be expanded. "We've just applied for a joint advanced training platform that would enable all LKAs to network with the Hochschule Bonn-Rhein-Sieg", says Pomp. At multiple-day further education workshops, LKA employees can attend specialised lectures held by university staff and exchange up-to-date information. Moreover, the university is now negotiating with the LKAs in Stuttgart and Düsseldorf, which found out about the university through the cooperation agreement with Mainz. In addition to students in the Natural Sciences, they are also interested in students of Computer Science. Initial contacts have been made with the Institute for Safety and Security Research at the Sankt Augustin location – the aim is to combat cybercrime and and ward off cyberattacks from foreign governments via the darknet.

More participants, more partners, more programme

Third Africa Conference proves itself an established network meeting

Researchers and practitioners network to improve the interplay of education, science and economic development – that is the goal of the international conference "Universities, Entrepreneurship and Enterprise Development in Africa". The universities are consciously listed first", says Professor Jürgen Bode, Vice President for International Affairs and Diversity at the H-BRS. "They're not just education service providers. They also facilitate economic, technological and social development." For the third time, the H-BRS is hosting the conference, which takes place alternately in Germany and in an African country.

Interest in the conference is growing: 300 international participants, 100 more than last time, travelled to Sankt Augustin in November 2016. The University of Nairobi (Kenya) joined organisers H-BRS and the University of Cape Coast (Ghana) as third partner, and the programme now lasts not one but two days.

Founders explain marketing concept

The conference topics were entrepreneurship and SMEs as well as market entry in African countries, economic relations between Germany and Africa, further education, and acquiring qualified personnel. Individual lectures, on topics such as market strategies in Ghana, highlighted clear solutions from practice. The founders of Baomilk, a student start-up at the University of Cape Coast, explained how a large, high performance photocopier was an important cornerstone of their marketing strategy. "We lure lecturers and students from the university with this machine. Once there, they purchase what Baomilk has to offer: a healthy, refreshing drink from the milk of the baobab tree", according to the young entrepreneurs.

Networking and exchange between German and African businesses and universities is the focus of the Africa Conference. For this reason, alongside classic workshops and speeches, there are dialogue-based events such as the World Café of the Bonn/Rhein-Sieg Chamber of Commerce and Industry. The format called for small group discussions with frequent shifting of groups and thus also of topic. "This format was well received and led to lively discussions", according to Bode. A follow-up is already planned. On 19th July 2017, the fourth Africa Conference is taking place at the University of Nairobi in Kenya.

More:

➲ www.german-african-entrepreneurship.org

> "Universities are not just education service providers. They also facilitate economic, technological and social development."
>
> Jürgen Bode, Professor for Management Sciences and Vice President for International Affairs and Diversity

"Taking the step to go abroad requires a lot of courage", says Claudia Ruiz Vega, thinking of her own experience. As a young university graduate, she dared to take the leap into an unknown world and came to Germany. This is why the language tandems – she brings students with different native languages together – are especially close to her heart. "Once they've arrived in Germany, international students have to make their way in a foreign culture and language without their own network – a tandem partner can provide them with support. But the project is also a super opportunity for the German students to prepare for a stay abroad. Everyone wins."

Claudia Ruiz Vega

is Director for Spanish Courses at the H-BRS Language Centre and heads the language tandem project. Born in Colombia, she shares a special bond with the international students.

dare

T CAUTION IS THE MOTHER OF WISDOM LET'S SEE MAYBE WE CAN DO IT BUT WE DON'T HAVE TO JUST WAIT A WHILE AND DRINK SOME TEA FIRST HOW ABOUT LATER

Together for a higher goal

IZNE drives cooperation on UN Development Goals forward

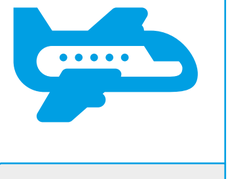
Quality education and access to renewable energies for all, good jobs, responsible consumption, environmentally-friendly cities and communities – the United Nations' 2030 Agenda for Sustainable Development is full of challenging goals – and not just for emerging and developing countries. Germany too must search for solutions to fulfil the set standards. Year one of the agenda is a good occasion for the International Centre for Sustainable Development (IZNE) at the H-BRS to send some signals of its own.

Part of a strong network

In June 2016, the Centre officially joined the Sustainable Development Solutions Network (SDSN) Germany. This network, made up of science, business and civic organisations, pools German expertise to drive sustainable development in all regions of the world forward with innovative and practically feasible strategies. One example is the interdisciplinary and also internationally-oriented research for sustainable development. In line with Goal 17 of the 2030 Agenda "Revitalise the Global Partnership for Sustainable Development", the IZNE organised the series of events "Global Partnership – North Rhine-Westphalia for Internationally Sustainable Development". In three interdisciplinary workshops, representatives from development and sustainability research, research policy and research funding met at the Sankt Augustin campus in the Universitätsclub Bonn. They discussed cooperation possibilities both among the various disciplines and with developing and emerging countries. "We can't solve issues such as sustainable consumption at the NRW level because global production is now the norm", was the unanimous opinion of the organisers. Workshop participants therefore expressed their wish that state research programmes be more strongly oriented toward interdisciplinary and international cooperation.

Joint research with Chinese university

Also in the spirit of global partnership with a joint goal is the cooperation agreement that the Hochschule Bonn-Rhein-Sieg entered into with the Sichuan Agricultural University in Ya'an in July 2016. The Chinese university and the IZNE have been discussing joint cooperation focuses for the past three years and now plan to conduct joint research on achieving the UN Sustainable Development Goals. Assuming this, the Departments of Engineering, Natural Sciences and Business Sciences at the H-BRS will likely be involved. Starting point was cooperation on an expert symposium with the NRW Ministry of Agriculture. At this event, international guests learned about the German market potential of sustainably produced poultry and pork.



Campaigning in Washington, D.C.

As cofounder of the University Alliance for SMEs (HAfM), the H-BRS promoted a scientific career in Germany at the 16th annual conference of the German Academic International Network (GAIN). Vice President for International Affairs and Diversity, Professor Jürgen Bode, and Vice President for Teaching, Learning and Further Education, Professor Iris Groß, travelled to Washington D.C. in order to expound the favourable research opportunities, especially at universities of applied sciences. Each year, the network GAIN organises the largest conference and job fair on science and research careers in Germany held outside of Europe.

➲ www.hochschulallianz.de

H-BRS supports sustainable management

A CSR centre of excellence for SMEs in Rheinland – with this concept, the H-BRS and the IHK Bonn/Rhein-Sieg won a competition held by the NRW Ministry of Economic Affairs. From 2016 to 2018, they are running the centre jointly. "CSR, that is to say Corporate Social Responsibility, should not be perceived by businesses as a burdensome duty", says Professor Maike Rieve-Nagel, Project Director at the H-BRS. "Social responsibility serves more as a strategy and method for achieving competitive advantages in the market." From this perspective, the university organises events on CSR basics for entrepreneurs and students and provides scientific support to the centre.

➲ www.csr-kompetenzzentrum.de

Job found

The Otto Benecke Foundation offers a study programme for migrant academics and is cooperating in this endeavour with, among others, the H-BRS. The BRS Institute for International Studies, which is affiliated with the H-BRS, focuses on imparting discipline-specific German language skills to participants. "Qualifying business-oriented academics in particular counteracts the shortage of skilled workers in Germany. The bridging measure is meant to facilitate successful career entry", says Professor Jürgen Bode, Managing Director and Chair of the Institute. By the end of September 2016, four of the current 18 participants from eleven countries had signed an employment contract – and that even before completion of the ten-month course.

➲ www.obs-ev.de/projekte/iq-netzwerk-nrw

Three good start-ups

BusinessCampus is proud of successful EXIST applications

2016 was a successful year for the H-BRS Start-Up Centre. The BusinessCampus supports students, graduates and employees of the university who want to launch their own companies. 2016 brought multiple successes: three teams of entrepreneurs received start-up funding from the EXIST programme of the Federal Ministry for Economic Affairs and the European Social Fund in the amount of 125,000 euros each.

Buy, tell and save

This is the principle of community shopping platform Tigong. The more customers who decide to buy a product, the cheaper that product gets. Customers can actively recommend products or benefit passively from the buying recommendations of the community. At the end, buyers of the same product get part of the purchase price back and can use this amount toward an additional purchase on Tigong. How much? Self-learning algorithms calculate this in real-time. They display the savings directly for the buyer. This variant on community shopping was brought to life by Jan Bergann, Robin Larbi and Christopher Ross, three graduates of the H-BRS Department of Management Sciences. Together with Christoph Heike, they launched their shopping portal, which currently offers 1,200 articles for babies and toddlers, in December 2016.

More:
➲ www.tigong.de

eXIST
Existenzgründungen aus der Wissenschaft

Designer furniture convenient and budget-friendly: MöbelFirst

Buying high quality furniture previously used as display pieces can save a lot of money. But pounding the street inquiring in shop after shop on the search for these deals is time-consuming; buying furniture online is often more practical. MöbelFirst, a start-up by Christoph Ritschel and Dennis Franken offers both. Via their Internet platform, price-conscious fans of designer furniture can purchase display pieces from shops all over Germany conveniently online and have them delivered to their homes. The concept of the two entrepreneurs, who studied Business Management at the Hochschule Bonn-Rhein-Sieg, has been joined in the last nine months by more than 60 shops from all over Germany. MöbelFirst was launched in November 2016 and has already delivered orders to more than 100 customers.

More:
➲ www.moebelfirst.de

Kevin Merken (left), creator of 11Spielmacher, with the founder of Eversports Hanno Lippitsch

Well-organised kicking

Germany is home to around 16 million hobby football players, but only about six million are members of a club. The remainder have to organise themselves: find players, set dates, book a field and pay as a group. Kevin Merken and Malte Möller both had this problem. And as flatmates who both studied at the H-BRS, they came up with the idea of bringing a technical solution onto the market. With the support of computer scientist Franz Herzog, the platform 11Spielmacher was launched in June 2015. One year later, it merged with the Viennese enterprise Eversports, and now 11Spielmacher acts as its German subsidiary. Basis for the success of the three young entrepreneurs was the start-up funding from the EXIST grant and the support of the BusinessCampus, says Kevin Merken. “The active commitment of our contact partner was an important factor leading to the success of our application.”

More:
➲ 11spielmacheralpha.firebaseapp.com

Design for serenity room awarded prize of 2,000 euros

Cross-university cooperation is bearing fruit. Students of architecture from the Alanus University of Arts and Social Sciences in Alfter came up with ideas for a serenity room at the H-BRS, their neighbour school. Suggestions ranged from a reflected sky to a partially sunken building with a centrally placed tree. 30 prospective architects presented their models; five received a prize. The winning design “Andachts-Baum” (“devotional tree”), awarded 2,000 euros, unites “both the design of the surrounding spaces and the form-finding for the inner room itself into a coherent whole”, according to the jury made up of professors from both universities.

Full throttle into the top ten

BRS motorsports team celebrates most successful season yet

Blue-white design, sleek form and approximately 200 kilograms light – this is Carola (G16e), the current racing car, built by the BRS motorsports team in 2016. Since the switchover to electric drive in 2014, Carola is already the third electric generation to emerge from the university garage. The students spent countless hours of work on development, design and construction. Completion, shortly before the first station of the international construction competition Formula Student in Italy, came down almost to the final minute. Just a few hours before departure, the battery had to be modified. "That was stressful, but we did it", says team member Patrick Berninghaus.

After winning medals at the Formula Student in Italy, Austria and Germany, the team climbed to eighth place worldwide. "The best placement that we ever had in the world ranking with over 100 competitors", says Professor Dirk Reith, the team's advisor. They nearly managed to hold the position to the end of 2016. "We're in ninth place in company with the big universities. That's a tremendous achievement", says Reith. This ranking has less to do with the motor power of Carola than with the abilities of the racing team. Unlike Formula 1 racing, the speed of competitors in Formula Student plays a lesser role. Marketing strategies, construction skills, design and stability on the race circuit are all considered in the evaluation.

Strong team: many hands and countless hours of work lead to success

Fast and light: Carola (G16e), the current racing car of the BRS motorsports team

Race Academy drives the team forward

"In Italy, we even won in the most important category, "Engineering Design". This is only possible if you bring very good design documentation for the jurors", according to Reith. Younger students learn the best way to prepare these documents from the experienced members of the motorsports team in the Race Academy, which was established in 2015. These older members are trained too – in didactics by Dirk Reith. In this way, the necessary knowledge is successfully transferred from student to student.

Moreover, the Academy recreates testing situations from the competition Formula Student, to help students gain experience for future presentations.

Since the Race Academy was established, the team has noticed that knowledge transfer has become much more systematic. "Less loss of skills and experience gives us a head start. We're simply much better prepared in the subdisciplines now", confirms Reith. "The Academy has a share in the team's success. We can all be very proud."

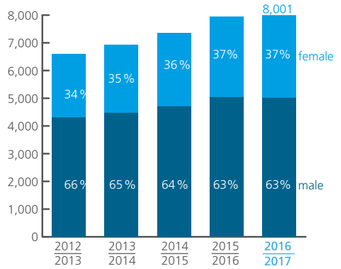
➲ www.brsmotorsport.de

80 report

Facts and Figures

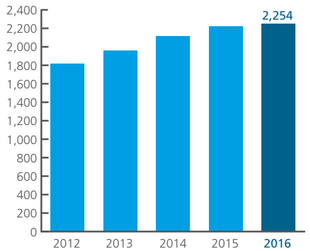
Number of students

Winter semester 2016/17



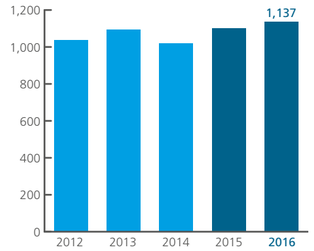
First-semester students

to Academic year 2016/17



Graduates

to Academic year 2016/17



Degree courses at the H-BR

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
- Business Psychology
- Computer Science
- Controlling und Management
- Corporate Social Responsibility & Non-Governmental Organisation (CSR & NGO) Management
- Electrotechnical Systems Development
- Innovation and Information Management
- International Media Studies
- Mechatronics
- Technology and Innovation Communications

New in 2015

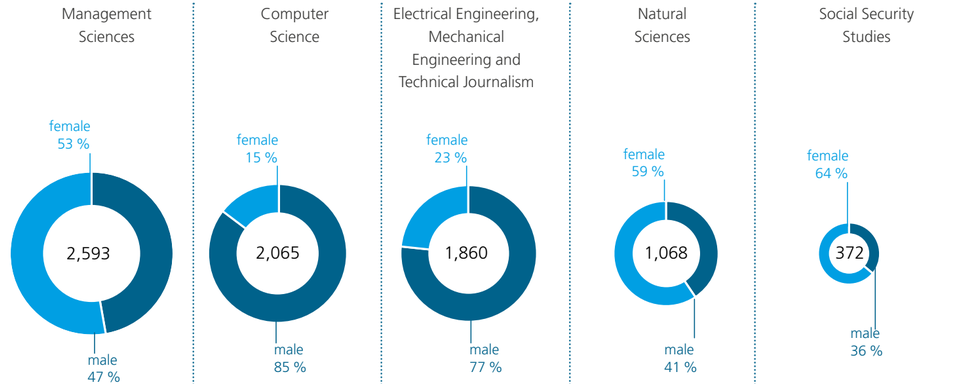
Doctoral Studies Programme at the H-BRS Graduate Institute:

- 78 doctoral candidates as of 31/12/2016
- Ph.D graduates 2016: Janina Schmitz, Holger Steiner and Thomas Haenel

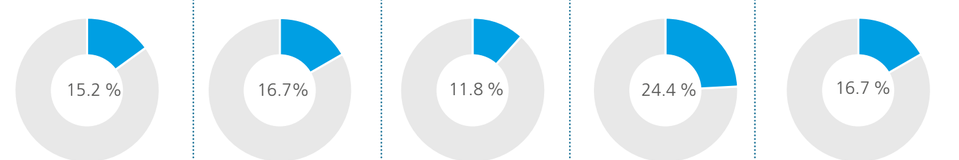
All numbers from reporting date 31/12/2016

Students Winter Semester 2016/17

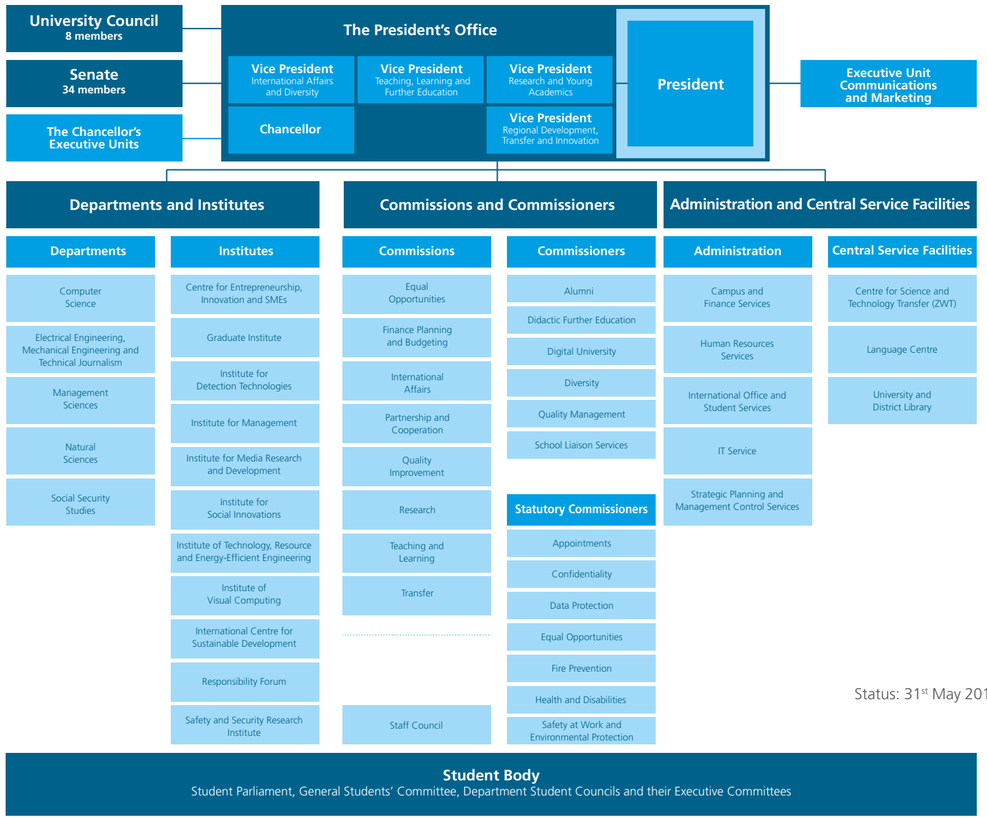
Students by department and gender



Percentage of international students by department



University Structure



Status: 31st May 2017

Staff Announcements 2016

New Appointments

August — **Prof. Dr. Michaela Wirtz**
Department Natural Sciences, Professor for Chemistry, especially Instrumental Analysis and Physical Chemistry

November — **Prof. Dr. Martin Eric Müller**
Department Computer Science, Professor for Theory of Computer Science

Honorary Professors

January — **Prof. Dr. Krzysztof Hagemejer**
Honorary Professorship Social Security Studies

June — **Gert Scobel**
Honorary Professorship Responsibility Forum

Honorary Doctorate

April — **Prof. Dr. Roustiam Chakirov**
Department Electrical Engineering, Mechanical Engineering and Technical Journalism, awarded an honorary doctorate by the Chernihiv National University of Technology (Ukraine)

Congratulations

November — **Prof. Dr. Paul P. Plöger** appointed Scientific Director of the Bonn-Aachen International Center for Information Technology (b-it)

25 Years of Service

January — **Bettina Schmitt, Susanne Patt-Bohlscheid**
University and District Library

February — **Michael Spors**
Campus and Finance Services

Professors Emeriti

March — **Prof. Dr. Gerd Knupp**
Department Natural Sciences

September — **Prof. Dr. Norbert Becker**
Department Electrical Engineering, Mechanical Engineering and Technical Journalism

Transfer

January — **Prof. Dr. Marc Ant**
Department Management Sciences, appointed as Director of the newly founded "Kompetenzzentren des luxemburgischen Handwerks"

Prizes and Awards

University Innovation Prize 2016

Prof. Dr. Katharina Seuser, Prof. Dr. Susanne Keil, Prof. Dr. Dieter Franke and Prof. Dr. Uwe Wiemken, Dr. Wolfgang Koch and Sabine Fricke, all Department Electrical Engineering, Mechanical Engineering and Technical Journalism

Award for Teaching 2016

Prof. Dr. Klaus Lehmann, Department Natural Sciences, and Regina Brautlacht, Coordinator of the English programme and Lecturer in English at the Language Centre

Best Master's Thesis

Laura Przybilla in Master programme Innovation and Information Management

DAAD Prize (German Academic Exchange Service)

Ghazl Al Hamwi, Master programme Biomedical Science

Award for Responsibility and Sustainable Development 2016 of the International Centre for Sustainable Development (IZNE)

Julian Schulte, Master programme Mechatronics, and Cornelia Wippich, Master programme Analytical Chemistry and Quality Assurance

Researcher of the Month of the network "Sustainable Research at Universities of Applied Sciences in NRW"

October 2016: Prof. Dr. Margit Schulze

Apex Programming Competition North Rhine-Westphalia 2016

1st Place for Alli Pierre Yotti and Franck Albert Nyassa, Department Computer Science

Chamber of Commerce and Industry (IHK) Honouring the Best Award 2016

Milena Steinhoff, Biology Lab Technician

AFCEA Student Award

3rd Place for Maurice Velte, Department Computer Vision

Named IARIA Fellow

Prof. Dr. Rudolf Berrendorf, Department Computer Science

Named Teaching Fellow for Innovations in Digital Teaching and Learning

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

Advancement Award from the University Society BRS

- Daniel Behrend, Business Administration
- Fiona Ries, Business Management
- Diego Ramos Avila, Autonomous Systems
- Matthias Neu, Computer Science
- Alexander Spenke, Electrical Engineering
- Christian Blume, Mechanical Engineering
- Dylan Cedric Knörr, Technical Journalism/PR
- Katja Stienecker, Forensic Sciences
- Liza Marie Rummler, Applied Biology
- Jessica Rumpf, Chemistry with Materials Science
- Christina Hesselbach, Social Security Management – Accident Insurance

Certificate "Family-Friendly University"

October 2016: Certificate renewal, valid until October 2019

RoboCup, Vice World Champion

Alexander Hagg, Frederik Hegger and Prof. Dr. Paul G. Plöger, all Department Computer Science

Best Scientific Paper Award at the RoboCup Symposium in Leipzig

Alexander Hagg, Frederik Hegger and Prof. Dr. Paul Plöger, all Department Computer Science

Best Poster Award at the 13th Conference of the Pakistan Society for Biochemistry and Molecular Biology on "Recent Advances & Challenges in Molecular Biology, Biochemistry & Biotechnology" in Abbottabad

Dorothee Schipper, Department Natural Sciences

Best Paper Award at the IEEE International Conference on Multimedia and Expo 2017 in Hong Kong

Jens Maiero, Dr. Ernst Kruijff, Prof. Dr. André Hinkenjann, all Department Computer Science

Best Paper Award at the International Conference on Advanced Engineering Computing and Applications in Sciences (ADVCOMP 2016) in Venice

Javed Razzaq and his team, Department Computer Science

Best Paper Award at the International Conference on Computational Science and its Applications in Beijing

Katharina Stollenwerk, Anna Vögele, Björn Krüger, Reinhard Klein, Prof. Dr. André Hinkenjann, all Department Computer Science

Honourable Mention Paper Award at the ACM Symposium on Spatial User Interaction (SUI 2016)

Dr. Ernst Kruijff, Alexander Marquardt, Christina Trepkowski, Prof. Dr. André Hinkenjann, Jens Maiero, all Department Computer Science

Ranking

"Gründungsradar" of the Association for the Promotion of Science and Humanities in Germany

In the ranking for medium-sized universities, the H-BRS is in 8th place nationally. If only universities of applied sciences are included, then the H-BRS is in 3rd place.

Ministry of Innovation Science and Research (MIWF) – Analytical Framework

Departments of Computer Science and Natural Sciences of the H-BRS achieved high marks in research success

CHE Ranking 2016

The university achieved high marks for support for students, orientation phase and contact with professional practice in the Department Electrical Engineering, Mechanical Engineering and Technical Journalism

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 since 10/12/2015, entrepreneur, Knauber Company
- **Prof. Dr. Rupert Gerzer**
  Chair until 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 – University of Applied Sciences
- **Prof. Dr. Elvira Jankowski**
  Hochschule Bonn-Rhein-Sieg – University of Applied Sciences
- **Prof. Dr. Karl W. Neunast**
  Hochschule Bonn-Rhein-Sieg – University of Applied Sciences
- **Prof. Dr. Gerd Knupp**
  Hochschule Bonn-Rhein-Sieg – University of Applied Sciences

Employees (number) as of 31/12/2016

	2014	2015	2016
Professors	145	152	151
of these Substitute Professors	*2*	*6*	*6*
of these Endowed and Third-Party Funded Professors	*17*	*16*	*19*
Honorary Professors	23	29	31
Lecturers with Special Responsibilities	33	38	39
Research Assistants	195	224	231
Employees in Technology and Administration	186	186	197
Apprentices	16	14	13
Number Lectureships	348	422	406
Number Assistants/Tutors	259	274	285
Total	**1,205**	**1,339**	**1,353**

Employees (Full-TIme Equivalent) as of 31/12/2016

	2014	2015	2016
Professors	135.00	139.89	138.42
of these Substitute Professors	*1.50*	*3.72*	*3.72*
of these Endowed and Third-Party Funded Professors	*11.58*	*13.33*	*14.44*
Honorary Professors	2.56	3.22	3.44
Lecturers with Special Responsibilities	27.05	30.57	30.75
Research Assistants	149.09	166.79	175.13
Employees in Technology and Administration	141.50	144.83	154.09
Apprentices	16.00	14.00	13.00
Total	**471.2**	**499.3**	**514.83**

Third-Party Funded Staff (Full-Time Equivalent) as of 31/12/2016

	2014	2015	2016
Departments	51.35	67.97	63.77
Administration	8.01	6.53	5.01
Central Facilities	20.19	19.68	24.79
Other	0.50	0.50	0.50
Total	**80.04**	**94.68**	**94.06**

Partner Universities around the World

➲ *www.h-brs.de/files/partnerhochschulen_dtsch.pdf*

Shanghai Ranking (2016)

Top 200:
- University of Bordeaux, France
- Radboud University, Nijmegen, Netherlands
- Norwegian University of Science and Technology (NTNU), Trondheim, Norway
- University of California, Riverside, USA

Top 300:
- Queensland University of Technology, Brisbane, Australia
- University of Dundee, Scotland
- University of Aberdeen, Scotland
- Autonomous University of Madrid, Spain

Top 500:
- University of Palermo, Italy
- Dalhousie University, Halifax, Canada
- Jagiellonian University, Krakow, Poland
- Autonomous University of Barcelona, Spain
- University of Valencia, Spain
- Polytechnic University of Valencia, Spain
- Polytechnic University of Catalonia, Barcelona, Spain
- Istanbul University, Turkey
- Brunel University London, England
- Hunan University, Changsha, People's Republic of China

Times Higher Education World University Ranking (2016/17)

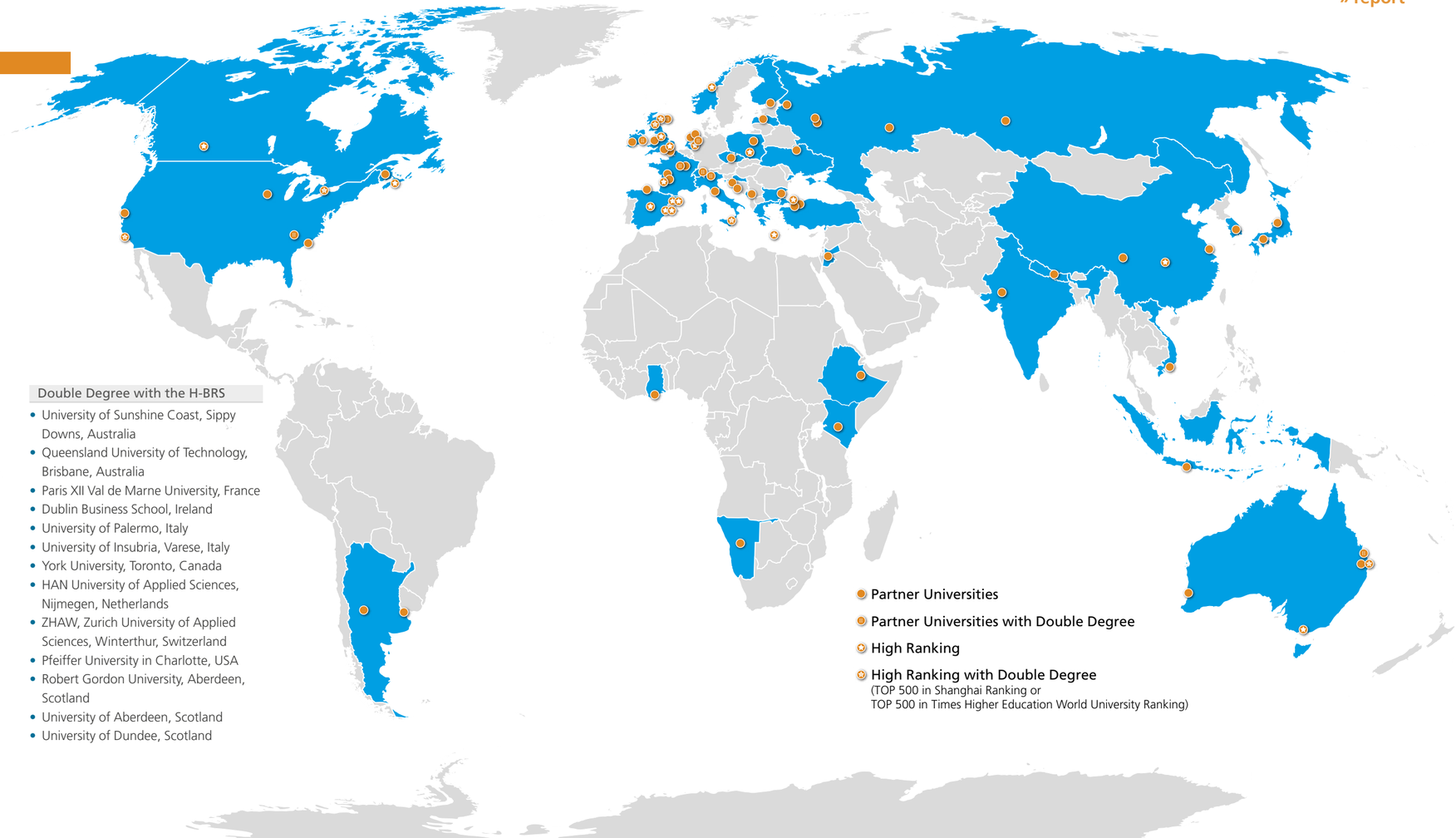
Top 200:
- Radboud University, Nijmegen, Netherlands
- Autonomous University of Barcelona, Spain
- University of California, Riverside, USA
- University of Dundee, Scotland
- University of Aberdeen, Scotland

Top 300:
- Queensland University of Technology, Brisbane, Australia
- Dalhousie University, Halifax, Canada
- Norwegian University of Science and Technology (NTNU), Trondheim, Norway

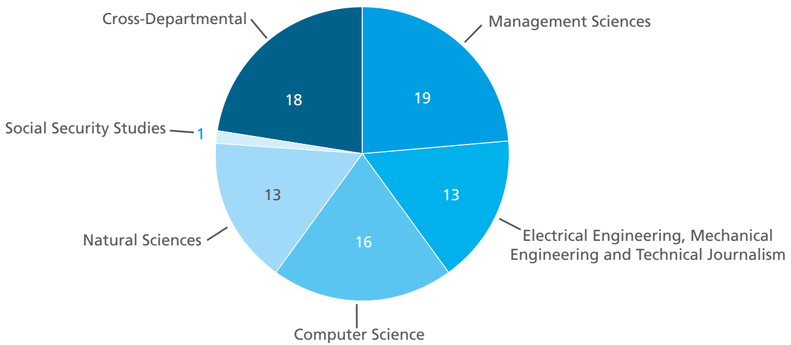
Top 500:
- Victoria University, Melbourne, Australia
- University of Bordeaux, France
- University of Crete, Greece
- York University, Toronto, Canada
- Polytechnic University of Catalonia, Barcelona, Spain
- Autonomous University of Madrid, Spain
- Keele University, England

Double Degree with the H-BRS

- University of Sunshine Coast, Sippy Downs, Australia
- Queensland University of Technology, Brisbane, Australia
- Paris XII Val de Marne University, France
- Dublin Business School, Ireland
- University of Palermo, Italy
- University of Insubria, Varese, Italy
- York University, Toronto, Canada
- HAN University of Applied Sciences, Nijmegen, Netherlands
- ZHAW, Zurich University of Applied Sciences, Winterthur, Switzerland
- Pfeiffer University in Charlotte, USA
- Robert Gordon University, Aberdeen, Scotland
- University of Aberdeen, Scotland
- University of Dundee, Scotland



Number of International Partnerships by Department



Country	University	Department
Argentina	National University of San Luis	Electrical Engineering, Mechanical Engineering and Technical Journalism
	National Technological University, Buenos Aires	Electrical Engineering, Mechanical Engineering and Technical Journalism
Australia	Murdoch University	Cross-Departmental
	Victoria University	Cross-Departmental
	University of Sunshine Coast	Management Sciences
	Griffith School of Engineering	Electrical Engineering, Mechanical Engineering and Technical Journalism
	Queensland University of Technology, Business School	Cross-Departmental
Bulgaria	University of Economics – Varna	Management Sciences
Canada	York University	Computer Science
	Dalhousie University	Computer Science
	University of New Brunswick	Cross-Departmental
Croatia	University of Dubrovnik	Cross-Departmental
	University of Split	Management Sciences
Czech Republic	Tomas Bata University	Cross-Departmental
Ethiopia	Harar Agro Technical and Technology College	Electrical Engineering, Mechanical Engineering and Technical Journalism
Finland	Helsinki Metropolia University of Applied Sciences in Espoo	Computer Science
France	University of Poitiers	Management Sciences
	Paris Descartes University	Management Sciences
	Paris XII Val de Marne University	Natural Sciences
	University of Bordeaux	Natural Sciences
	The Limoges Computer Sciences Engineering School	Computer Science
Ghana	University of Cape Coast	Management Sciences
Greece	University of Crete	Computer Science
India	Mudra Institute of Communication (MICA) Ahmedabad	Electrical Engineering, Mechanical Engineering and Technical Journalism
Indonesia	Universitas Atma Jaya Yogyakarta	Electrical Engineering, Mechanical Engineering and Technical Journalism
Ireland	Institute of Technology Tralee	Management Sciences
	Dublin Business School	Management Sciences
Italy	University of Palermo	Natural Sciences
	University of Insubria	Natural Sciences
	University of Siena	Management Sciences
Japan	Kagawa University in Takamatsu	Cross-Departmental
	Nagaoka University of Technology	Computer Science
Jordan	Deutsch-Jordanische Hochschule/German-Jordanian University (GJU)	Cross-Departmental
Kenya	University of Nairobi	Cross-Departmental
Latvia	Riga Technical University	Management Sciences

Country	University	Department
Montenegro	University of Montenegro	Computer Science
Namibia	Namibia University of Science and Technology	Social Security Studies
Nepal	Kathmandu University	Cross-Departmental
Netherlands	Han University of Applied Sciences	Natural Sciences
	Amsterdam University of Applied Sciences	Computer Science
	Van Hall Larenstein University of Applied Sciences	Natural Sciences
	Radboud University Nijmegen	Natural Sciences
Norway	Norwegian University of Science and Technology (NTNU)	Cross-Departmental
People's Republic of China	Nantong University	Cross-Departmental
	Hunan University	Management Sciences
	Sichuan Agricultural University	Cross-Departmental
Poland	Jagiellonian University	Natural Sciences
	Warsaw University of Technology	Computer Science
Republic of Korea	Kyungpook National University	Cross-Departmental
Russian Federation	ITMO University	Electrical Engineering, Mechanical Engineering and Technical Journalism
	Moscow Technological University	Computer Science
	Moscow Institute of Electronic Technology 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	Computer Science
Socialist Republic of Vietnam	Vietnamese-German University	Computer Science
Spain	University of Valencia	Cross-Departmental
	Polytechnic University of Valencia	Cross-Departmental
	Polytechnic University of Catalonia	Computer Science
	Autonomous University of Barcelona	Management Sciences
	Autonomous University of Madrid	Computer Science
	Cámarabilbao University Business School	Management Sciences

Country	University	Department
Switzerland	Zurich University of Applied Sciences (ZHAW) in Winterthur	Electrical Engineering, Mechanical Engineering and Technical Journalism
Turkey	University of Istanbul	Electrical Engineering, Mechanical Engineering and Technical Journalism
	Yeditepe University	Natural Sciences
	Yalova University	Management Sciences
Ukraine	Chernihiv National University of Technology	Electrical Engineering, Mechanical Engineering and Technical Journalism
United Kingdom	Robert Gordon University	Natural Sciences
	University of Aberdeen	Natural Sciences
	Abertay University	Natural Sciences
	University of Dundee	Natural Sciences
	Keele University	Cross-Departmental
	Wrexham Glyndŵr University	Electrical Engineering, Mechanical Engineering and Technical Journalism
	Brunel University London	Management Sciences
	University of Westminster	Management Sciences
	Regent's University	Management Sciences
USA	Coastal Carolina University	Management Sciences
	Pfeiffer University in Charlotte	Management Sciences
	California State University	Computer Science
	University of California, Riverside	Cross-Departmental
	Wartburg College	Electrical Engineering, Mechanical Engineering and Technical Journalism

Revenue by Budget Heading (in euros)

		2014	2015	2016
State subsidies for running costs	Personnel	17,804,400.00	18,042,700.00	18,978,400.00
	Management	3,055,100.00	3,055,100.00	3,055,100.00
	Material costs	1,662,700.00	1,662,700.00	1,662,700.00
	Performance-oriented distribution of funds	0.00	512,700.00	639,300.00
	Investments	477,400.00	477,400.00	477,400.00
	Building/immovable property	6,903,800.00	6,903,800.00	6,903,800.00
	Total	**29,903,400.00**	**30,654,400.00**	**31,716,700.00**
State allocations	Higher Education Pact II and Master	18,784,452.00	14,445,970.00	11,575,000.00
	Higher Education Pact III	0.00	0.00	8,145,776.00
	Device programme	67,500.00	115,938.00	98,124.00
	Other	556,036.78	516,923.96	175,888.92
	Total	**19,407,988.78**	**15,078,831.96**	**19,994,788.92**
Quality improvement funds		**3,404,807.00**	**3,416,724.00**	**3,459,346.00**
Third-party funds		**8,199,452.63**	**9,015,267.35**	**12,229,924.09**
Own resources		**478,501.91**	**296,567.43**	**171,857.04**
Total revenue of the H-BRS	**Sum of above-mentioned portions**	**61,394,150.32**	**58,461,790.74**	**67,572,616.05**

All figures for the year 2016 on pages 96 to 100 are provisional.

Expenditure by Type of Cost (in euros)

		State subsidies for running costs	State allocations	Quality improvement funds	Third-party funds	Total Expenditure of the H-BRS
All expenditures of the budget headings split according to	Material Costs	4,165,608.51	5,003,602.10	293,363.98	2,101,154.70	11,563,729.29
	Personnel	19,715,549.68	8,150,450.13	3,042,650.57	7,676,173.74	38,584,824.12
	Investments	3,059,777.88	1,693,870.25	65,263.61	258,156.37	5,077,068.11
	Immovable property	0.00	7,028,615.04	0.00	0.00	7,028,615.04
		26,940,936.07	**21,876,537.52**	**3,401,278.16**	**10,035,484.81**	**62,254,236.56**

Investments	2014	2015	2016
1st Invested capital > 150 EUR and < 410 EUR	98,596.34	189,801.33	294,674.43
2nd Invested capital > 410 EUR	7,224,309.80	5,538,282.18	11,811,008.72
Total	**7,322,906.14**	**5,728,083.51**	**12,105,683.15**

Financial Statement (in euros)

Income		2015	2016
1. State allocations and subsidies	a) Basic financing	24,304,627.00	24,632,800.00
	b) Housing budget	2,456,150.19	6,903,800.00
	c) Special funds	3,416,724.00	3,459,346.00
	d) Programme /project funding	1,182,108.16	1,108,702.24
		31,359,609.35	**36,104,648.24**
2. Revenue from third-party funds of other public donors		**5,640,363.69**	**8,442,722.24**
3. Revenue from third-party funds non-public donors		**1,802,070.13**	**1,902,775.95**
4. Increase or decrease in tangible assets		**757,071.14**	**0.00**
5. Other sources of income	a) Income from university activities	792,524.62	1,808,021.94
	b) Fees and sanctions, dues	312,718.32	415,315.21
	c) Gifts, donations, legacies	102,776.75	146,401.65
	d) Other income	2,671,404.55	267,661.53
		3,879,424.24	**2,637,400.33**
6. Sum of ordinary income		**43,438,538.55**	**49,087,546.76**

This financial statement reflects the profit and loss account of the Hochschule Bonn-Rhein-Sieg – University of Applied Sciences and is based on the valuation guidelines of the Ministry of Innovation, Science and Research of the State of North-Rhine Westphalia. The results for Year 2016 are preliminary.

Expenditures		2015	2016
7. Cost of materials	a) Costs for literature, teaching and learning aids, materials and goods purchased	-1,399,349.00	-1,492,805.03
	b) Costs for energy and other general and administrative expenses	-1,020,392.83	-1,113,317.58
	c) Costs for services purchased	-5,494,856.20	-6,072,755.47
		-7,914,598.03	**-8,678,878.08**
8. Personnel Ccosts	a) Staff salaries	-18,678,033.18	-19,755,955.11
	b) Emoluments (civil servants)	-9,897,599.03	-11,237,164.07
	c) Social contributions and expenses for pensions and support	-4,631,848.29	-4,973,757.70
	d) Other personnel costs	-102,723.46	-118,086.97
		-33,310,203.96	**-36,084,963.85**
9. Depreciation		**-5,531,095.35**	**-6,084,204.89**
10. Other expenses	a) Costs for the use of rights and services	-872,687.00	-1,864,836.49
	b) Additional costs for communication, documentation, information, travel, literature, publicity	-1,659,139.71	-1,970,231.85
	c) Costs for dues and other such expenses as well as value adjustments and non-period expenses	-353,257.38	-336,963.12
	d) Costs for allocations and subsidies, investment grants and reimbursements as well as from product compensation	-574,135.80	-666,898.89
	e) Costs for other services to third parties	-1,062,287.31	-1,218,436.20
		-4,521,507.20	**-6,057,366.55**
11. Sum of ordinary expenses		**-51,277,404.54**	**-56,905,413.37**
12. University result		**-7,838,865.99**	**-7,817,866.61**
13. Other interest and similar income		296,567.43	171,875.04
14. Interest and similar costs		-34,726.74	-2,461.96
15. Financial result		**261,840.69**	**169,413.08**
16. Result of ordinary university activities		**-7,577,025.30**	**-7,648,453.53**
17. Taxes on income and net worth / refunded taxes on income and net worth		**-52,114.17**	**-22,259.89**
18. Other taxes		**-1,887.03**	**-984.00**
19. Annual financial statement	**Annual net profit / loss**	**-7,631,026.50**	**-7,671,697.42**
20. Profit carryforward from the previous year		**10,758,345.51**	**-7,631,026.50**
21. Withdrawal from reserves		**3,500,000.00**	**0.00**
22. Allocation to the revenue reserves		**-6,800,000.00**	**0.00**
23. Net profit / loss		**-172,680.99**	**-15,302,723.92**

Construction Activities (in euros)

Smaller building activities

Activities	2015	2016
Additional bicycle racks and e-charging station	124,985.78	14,872
Lecture room seating	168,296.93	
Structuring and design of outdoor facilities inner courtyard	47,583.83	
Adapting use rental RB		18,942

Renovation activities

No.	Area	Location	2015	2016	Status
1	Upgrading WiFi and IT networks	SA/RB	175,555.99	850,211.71	in progress
2	Media equipment lecture halls 7 and 8	SA	197,282.50		completed
3	Façade renovation	SA/RB	103,350.61		
4	Glass roof renovation	SA		15,000	in progress

Large building activities

Activity	2015	2016
Expansion buildings both locations	1,718,149.55	8,980,604.20

I dare:

Notes

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