

Think

The university of the future begins today



2014 Annual Report



**Hochschule
Bonn-Rhein-Sieg**
University of Applied Sciences

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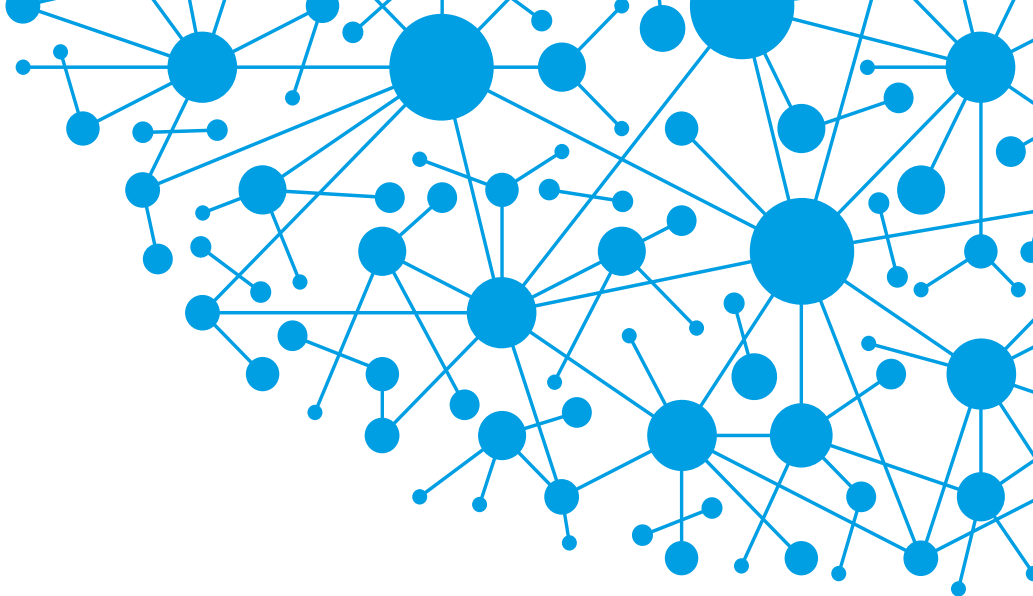
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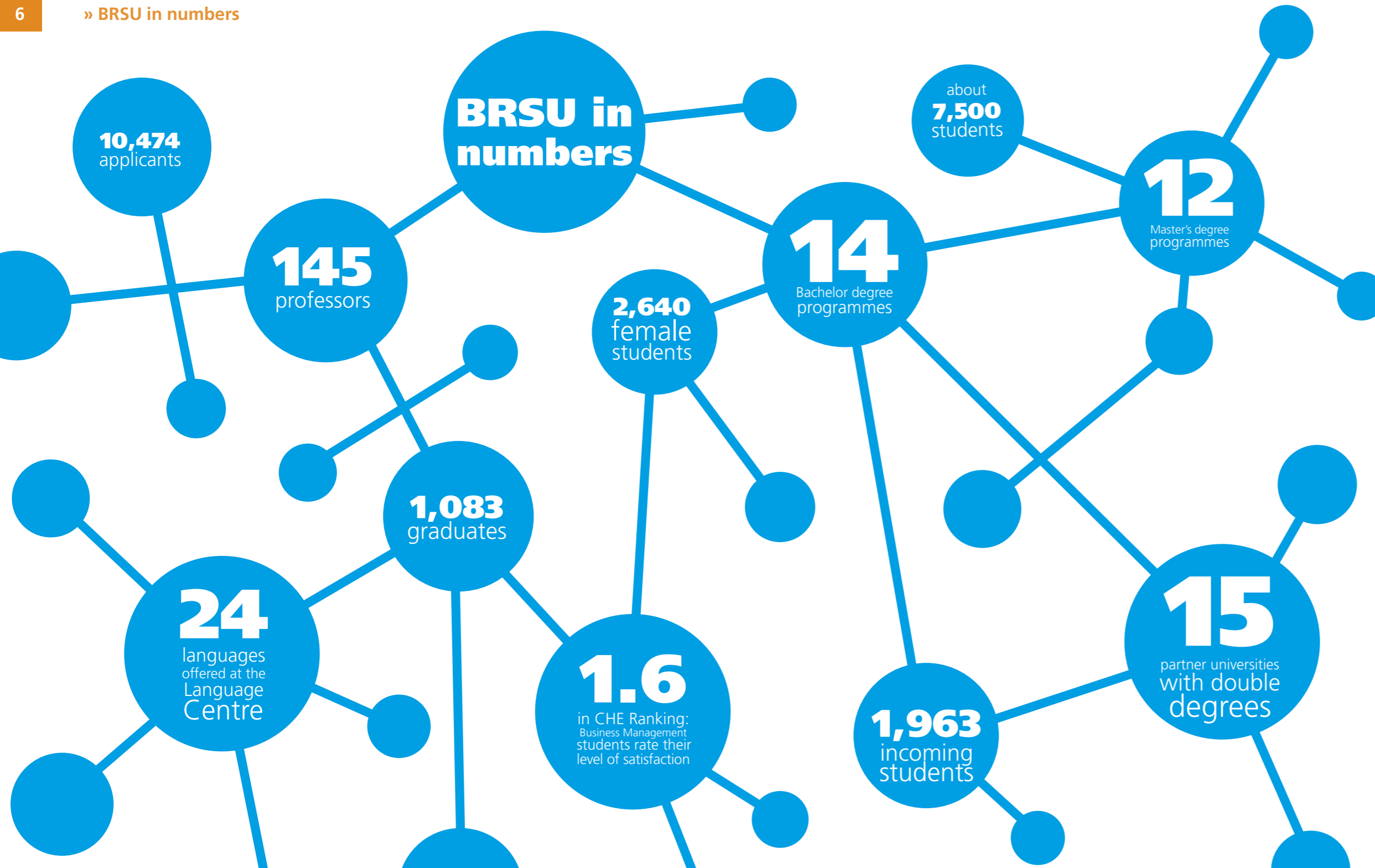


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Social responsibility

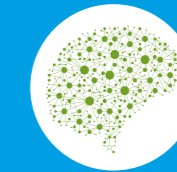
BRSU's fourth core area of responsibility, along with research, teaching and transfer, is "social responsibility" as outlined in the University Development Plan 2016 – 2020 (see: https://www.h-brs.de/files/fhbrs/praesidiumnewsletter_ausgabe_16_2014_16954.pdf).

More space for teaching and research

36 million euros will be provided by Bonn-Rhein-Sieg University of Applied Sciences and the state of North Rhine-Westphalia for the new construction announced in 2014, which will expand BRSU's Sankt Augustin and Rheinbach campuses (p. 44).

Focus on Africa

Universities, Entrepreneurship and Enterprise Development in Africa – Experts from academia and industry gather at the Rheinbach campus for an international conference (p. 68).



Good start at university

As one of just five universities chosen from an applicant pool of over 100 universities, BRSU will receive up to 250,000 euros as part of the national "Innovative Studiengangsphase" programme. First-semester students will be assessed and provided with individual consulting and support (p. 20).

Right on time for the UNESCO Year of Light

As part of the OLIVE project, BRSU researchers are investigating how to adjust and automatically control a home's lighting systems according to the preferences of the individual owners (p. 35).

Careers kick off in summer

Since 2014, Company Day on the Sankt Augustin campus helps prepare students for the working world with tips on career planning, project management, job applications and interviews (p. 56).

Recognition for BRS Motorsport in 2014

With more than 60 regional industry sponsors supporting the BRSU team at the 2014 Formula Student Electric, the team completed its most successful season to date (p. 69).



Gert Scobel, philosopher, television host and author,

has hosted his popular science programme “scobel” on Germany’s 3sat television network since 2008. After earning degrees in Philosophy and Theology in Frankfurt am Main and Berkeley, USA, he worked as a journalist for FAZ-Magazin and various public broadcasting networks as a host of scientific and cultural programmes. Since his lectureship at Bonn-Rhein-Sieg University of Applied Sciences in 2012, Gert Scobel returns to BRSU regularly to hold readings and lectures.

Thoughts on thinking – Questions on knowledge

What exactly does it mean to think? How is thinking taught, learned and influenced? BRSU President Hartmut Ihne and Gert Scobel, philosopher, television host and author, discuss the concept of thought.

• What is thought?

Hartmut Ihne: I’ll begin with evolutionary biology. Thought is a unique characteristic of this highly complex biological being we call “man”. Thought has allowed us to evolve to where we are now; it is the capacity to recognise ourselves and the world around us.

Gert Scobel: In the context of evolutionary biology as mentioned by Mr. Ihne, thinking is considered a regulatory mechanism that evolved over the course of time. It was essentially overlaid onto other mechanisms such as instinct or emotion, with which we can also react to the world around us. Our view on thought and thinking has changed in recent years – from the notion of a logical structure that functions like a computer, to the idea that thought is entirely dependent on the body and sensory input. As a human being, I have the “hardware” necessary to carry on a conversation, but without the community to teach me how to talk, to demonstrate the rules for carrying on a conversation, or to explain logic to me, there’s no chance whatsoever

that I will be able to think. To put it another way: the idea that “we think with the brain” is wrong. There’s no doubt that we use the brain, but there’s also no doubt that we very much need the community around us and the social interaction with that community.

• How does a community and its given worldview influence thought?

Scobel: For me the scope of its influence is quite broad and far-reaching. In today’s media world we are confronted with many different ways of living and thinking. We see that the world is not homogenous, but incredibly pluralistic, and we try to find ways to process and deal with this.

Ihne: The essence of thinking is the capacity for abstraction, for developing concepts and language. So the use of concepts and language is an important aspect of thinking. With writing we found a way to conserve our thoughts and words – from the Sumerians through to today. Because we have conserved a lot over time, there exists a vast written “community” and this influences, of course, our capacity for thought.

“The idea that ‘we think with the brain’ is wrong. There’s no doubt that we use the brain, but there’s also no doubt that we very much need the community around us and the social interaction with that community.”

Gert Scobel

• Universities are immersed in this written community. Is thinking also being taught at BRSU?

Ihne: Yes, of course! Universities play a tremendously valuable role as centres of thought. I also think it’s important to distinguish between three dimensions of thought. The first is transferring knowledge in the form of subject matter – and deepening one’s knowledge of this. If someone studies engineering at BRSU, his technical knowledge and understanding is going to be much broader and deeper after earning the degree as compared to before. The second dimension is more reflective. What do I do with the knowledge I have acquired? Have I learned a methodology that will allow me to continue generating and analysing knowledge on my own? So if I learn how to build a bridge, I also learn to recognise when a ferry might be the better option. The third dimension of our job as teachers is to encourage and enable self-reflection, i.e. the capacity to question one’s own motivations and actions, and take on responsibility for others.

• Mr. Scobel, you have served as a lecturer at Bonn-Rhein-Sieg University of Applied Sciences. How much room does BRSU allow for the three dimensions mentioned by Mr. Ihne? Is there an ideal relationship or balance between the three?

Scobel: In higher education in general I see an over-emphasis on the subject matter itself. You have students being drilled on content very specific to their field of study; for me this is a negative consequence of the Bologna reform. I have nothing against structured curricula, but putting blinders on students and forcing them down the straight and narrow path as quickly as possible is not what I consider a positive development. Students are being taught to do things in a certain way and there is a disincentive for considering other perspectives; the other things don’t result in any credit points or recognition, just stress.

Ihne: There is no ideal relationship between these dimensions. As individuals we each learn differently. The important thing is that the university gives each and every student the chance to find his or her own optimal balance between subject matter on the one hand and self-reflection on the other. I can imagine getting rid of some of the subject matter to allow for more contemplative work or to create more room for more seemingly “nonsense” activity. One example here at BRSU is the Rube Goldberg project. Students learn how to solve a very simple task, such as blowing out a candle, in a very complex way. Teams of engineering students work for days on creating an extremely complex and convoluted chain of processes. It ends up being a huge amount of fun and they also learn a tremendous amount.

But to get back to the Bologna reform: what I experienced as a university student before Bologna was also not ideal. There were too few well-structured curricula, especially in the humanities. This was a problem that Bologna was designed to solve. The weakness of the reform lies in the poor implementation that we see in places. But the idea behind Bologna – to make a certain body of subject-specific material mandatory and apply this across Europe – I think is a very good one.

• Universities are supposed to bring new knowledge into the world. When does this begin for students? After they’ve received their degree or earlier?

Ihne: Scholasticism generated the very interesting term “fulguration” – when lightning strikes and something completely new is created. This moment is not something that can be calculated and it cannot be forced. For example, a first-semester Economics student, new to the subject, sits in his first lecture on economic theory and asks a totally off-the-wall question. The professor would never have thought of such a question himself because he is too deep



“Thought is a unique characteristic of this highly complex biological being we call ‘man’; it has allowed us to evolve to where we are now.”
Hartmut Ihne



“There is no robot that is completely autonomous – that can assign itself new tasks and challenges, that is capable of active, independent decision-making and developing on its own.”

Gert Scobel

into the subject matter, but after the lecture he revisits the question, writes an article about it and maybe even ends up disrupting a scientific paradigm. The student’s question was the key; without the question, the professor’s thought process would never have been triggered. So the student’s off-the-wall question ends up changing the world, at least indirectly. This is why I always tell students to ask questions, no matter how “dumb” the question might seem. Because the question initiates a thought process that might even change the world.

Scobel: We spend too much time limiting ourselves. We live in a society which tries to compartmentalise everything in small boxes, including our knowledge. Good thinking is basically about getting rid of these boxes, these separations, and creating new connections between things. Innovation often happens where new bridges are built between different disciplines or subject areas.

• How does BRSU encourage and enable the kind of interdisciplinary work described by Mr. Scobel?

Ihne: One example is the “Forum Verantwortung” forum on responsibility. With this instrument, a kind of open learning programme, we want to explore our role as knowledge creators. What responsibility do we carry in this job? How can we apply teaching and research to solving the world’s problems? So far, in several discussion rounds, we have spoken about changes in the working world and an increasingly overwhelmed modern society. We now want to expand this project. In addition to the podium discussions we want to use the forum format to develop content for the degree programmes that also addresses the issue of responsibility. The university is already quite active on this front, but we want to bring more focus to the issue.

• Humans and thinking go together. What about machines and thinking?

Scobel: If thinking was just a matter of processing algorithms then, yes, machines would be able to think. But thinking is more than that. One of the more recent theories is that of “embodied intelligence”, which posits that the physical body is the basis for intelligence and thought. All the seemingly simple things we do, such as carrying on a conversation, catching a ball or drinking a glass of water when we’re thirsty – these turn out to be very complex processes that a robot cannot handle on its own. There is no robot that is completely autonomous – that can assign itself new tasks and challenges, that is capable of active, independent decision-making and developing on its own. Perhaps we can consider this question again if and when machines become more like “body machines”, i.e. become a lot more like us.

Ihne: Why not focus first on the semi-autonomous systems that are a reality today? Large portions of our infrastructure run on automated processes. These have become so complex that we no longer know exactly where we can and cannot intervene. For me the question is a very pressing one: is it ethically sound to develop systems and technologies in which we can no longer intervene – to set these technologies loose without being able to take them back? Should we be giving up our freedom, our autonomy, to the kinds of algorithms used for speed trading or military defence?

• Do you believe in a future with robots in human form?

Scobel: Why not turn the question on its head? There are other ways to create “intelligence” artificially. Another option would be to use genetic engineering to develop a hyper-intelligent monkey or even a genetically modified “artificial” human. I can see AI and genetic engineering working together here: research on artificial intelligence



helps me find algorithms, which I can then use in bioinformatics to understand complex biological relationships, which can then be reverse engineered.

• Are you a cultural pessimist?

Scobel: I’m not sure. I think there will always be a certain amount “left over” that we cannot construct or reconstruct. That might sound old-fashioned and idealistic, but I’m more and more convinced of this, even if I can’t give you a highly detailed or rational argument to back it up.

Ihne: I am a critical optimist.

Scobel: So you’re a realist?

Ihne: I believe things will fall into place. We will find the solutions we need. The journey will not be pain free, but it will also bring a great deal of joy!

Scobel: That’s the researcher in you. (both laugh) ●

“The important thing is that the university gives each and every student the chance to find his or her own ideal balance between subject matter on the one hand, and self-reflection on the other.”

Hartmut Ihne

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Award-winning teaching and student support



Bonn-Rhein-Sieg University of Applied Sciences made tremendous progress in 2014 in the area of teaching, as a number of improvement projects helped enhance both the classroom and e-learning experience. Particularly noteworthy in this regard are StartGut, Pro-MINT-us, Work & Study, the lectureship in mechanical engineering in cooperation with the University of Siegen, OMB+, and e-learning aided by the LEA online learning platform.

BRSU's StartGut project was recognised by the Stifterverband für die Deutsche Wissenschaft in the context of its national programme to help new students make the transition to university life ("Innovative Studieneingangsphase"). With the help of individual assessments, StartGut identifies where a student – given his/her own educational background – can benefit from support and provides tailored assistance (see p. 20). BRSU also distinguished itself in the "Advancement through Education: Open Universities" competition sponsored by the Federal Ministry of Education and Research. Together with three partner universities, BRSU was recognised for its "Work & Study – offene Hochschulen Rhein-Saar" programme. As part of the programme, BRSU and its partners are developing study opportunities designed especially for employed persons, people with family obligations, former dropouts and people with vocational qualifications. The goal is to ease their transition to university life and improve their chances of earning a university degree. At BRSU the programme is focusing first on students pursuing a degree in Business Information Systems (see p. 67). The university partners will receive funding in the amount of 4.8 million euros over the next six years.

The OMB+ courses provide supplementary mathematics training online to help prepare students for their degree programmes in engineering, management sciences, natural sciences and computer science. OMB+ is conducted by a network of 12 universities led by RWTH Aachen University. BRSU's own e-learning platform LEA continues to grow in popularity. Today LEA has become a standard teaching and learning tool used by students and faculty in all departments, with some sections created and managed by the students themselves.

With Pro-MINT-us, all of BRSU is exploring new teaching formats and improving support for students. This has helped initiate a broad discussion on the topic of good teaching, and the "Tag der Lehre" (Teaching Day) event, where lecturers present a colourful array of innovative teaching ideas, has contributed a great deal to this discussion.

Exploring the best ways to transfer lasting knowledge to our students remains a top-priority issue at BRSU and will continue to focus our attention and efforts.

Prof. Dr. Iris Groß

Vice President for Teaching, Learning and Further Education

Prof. Dr. Manfred Kaul

Vice President for Teaching, Learning and Further Education (until 15 December 2014)

Seal of quality for internationalisation

HRK audit assesses current state of internationality

In 15 seconds ...

“Internationalisation at BRSU is not just ‘on paper’; it is a living part of our university culture and community, and the audit recognised this.”

Dr. Roland Weiß, Director of the International Office

Internationalisation is one of the core components of BRSU's strategy, and the “Internationalisation of Universities” audit performed by the German Rectors' Conference provides a valuable indicator of how much progress has been made on this front. The results of the independent evaluation were positive: BRSU is on the right track and making very good progress.

It was an intensive year-long process as German Rectors' Conference (HRK) auditors reviewed BRSU's progress and achievements in internationalisation. They read statistics and reports, interviewed faculty and students from Germany and abroad, and held discussions with all relevant stakeholders. The process concluded on 1 December 2014 in Berlin, when BRSU received its official certificate for participation in the HRK “Internationalisation of Universities” audit. With the certificate, BRSU joined the small circle of just 54 German universities who have participated in the audit thus far. The project is funded by the German Federal Ministry of Education and Research (BMBF).



“Internationalisation at BRSU is not just ‘on paper’; it is a living part of our university culture and community, and the audit recognised this,” says Dr. Roland Weiß, Director of BRSU's International Office. BRSU maintains more than 70 international partnerships, offers several English-language degree programmes, and over 1,000 of BRSU's 7,500 students come from abroad. “The auditors also rated positively the Language Centre and international partnerships such as the entrepreneurship project together with Cape Coast University in Ghana,” says Weiß. BRSU's International Office, which supports all international activity, was also praised by the auditors, along with the Welcome Centre, which acts as the main point of contact and support for foreign students and researchers.

Intensifying commitment

The results of the HRK audit demonstrate that BRSU has succeeded in laying an internationalisation “foundation”; the university is internationally oriented today and ready to keep building on this base. “The auditors recommend that we continue expanding our activities,” says Weiß. “One example would be to recruit even more visiting scholars and researchers from abroad. Or all BRSU departments could create ‘mobility windows’ that make possible semesters abroad or, in the case of foreign students, semesters at BRSU as part of an exchange.” Perhaps the most important result of the audit process is that BRSU is sure to keep moving, improving, and opening new doors.

Information on the audit at the HRK website:

➔ www.hrk.de/en/audit/home/

Successful career start

Graduates feel well prepared

The International Centre for Higher Education Research (INCHER) in Kassel is investigating university degree programmes as part of a nationwide research project to determine the success rate of university graduates on the job market. Bonn-Rhein-Sieg University of Applied Sciences emerged from the survey with strong marks.

After completing their degree programmes, most students' first priority is to land a good job with a choice employer. As documented by the first round of survey results, BRSU is doing a good job helping students realise this goal. According to the survey, roughly three-quarters of working alumni have a permanent employment contract, and less than 1% seek additional training and/or retraining following graduation. Overall, BRSU graduates are very satisfied, especially with the quality of the teaching. BRSU rates nearly 20 percentage points above the national average in Germany when it comes to teaching quality, with 59% giving a grade of “good” or “very good”.

The yearly surveys are part of the graduate survey cooperation project (KOAB) in which over 70 universities throughout Germany participate. The extensive survey of university alumni provides a detailed look at their entry into professional life. “We want to know what our graduates are doing, where they work and whether or not they are satisfied. And

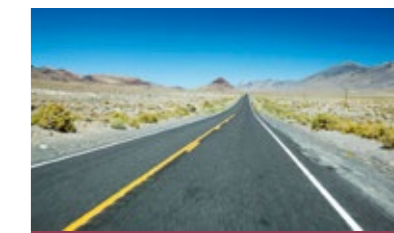


we're particularly interested in getting feedback on their degree programme at BRSU,” explains Martina Grein, who manages the KOAB project at BRSU.

When evaluating the survey results, special attention is paid to the graduates' retrospective assessment of their study programmes. Among BRSU graduates participating in the survey, 69% rate their degree programme either “good” or “very good” in terms of relevance and applicability to their current professional work. The relationship between academics and career is considered a critical aspect. “We're interested in how much graduates actually apply the knowledge acquired in school and which skills they use on the job,” explains Grein.

KOAB survey results are integrated directly into BRSU's processes for designing and monitoring its degree programmes. Participants in the 2014 survey gave BRSU particularly high marks for its facilities, with 83% rating these either “good” or “very good”. Survey participants were also satisfied with BRSU faculty. Over 70% rated the teaching and academic support provided by faculty as “good” or “very good”. Contact to faculty members was also rated “good” or “very good” by over 70% of survey participants.

For Chancellor Dr. Michaela Schuhmann, the survey provides important information for BRSU's future development. BRSU graduates are considered experts on the subject – and their feedback an integral part of the evaluation process. “Every feedback is important to us,” says Schuhmann. “It's great to see the above-average participation in the survey, which demonstrates the strong connection to BRSU that many alumni still feel.”



Bright future in the US

Gerhard Schneibel was one of the many alumni who took part in the graduate survey. “The KOAB survey covered everything I wanted to communicate to BRSU,” says Schneibel. “It allowed for detailed feedback, and it's great to know that my input has been heard.” For Schneibel it was important that his participation in the survey contribute to BRSU's further development. His Master's in International Media Studies from BRSU helped him realise a dream and find a good job with a bright future in the USA.

The forces of physics

A medieval catapult provides hands-on experience for students

E-learning tomorrow

E-learning is a must today for both students and staff. LEA ("Lernen und Arbeiten online" or "studying and working online") is the name of BRSU's central online teaching and learning platform, which includes E-Study, E-College, E-Teaching and self-administration modules. The platform is used heavily by students and staff and BRSU continues to develop it further. "As we respond to new digital-age challenges in the near future, things like increased use of video material, flipped classrooms or blended learning will become standard, so we're creating the foundation for that today," says Computer Science Professor Manfred Kaul, who is also responsible for E-Learning development at BRSU.

A lot of wood, a little metal: students form interdisciplinary teams and build a medieval catapult

"My impression is that the number of withdrawals has decreased since we introduced the project week," says Claus Bachmeier, lecturer in the Department of Electrical Engineering, Mechanical Engineering and Technical Journalism. Bachmeier's goal is to give his students practical knowledge and real-world experience. To this end, he assigned his students – mechanical and electrical engineers in their fourth and sixth semesters – the task of recreating a medieval catapult true to the Middle Ages original. "A catapult demonstrates pretty much all of the known physical laws such as gravity, friction, centrifugal force, leverage and the like," explains Bachmeier.

The key to the catapult project was the interdisciplinary teamwork among the mechanical and electrical engineering students. "There are no islands. To be well-prepared for the working world, students also need to know how their colleagues in 'neighbouring' disciplines approach their

work," says Bachmeier. Thanks to the father of one of the students, the team was able to build their 3.6-metre high, 3-metre long and 2-metre wide catapult in a professional woodworking shop in Bergisches Land. They paid close attention to detail. In the Middle Ages, for example, metal was considered a precious commodity, so the team limited their use of metal to a reinforcement for the axel and smaller reinforcements of the catapult arm.

Bachmeier demanded authenticity in terms of both history and craftsmanship; the result was a finished, working catapult that is also an accurate recreation of medieval forerunner models. The team's trial launches also confirmed the authenticity – and totally fulfilled the expectations of both the students and Bachmeier. Beginning in 2017 the students' medieval masterpiece will be on display for the public as part of a Middle Ages exhibit in Bonn's LVR Landesmuseum.



Big interest in Germany scholarships

Private sponsors support outstanding students

So far BRSU has awarded 87 Germany Scholarships. "We've made very good progress towards filling the quota," says Project Coordinator Sabine Baumgartner. A maximum of 1.5% of a university's student body can receive financial assistance under the Germany Scholarship programme; at BRSU this would mean approximately 100 scholarships. The scholarship consists of 300 euros per month. BRSU finds private sponsors to fund half of the scholarship, while the remaining 150 euros is provided by matching funds from the Federal Ministry of Education and Research (BMBF).

Sponsors are convinced of the benefits

"It's particularly nice when we see our partners not just maintaining their support, but even increasing it because they believe in the benefits and effectiveness of the format," says Baumgartner. The Liessem-Stiftung (Liessem Foundation), for example, doubled its commitment from ten to 20 scholarships. Beginning in October 2015, the Bonn-based software company SER Solutions will increase its funding to support 30 students instead of ten.

"Our goal is to support disadvantaged young people here in the Bonn region so that they receive an optimal university education."

Professor Dr. Harald Kuypers, Chairman of the Liessem Foundation

Successful applicants must be able to demonstrate strong academic performance, and good marks are the most important criterion. "But community social work is also taken into consideration, as is work on behalf of the university," explains Baumgartner. "Students dealing with special challenges in their own lives are also considered, so this can also count towards being an outstanding candidate."

This is where the Liessem Foundation comes in: "Our goal is to support disadvantaged young people here in the Bonn region so that they receive an optimal university education. The Bonn-Rhein-Sieg University of Applied Sciences and the Germany Scholarship is the perfect combination for this," says Professor Dr. Harald Kuypers, Chairman of the Liessem Foundation. "The scholarship allows them to concentrate on their studies."

The scholarship also offers networking opportunities, such as the annual events in wintertime, which allow scholarship holders to come into contact with companies and foundations. The events are important for the sponsors as well. Companies have the chance to meet students – possible future employees – and foundation representatives can experience first-hand the impact of their financial support.



www.deutschlandstipendium.de/de/2319.php

Top marks in university rankings

As part of the 2014 CHE University Ranking sponsored by Centre for Higher Education Development, students gave two of BRSU's Master's degree programmes – "Controlling and Management" and "Innovation and Information Management" – top marks in the category "Internationale Ausrichtung" (international orientation), which considers a university's collaboration with foreign universities, the ease with which students can integrate a semester abroad into their programme, and the international experience of faculty. It was the first time that the Centre for Higher Education Development (CHE) published a ranking for a Master's degree programme in the area of economics and business.

Thinking ahead

Thorsten Bonne

Professor in BRSU's Department of Computer Science, likes to jog along the Rhine to get his thoughts on the future of education flowing.

With his involvement in the Work & Study project, Thorsten Bonne is one of BRSU's thought leaders on the future of higher education. Demographic change and the digitalisation of life and work will mean profound change for institutions of higher education, and the "university of the future" must be able to interpret these trends. "One approach is blended learning, a combination of classroom teaching and e-Learning," explains Bonne. "Instructional videos and online study groups are two of many options for online learning." As a tenured professor at BRSU, the chances are good that Bonne will not only experience this future, but also help shape it.



More support for struggling students

StartGut programme helps level the playing field

In 15 seconds ...

After impressing both the **Stifterverband für die Deutsche Wissenschaft (Stifterverband)** and the **Heinz Nixdorf Foundation with its StartGut programme proposal**, BRSU will receive a quarter million euros to support students struggling to make the transition to university life.

Lilian Degen studies electrical engineering at BRSU. She knows from conversations with fellow students just how much educational backgrounds vary among incoming students. "Math is one of the big hurdles," she says. Degen helped develop the StartGut concept by providing valuable input from the student perspective. "StartGut is about providing support to students when they feel overwhelmed or have lost their sense of purpose."

One hundred universities submitted proposals hoping to receive funding for similar support projects. In the end only five were chosen, and Bonn-Rhein-Sieg University of Applied Sciences was one of them. BRSU will receive a total of 250,000 euros from the Stifterverband and Heinz Nixdorf Foundation to fund its StartGut support programme. In this initial phase, StartGut will focus on electrical engineering students in the Department of Electrical Engineering, Mechanical Engineering and Technical Journalism. If it can succeed here it will be expanded to other departments.

"Especially for non-traditional students, the transition to university can often be difficult; they might come from a non-academic household, from a foreign country, or maybe it's been several years since they completed their Abitur,"

explains BRSU Professor Jürgen Apfelbeck, who heads the StartGut project. The goal of StartGut is to level the playing field. "We created a dedicated faculty position that focuses on providing support to StartGut students and developing the programme further," says Apfelbeck. Examples include a new exercise that links mathematics and electrical engineering, or modules that focus on self-confidence, self-management and motivation. In addition, students can take part in field trips to companies where they have the chance to meet with alumni, build up their networks and generate new career ideas and opportunities.

"We approach students who are struggling or no longer attending class and show them how we can help."

Jürgen Apfelbeck,
Professor of Electrical
Engineering and
initiator of the
StartGut project

Individual counselling and support

"Applicants who know they might need extra support can join the programme right away and take part in an assessment and follow-up consultation during the summer semester before beginning their studies," says Apfelbeck. To encourage participation, BRSU promotes the StartGut programme at area schools. StartGut is also open to electrical engineering students who start in the winter semester. BRSU is proactive on this front: "We approach students who are struggling or no longer attending class and show them how we can help." The workload adjustment might prolong the duration of their studies, but, as Apfelbeck points out, it's well worth it: "StartGut is a much better alternative to dropping out."

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Stifterverband website with online presentation on StartGut:

➔ www.stifterverband.info/bildungsinitiative/chancengerechte_bildung/studieneingangsphase/bonn-rhein-sieg/index.html



Crazy contraptions make studying fun

Project Day attracts students and visitors

An uncooked egg flies through the air, launched by two students with their own catapult made out of cardboard and simple rubber bands. Thanks to the smart packaging, the egg manages to survive the "Flying Egg" competition. No scrambled eggs on the menu, but there is a martini – stirred, not shaken – made by the "Rube Goldberg Machine", a very tricky device that features many entertaining steps along the way. Fifty mechanical and electrical engineering students had tinkered for three days on the device, which was dedicated in 2014 to James Bond. The Rube Goldberg and other Project Day presentations, including films and other multi-media wizardry performed by Technical Journalism students, made for a fun and interesting day for both students and visitors. Over 600 students took part in the day.

Lecture-hall knowledge put to use

Project Day is about students having fun with their projects and studies. "Putting knowledge to use, tinkering, testing, and getting a machine actually up and running, this is what it's all about," explains Iris Groß, Professor of Mechanical Engineering at BRSU. Groß, who initiated Project Day, has now experienced for the second time another important benefit: "The students have the chance to demonstrate in a fun and hands-on way what they have learned – there really isn't a better motivator than that." The projects bring the students together and get them interacting with one another, even after their project is over. In addition, faculty gain a clearer understanding of their students' level of knowledge.

Wide-eyed school kids

Friends and relatives also attended the Project Day presentations, along with journalists from regional newspapers and the WDR television network. Local school kids were also in attendance. "After the presentations, several of the older kids expressed very concrete interest in BRSU," reports Groß, who also spoke fondly about a group of sixth graders: "The 11 and 12 year-old students were captivated, and I think a few of them will remember our crazy contraptions when it comes time for them to choose a university."



"The 11 and 12 year-old students were captivated, and I think a few of them will remember our crazy contraptions when it comes time for them to choose a university."

Iris Groß, Vice President and
Professor of Mechanical
Engineering

WDR coverage of the event:





Participating universities

- Germany: Regina Brautlacht, Senior Lecturer in Business Communication, Bonn-Rhein-Sieg University of Applied Sciences
- France: Csilla Ducrocq, Senior Lecturer in English, ENSAE ParisTech, École nationale de la statistique et de l'administration économique
- Italy: Prof. Dr. Franca Poppi, Associate Professor of English Linguistics, Università degli studi di Modena e Reggio Emilia
- Portugal: Prof. Dr. Lurdes Martins, Instituto Superior Politécnico de Viseu

In 15 seconds ...

80 students – 4 countries – 10 topics

Students practice teamwork without borders

The European Dialogue Project initiated in 2014 by BRSU's Regina Brautlacht brings together students from Germany, France, Italy and Portugal with a focus on building intercultural competencies and gaining first-hand experience in international teamwork. After a successful 2014, Brautlacht, who is Senior Lecturer in Business Communication and director for English at the Language Centre, is now planning round two for 2015.

- **As part of the European Dialogue Project, 80 students from four countries collaborated on ten different topics – that sounds pretty complex. Was chaos inevitable?**

There was some confusion and there were trouble spots, but that is exactly what we wanted to investigate: what happens when an international team has to come together online and get something done?

- **What tasks did you assign?**

The students had to conduct surveys in the respective countries on topics such as cultural diversity, data privacy, career or happiness. They developed the survey questions together via online meetings, they had to agree on the format – e.g. whether to use multiple choice or open-end questions – and then they collaborated on producing a final report. Eight students were assigned to each topic, with two from each of the four countries Germany, France, Italy and Portugal.

- **What was the goal?**

The focus was on the students' own experience working in international teams. What's it like for the students to have to work with new people from different cultures,

knowing that they need to come together to produce a result? What's it like to do this in English, which is a foreign language for everyone involved? An additional goal of the project is to initiate a joint research project with lecturers from the participating universities.

- **What hurdles did they encounter?**

Cultural differences played a role and perpetuated the stereotypes in many ways: the Germans were more project-oriented and efficient; the southern Europeans first wanted to discuss whether to approach the task in the way it was assigned and then delivered too late; the Portuguese came an hour late because of the time difference. Having to pay attention to time zones when organising international online conferences is a detail they're sure to remember in the future.

- **Did the lecturers jump in and help when the students hit a roadblock?**

We did not see it as our job to deliver solutions. Our job was to support the students so that they could develop their own problem-solving strategies.

- **What did the project achieve?**

More and more – whether in academics, research or the business world – having to work in international teams is a fact of life. University graduates need to be prepared for this. But you can't teach intercultural skills in a lecture hall; there is no standard way to handle a situation where team members speak English at different levels of proficiency. This is needs to be experienced; it needs to be "learning by doing". We're already planning another project round in 2015.

BRSU as gateway to the world

Opening channels to study abroad

The hot sun in Braga, Portugal was a new experience for Franziska Pohl, and much different than in Aberdeen, Scotland. "Of course it didn't just rain in Aberdeen, but it wasn't warm and sunny either," recalls Pohl. On the upside was a chance to earn a Master's, with the option of pursuing her PhD.

It all started in the winter semester 2009/10, when Pohl began work on her Bachelor degree in Forensic Science at Bonn-Rhein-Sieg University of Applied Sciences. One of her main motivations at the time was the prospect of a semester abroad during her undergraduate studies. Before coming to BRSU, Pohl had already learned about life abroad working as an au pair in Portland (Oregon), USA. But gaining additional international experience was important to her. "Without the support from BRSU and its partner universities – and the option of a bilingual degree programme – this journey would clearly have been a lot more difficult," says Pohl looking back. For her Bachelor studies, Pohl ended up with a double degree in Forensic and Analytical Science from BRSU and Robert Gordon University (RGU) in Aberdeen.

From Aberdeen to Braga and back

Pohl then stayed in Aberdeen to complete a Master's degree, which included a stint in Braga, Portugal as part of an Erasmus programme to conduct research at the Life and Health Sciences Research Institute at the Universidade do Minho. In Braga Pohl shared a dorm room – an unfamiliar experience that took some getting used to. But the arrangement had its upside: "My roommate was from Brazil,

Today former Forensic Science student Franziska Pohl (centre) is earning her PhD at BRSU's partner university in Scotland.



which turned out to be a huge benefit because I had an easy, built-in way to practice my Portuguese," says Pohl. After returning to RGU, Pohl began her doctoral studies in October 2014 with funding from Tenovus Scotland. Her appetite for travel is not yet sated: "This summer I want to go back to Portugal."

Contact to international alumni

BRSU wants to re-establish contact to 350 international alumni and 1,100 former visiting students from around the world. This will mean researching addresses, adding more English language content to the BRSU website, and preparing an alumni conference for September 2015. Funding for these and other alumni community activities will be provided by the DAAD's Alumni Programme; the funding award was announced by the DAAD in fall 2014.

Nine hundred and ninety seven

The 997 foreign students enrolled at BRSU in the 2013/14 winter semester hail from 100 different countries – and the numbers are growing. While BRSU's foreign students most often come from Turkey, Morocco or China, the list of most popular countries for semesters abroad is quite different: number one is the UK, followed by USA and Australia.

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Research and social responsibility



Alongside teaching, research is one of the core activities at BRSU. As a university of applied sciences, the research conducted on the BRSU campus focuses on the major social challenges of the day. These include civil safety and security, the development of smart, environmentally compatible mobility, efficient and sustainable management of resources, and health and social wellbeing.

To support its scientists, BRSU provides various structures which allow the acquisition and completion of larger-scale projects with international partners. Both at the Centre for Science and Technology Transfer (ZWT) and in the university's central administration, experts are on hand to provide comprehensive support services for the research team. The aim is to give the BRSU research team scope and space in which to let their creativity unfurl. The President's Office underpins the process by giving them the time and the funding they need.

By offering special further education and training programmes for PhD students alongside their doctorate studies, the Graduate Institute (GI) is another important component in ensuring the high quality of the research performed at BRSU. It also offers a platform for networking and fosters synergies that ensue.

Applications received from doctoral students, both in Germany and abroad, testify to BRSU's image as an attractive research option. PhD students appreciate the availability of an open, creative and international environment in which to develop their professional and personal potential. Coupled with a curriculum that includes research content, this makes BRSU an ideal option for students and a nurturing ground for the researchers of tomorrow. And thanks to the great visibility BRSU researchers enjoy at events such as Day of Research, Companies Day and the Research Presentation planned for the upcoming 20th anniversary celebrations on 19 June, the university also supplies the business world with fitting partners for joint research ventures. In dialogue with representatives from government and industry, BRSU paves the way for ongoing enhancement of the German research landscape.

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

Prof. Dr. Volker Sommer
Vice President for Research and Transfer (until 15 December 2014)

Water Supply 2.0

Saving electricity in supply water

In 15 seconds ...

Mathematicians at BRSU are currently working on an energy management system that significantly reduces electricity consumption in water supply. Funded by the German Federal Ministry of Education and Research, the joint research project involves cooperation between multiple universities and businesses.

Turn on the tap and let the water flow. But how does the water reach the tap? Whose job is it to ensure that people get the water they need? And more importantly, how much energy is used in providing water supply? These have become key issues in the face of rising electricity prices and increasing emphasis on renewables.

In the past, the country's waterworks focused for the most part on supplying high-quality water that was safe to drink. While this still applies and always will, energy efficiency is now an additional priority. This is the focus of research conducted by EWave, a joint research venture where Gerd

Steinebach, a Professor of Mathematics at BRSU, heads a sub-project in which researchers work on the development of an innovative energy management system for water supply. Funded by the German Federal Ministry of Education and Research, the project will run for a three-year period through to March 2017.

Sophisticated simulation

Steinebach and team are developing a simulation model based on an actual water supply grid. This in itself is a complex task. "The grid we were given to work with consists of 30,000 pipes," he explains. "It's impossible to simulate to that same level of detail. Our computers just wouldn't be able to cope." So the research team must first simplify the grid. Using an energy model and a range of optimisation measures provided by other project partners, a system will be devised which will make water supply more energy-efficient – the ultimate aim being for the pumps in a waterworks to supply just the right amount of pressure needed

at any given time. The system is designed to be used as an optional extra, Steinebach adds: "At the end of the day, it is the operator who decides whether the proposed optimised pump schedules are actually used."

As a partner in the EWave project, BRSU cooperates with TU Darmstadt, the University of Erlangen-Nuremberg, Siemens, GreyLogix Aqua and water company Rheinisch-Westfälische Wasserwerksgesellschaft (RWW).

In collaboration with RWW, the project partners plan to launch a pilot to test the new management system in practice conditions. The outcome of the test will be shared with other utility companies to ensure that the water they supply is not only always 'on tap' at the best quality possible, but also arrives via the most energy-efficient route.

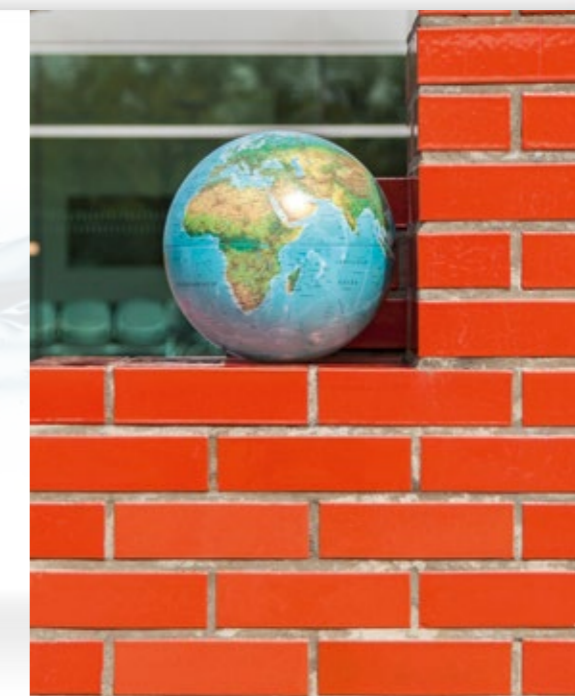


For more about EWave, see:

➔ www.bmbf.nawam-erwas.de/en/project/ewave

International joint research

While the resident scientists at BRSU often go abroad to conduct their research, the university also plays host to researchers from overseas. Chemist Matthew Mupa, a guest researcher from Zimbabwe, joined a working group led by Professor Steffen Witzleben on the Rheinbach campus in early 2014. In a research project to extract silicic acid from plant-based raw materials, Mupa focuses on the elephant grass native to his homeland. The silicic acid extracted from the grass is to be used in catalytic converters and as an absorption material. The acid binds elements of gases and liquids into a solid substance. Examples for its use include catalytic converters in vehicles and water treatment plants.



Materials of the future

New research focus at BRSU: Sustainable resources and energy technology

Global warming, sea-level rise and scarcity of resources – around the world, scientists are searching for solutions to mitigate the impact of centuries-long exploitation of the Earth's resources. A sea change is needed in the production and selection of these raw materials. In an interdisciplinary research activity, BRSU's Department of Electrical Engineering, Mechanical Engineering and Technical Journalism (EMT) and Department of Natural Sciences aim to improve the sustainability of available resources. BRSU's new university research focus, Sustainable Resources and Energy Technology (Na-WETec), is headed by Professor Johannes Geilen and funded under the FH-STRUKTUR programme run by the government of the State of North Rhine-Westphalia.

From lignin to ozone

The new research being conducted is divided into a series of sub-projects. Chemistry professor Steffen Witzleben, who is involved in all of the projects, believes interdisciplinary collaboration is of huge importance: "Sustainable use of resources is an extremely complex issue. That's why well-founded answers and solutions can only be arrived at by having specialists from the different disciplines work together as one."

One particular sub-project focuses on lignin-based polymers for use in building chemicals. Lignin is a by-product of the pulp and paper industry that up to now has mostly been burned to generate energy. In BRSU's LignoBau project, researchers led by Professor Margit Schulze and Professor Steffen Witzleben develop ways of using lignin-based

products as an alternative to oil-based polymers. In the future, it might be possible to use a lignin foam in conjunction with wooden cladding to insulate houses.

A team led by Professor Edda Tobiasch and Professor Steffen Witzleben conducts research on implants colonised with patients' own cells for use in critical-scale bone reconstruction. Adult stem cells taken from the patient are used to provide the basis for the cell-colonisation of the implants. The research is based on the discovery made by Tobiasch that stem cells taken from the periodontal pockets below wisdom teeth are more developed than other stem cells when it comes to osteogenic differentiation, thus reducing the likelihood of undesired side-effects like tumours.

Around five percent of global CO₂ emissions come from cement production – reason enough to see that emissions are reduced in future. This is the focus of Witzleben's work. In the production of Portland cement, huge amounts of energy are used because the limestone and clay that form the basis of the end material have to be heated to more than 1,300°C. With their research project, Witzleben's team want to reduce the necessary portion of Portland cement in cement mixtures. They want to do this by introducing additives and bonding agents (thickeners) to improve the cement's bonding properties.

Ozone is a gas in the Earth's atmosphere that prevents ultraviolet radiation from reaching the Earth's surface. The gas is also good in disinfecting water distribution facilities.

Until now, water treatment was always limited to larger facilities because of the complex processing technology. Witzleben and Professor Gerd Knupp from the Department of Natural Sciences are conducting research on a joint project with scientists from the German Aerospace Center (DLR) and the company Innovatec on an ozone-based micro-dis-

infection system for centralised disinfection purposes. But as Witzleben explains, it is not only the research outcomes that are important: "If research results in successful strategies and approaches for one sector, those outcomes can be more easily transferred to other sectors."

Who dunnit?

DNA traces on victims and weapons supply key evidence for the police when trying to solve a crime and the methods they use are becoming increasingly more sophisticated. This was shown at the DANN Typing forensics symposium held on the Rheinbach campus in December 2014. One of the special guests at that event was Elena Carra, a forensics expert at the University of Palermo. She reported on a spectacular murder case which was cleared up as a result of a DNA analysis that was performed despite the fact that DNA samples from many different people were found at the scene. The method used in solving the crime is also helpful in species protection: Professor Richard Jäger, Professor of Forensic Sciences at BRSU, explained how DNA is used to investigate poaching and illegal trade in animals. Having organised the symposium, Jäger was pleased with the public's response: "Students and staff benefit from the practice-related approach and can link up with fellow experts."



About five percent of global CO₂ emissions come from cement production.

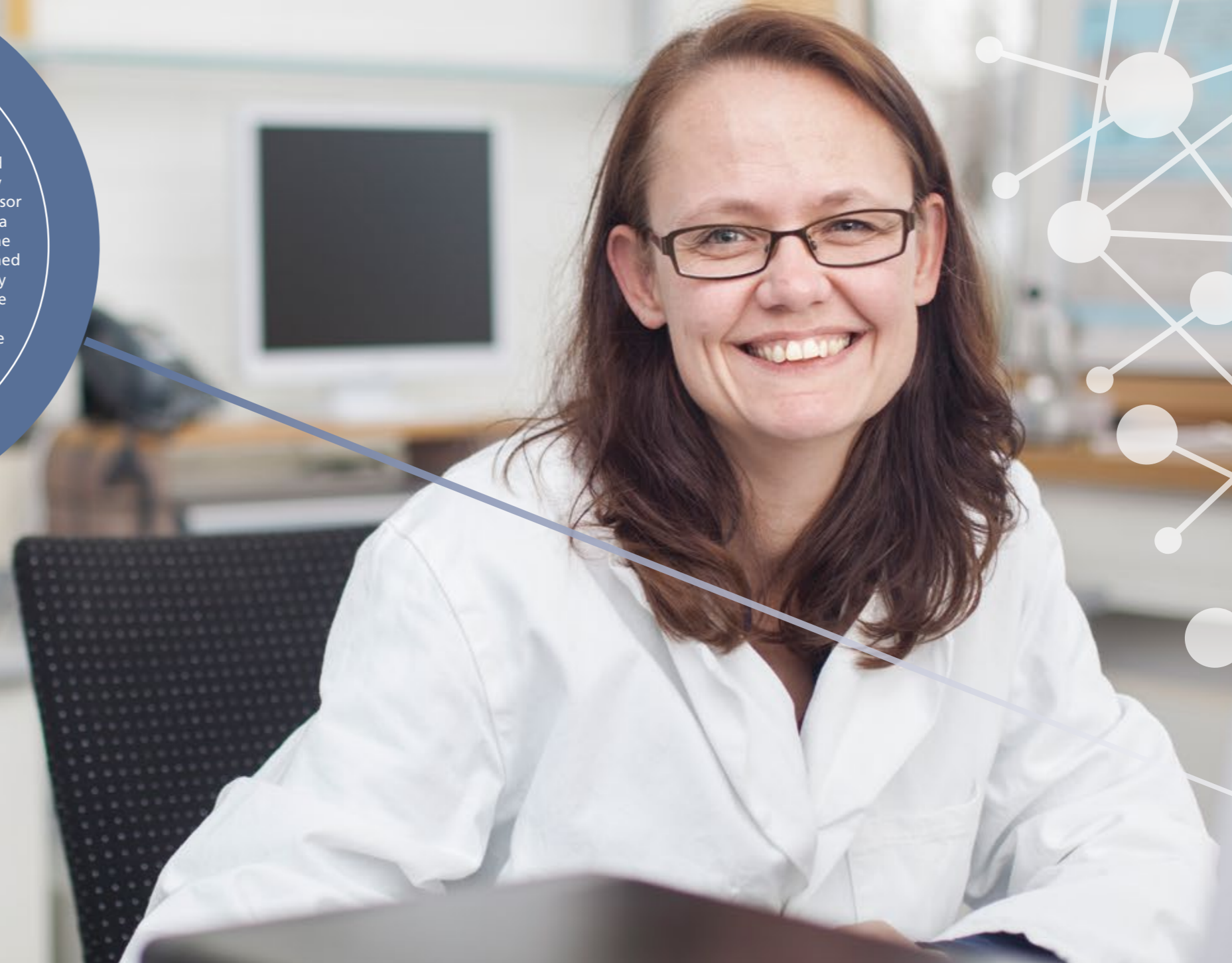
Students publish paper in scientific journal

Three undergraduates at BRSU have published their own scientific paper in a special edition of the World Journal of Stem Cells. With support from Professor Edda Tobiasch, applied biology students Anne Seifert, David Werheid and Silvana Knapp wrote a scientific review on the subject of Hox genes in stem cells. "It was a mammoth task, both for the students and for me," Tobiasch explains. She supported the students in their choice of literature, setting out the paper and writing the article itself. Having completed their Bachelor degrees, the three have since gone on to pursue Master's degrees.

Esther van Dorp

is a research assistant in the Department of Natural Sciences at BRSU. In her laboratory, she develops mathematical material models to describe the physical laws of extrusion blow moulding.

Chemical engineer Esther van Dorp is a true pioneer. For the past 16 years, she has worked as a research assistant at BRSU. She set up the laboratory and developed internships for students. "I've worked on many projects over the years," she explains. "My professor encouraged me to carry over two projects into a PhD course." In her interdisciplinary research, she developed models for simulation software designed to significantly reduce the resources and energy used in plastic packaging. "Up to now, I've done my research alongside my work and family commitments. Thanks to the Graduate Institute scholarship I received last April, I'm now able to concentrate completely on my PhD."



Making more than the grade

Yu Zhang from the Department of Natural Sciences received his PhD at the University of Düsseldorf with a magna cum laude (1.0) result. His thesis adviser was Professor Edda Tobiasch from BRSU. Yu Zhang, who was born in China, is a member of the BRSU Graduate Institute and works on the Spacelife graduate programme at the German Aerospace Centre (DLR) in Cologne. Yu Zhang also received the prize for the best doctoral thesis from the donors and sponsors of BRSU.

Large-scale equipment reinforces research profile

BRSU beats other universities in German government investment programme

Universities like BRSU are key partners for business and research networks. Their attractiveness relies entirely on the quality of the infrastructure they have access to. "Some companies look for specific types of research equipment so they can use it in their R&D," says Udo Scheuer, Director of the Centre for Science and Technology Transfer. To enable universities to put such infrastructure into place, the German Federal Ministry of Education and Research launched its FHIInvest programme to fund the acquisition of large-scale equipment requiring investment of 250,000 euros and more. A BRSU project was chosen for funding in 2013 and in 2014 two out of three BRSU applications were selected. This makes the university the most successful in the programme overall, especially considering that most applications are rejected. "Over the past twenty years, BRSU has consistently improved its research infrastructure," recalls Scheuer. "We are now benefiting from those research strengths in competitions like this." The huge wall of monitors at the Institute of Visual Computing, the x-ray diffractometer in the chemistry department and the Raman microscope in forensics were all funded by FHIInvest, testifying not only to the success of the research conducted at BRSU, but also to the diverse research fields it covers.

Huge monitor wall

An HD television has around two million pixels, but the huge wall of monitors recently installed at the Institute of Visual Computing boasts some 35 HD monitors with

a combined 72 million pixels. Professor André Hinkenjann uses them to show simulations for climate research and architecture, both in real time and as video recordings. The objects on the screen appear to be right there in the room and viewers feel they are part of the show. (450,000 euros)

X-ray diffractometer

The makers of new materials need insight into the "inner workings" of the substances they work with. Steffen Witzleben, Professor of Inorganic Chemistry, is especially interested in substances with no clear crystalline structure, such as concrete and adhesives. One of the things his research team is working on in the Sustainable Resources and Energy Technology programme involves improving cement production – the most energy-intensive industry sector with the highest CO₂ emissions. Using the x-ray diffractometer, researchers are able to evaluate the quality of cement and other materials used. (420,000 euros)

Raman microscope

A Raman microscope, which recognises the type and distribution of biomolecules found on surfaces, has been acquired to supplement the existing infra-red microscope used by Biology professor Richard Jäger. Jäger uses the Raman microscope to study surfaces in areas such as biomedicine and has earned a considerable reputation in forensics. The two microscopes will be used to help solve difficult crimes. (500,000 euros)

"Over the past twenty years, BRSU has consistently improved its research infrastructure."

Udo Scheuer, Director of the Centre for Science and Technology Transfer

Arctic Ocean exploration

Undergraduate Laura Wischnewski boards research ship in Svalbard

Studying for a Bachelor's degree mostly means trawling through text books, referencing other scientific works and maybe evaluating the odd survey questionnaire. But Laura Wischnewski, a forensics student at BRSU, has taken a very different route. As a member of the research team at the Alfred Wegener Institute (AWI) at the Helmholtz Centre for Polar and Marine Research in Bremerhaven, she conducted her undergraduate studies in the Arctic Ocean. "I already had contact with AWI because I had worked there as a research assistant between semesters," says Wischnewski, who headed out to Svalbard for a two-month stint in March 2014. While there, she investigated how climate change affects the oceans and the marine organisms they are home to. She found there are many factors involved: ocean acidification, rising temperatures and changing light conditions. Describing it as an unforgettable experience, Wischnewski says: "It was simply fantastic. The landscape, the work, the team – I loved it all!"

Her research focused on phytoplankton communities. In a fjord in the vicinity of Svalbard, she collected these minute marine algae and then simulated scenarios in the laboratory. "My undergraduate studies took in a large analytical phase and that helped me in my work at AWI. I learned a lot during my studies that can be transferred to my work."

It is estimated that photosynthesis in phytoplankton produces more than half of the oxygen found in the atmosphere. Under normal conditions, higher temperatures and higher concentrations of CO₂ have a positive effect on plant growth, but the ocean acidification caused by increased levels of CO₂ often has the opposite effect. In conducting their laboratory experiments, the AWI researchers were able to confirm that these altered factors at first have a positive effect on plant growth. However, that initial rapid growth meant that within a short space of time, there were not enough nutrients to foster further growth at the same rate and this could in turn affect the prognoses for the future.

Underwater observatory

In subsequent expeditions, the research team want to repeat the experiments over longer periods and in different arctic regions. It remains unclear whether Wischnewski will be back on board. While she will continue to work at AWI for at least another three years, she is now in a different department, working with a team developing an underwater observatory in the Fram Strait between Greenland and Svalbard. "There'll be an expedition to the area once a year," says Wischnewski excitedly.



The AWI research ship: Laura Wischnewski researches the impact of climate change on oceans

Top-fit tilers

IMEA promotes image as health communications specialist

How do you get tilers to take more care of their health? Not with brochures and a lecture says a study conducted by the Institute for Media Research and Development (IMEA), which considered acceptance levels in crafts and trades when it comes to health prevention measures. "Tradespeople are best reached at local trade fairs," says Michael Krzeminski, Professor for Innovation Communications and director of the study. The best approach is to sandwich the health-related aspects between presentations on new tile designs and the latest in equipment and tools, perhaps in a training seminar on business development. "You have to make tradespeople see that their bodies are an important part of their business plan," he adds.

Master Craftsman and tiler Frank Vonester checks out the tile laying skills of BRSU President Hartmut Ihne



A large part of the study is the work of Andreas Viehof, a research assistant at IMEA. His position was created in 2013 using funds provided by BRSU. Four times a year, the university provides cash awards in the amount of 40,000 euros to promote promising research projects – among

them a joint project with the Institute for Occupational Safety and Health of the German Social Accident Insurance Fund (IFA). The money was well spent: since the award, IFA has continued to finance Viehof's position and will also be funding his upcoming doctoral studies in the form of an IFA scholarship. With this, IFA is looking to obtain detailed recommendations on how to increase health awareness among tradespeople, and lower health-related costs.

International reach

Health communications has long been on the research agenda in many countries – not least in the US. Viehof's doctoral thesis will further expand IMEA's research focus on health communications and will also put it on the research agenda in Germany. Two other doctoral theses being worked on at BRSU also focus on this subject. Robert Müller is conducting research into how new mobile media can change health communications, and Sylwia Bircka is looking at new trends and risks in the workplace to provide input for the development of new preventive measures.

The work performed at IMEA is also attracting international attention, for example at the Mudra Institute of Communications in Ahmedabad in India. The Mudra Institute holds regular congresses on health communications; at their 2014 event, Michael Krzeminski and Andreas Viehof presented the results of their study on preventive health measures for tile layers.

More about IMEA:

➔ <http://emt.h-brs.de/IMEA.html>

Lighting lifts the spirits

Promoting health and productivity with smart lighting



There is light. There is good light. There is quality light. The latter is what counts in fostering personal wellbeing. While softer, warmer light creates a relaxed atmosphere, bright, almost bluish light keeps people awake. With some of the smart home-lighting systems now on the market, smart-phones can be used to dim or raise the lights as users see fit.

By combining medical and technological aspects in a single research project, the OLIVE project on optimised lighting for improved health and productivity goes one step further again. The aim is to equip rooms with sensors and assess ambient light conditions. Algorithms are used to calculate the level of light best suited in promoting the wellbeing of the people present in the room. Developed by a team led by BRSU's Ernst Kruijff and Professor André Hinkenjann in cooperation with the Fraunhofer Institute for Industrial Engineering (IAO), the sensors ensure that the level of artificial light fits the prevailing situation. That means providing a certain type of light in the kitchen first thing in the morning when it is still dark outside and another type of light when lunch is being eaten around noon. And when the children come home from school and do their homework at the kitchen table, a different type of lighting is needed again.

Lighting dispensed in shades

Light is not just about getting the brightness right. To promote wellbeing, the colour of light is equally important. While energy-saving LED lamps are available with colours that can be adjusted across a broad spectrum, health can only be promoted if the spectral components of the visible light are carefully dispensed. Lighting systems to allow light-colour control are now being developed with project partners Vossloh-Schwabe and ITZ Trilux. The biological-medical principles are being investigated by the University of Berlin's Charité hospital and lighting manufacturer Intellux at the Charité Interdisciplinary Center for Sleep Medicine, also in Berlin. In a series of tests, the researchers will assess the impact of differing light spectrums on human health and biorhythms. The results of the assessment will then be used by Lichtforum NRW in a range of applied scenarios – for example during a typical day in the kitchen.

OLIVE was launched in July 2014 and will run for three years. Of the six million euros budget allocated for the project, some 3.5 million euros are provided by the German Federal Ministry of Education and Research and the rest is covered by the project partners' own funds.

More:

➔ www.photonikforschung.de/fileadmin/Verbundsteckbriefe/4_LED/Beleuchtung%20LED%20barrierefrei/Olive-Projektsteckbrief-bf.pdf



Work & Study: New approaches at BRSU



In 15 seconds ...

BRSU is one of the universities taking part in the Work & Study programme funded by the German Federal Ministry of Education and Research. The goal of the programme is to enhance opportunities for academic study for people with work and family commitments. Professor Thorsten Bonne is part of a team conducting research into how potential students can be better reached. It all starts with a blended learning course in Business Information Systems.

Why is there a need to improve opportunities to study?

A range of studies estimate that as a result of demographic change, there will be far fewer people in the labour market in 2030 than there are today. While extending people's working lives is a matter for government policymakers, universities must ensure that young people are afforded faster access to jobs.

Can you explain the new concept?

Work & Study focuses on the specific needs of people who for whatever reason would like to study on a part-time basis. We've come up with a blended learning approach that combines tutorials on campus and e-learning at home.

Do you need to adapt course content to accommodate the new model?

In offering Work & Study, we have split the course material into modules which are presented in theme-based videos. In tests they do after watching the films, students can

check if they have fully understood what they were shown. Other exercises allow them to work in virtual teams and then present their work in subsequent classroom sessions. I like the fact that students can actively help to structure course content: if, say, the original video was too complicated, they share an alternative tutorial video with fellow students. Or they put together their own exam-related questions and then work on the answers together.

How do you envisage the BRSU of 2030?

Lifelong learning will certainly play a role. BRSU's educational mandate does not start and end with Bachelor's and Master's degrees. Acquiring expert knowledge is a work in progress. This is why BRSU will offer top-up courses and certificates of further education to aid lifelong learning. I particularly like the idea of credit-based degrees. Instead of studying for a Bachelor's degree at a particular university, students will instead do online courses with universities around the world and collect credits towards their degree.

So it's goodbye university campus and hello online learning?

To an extent, yes. Despite all the advantages that e-learning offers, personal interaction between students and teachers is still vital. That must be retained and secured. I wouldn't want a future for my children where the only education they receive is through learning online.

See page 67 for more on Work & Study.

Premier league doctorates

BRSU Graduate Institute raises the bar

Lea is riding her bike to school. Her thoughts keep wandering to the impending maths test. A car suddenly shoots out of a drive-way. Lea just manages to avoid the car and find her balance again. Even if she hadn't been able to brake, she would have emerged unscathed because she's actually riding a bicycle simulator at the Institute of Visual Computing. The simulator is designed to prepare children for unforeseen events on the road and PhD student Sven Seele is looking at ways to make the scenes shown on the simulator as realistic as possible. He is one of 60 doctoral students at the BRSU Graduate Institute and is also the recipient of a BRSU doctoral scholarship. Opened in 2011, the Graduate Institute has become a best-practice model in providing organisation and support to PhD students at universities of applied science.

Studying for a PhD at a university of applied science? Many of the students and staff at BRSU are not aware that this can be done. To make sure they do, the PhD students organise the PhD Project Exhibition every two years to showcase their work. In September 2014, the exhibition comprised some 21 projects conducted on the Rheinbach campus. "It sparked a kind of Eureka effect among many people who actually work and study here," says Professor Rainer Herpers, Director of the Graduate Institute.

Unique throughout the land

The number of PhD projects being conducted at BRSU is steadily on the rise and will soon reach the 70 mark. This is an extremely welcome state of affairs because the doctoral students play an active role in improving the university's research capabilities. But there is tough competition from other universities to attract the best of the best. This is why BRSU awarded a fourth round of scholarships in 2014. Of the nine scholarships awarded overall, the Graduate Institute funded two, the Equal Opportunities Office, the Institute of Visual Computing and the Safety and Security Research Institute funded one each, and the university departments funded four. More than 20 scholarship recipients are currently working on research projects at BRSU. According to Herpers, BRSU ranks among the pioneers in the state of North Rhine-Westphalia with its student-specific funding programme for especially gifted young scientists.

Since 2011, the Graduate Institute has continually expanded its further qualification offerings. While doctoral students can learn how to write scientific papers in English, professors at the Institute can learn how to supervise PhD students and use social networks. "The general courses for doctoral students and professors are always closely tied to actual research disciplines," explains Herpers.

Model for NRW

As part of North Rhine-Westphalia's Future of Higher Education Act, which took effect in October 2014, NRW will establish a state-wide graduate institute called "Denkräume" (spaces to think). Although the BRSU Graduate Institute was not mentioned in the Act itself, it was used as a role model in the decision-making process. On 21 February 2014, a meeting of rectors from all the universities of applied sciences in North Rhine-Westphalia was held on the Sankt Augustin campus. That meeting gave rise to the Bonn Declaration calling for the establishment of an NRW-wide graduate institute. That call was taken up by the state government in NRW.



think

Spotlight on the
year's theme



Machines can't think: But do humans really want them to?

Autonomy and independent 'thinking' in robots

Autonomous systems have yet to be created. In ancient Greek, the term autonomy was used to describe the ability to direct one's own actions or self-regulate. "But we're nowhere near that stage," says Paul Plöger, Professor for Autonomous Systems at the Bonn-Rhein-Sieg University of Applied Sciences (BRSU). "The machines and the systems we use in our research are not yet able to issue their own instructions and tell themselves what to do." But even if they could, most people would have huge problems in accepting a robot that acts autonomously in every sense of the word. For instance, driver assistance systems are only widely accepted because the driver remains in con-

trol. But where a system is proven to be safer than the driver, then in certain situations – such as those where a braking assistant is used – it can react autonomously rather than simply being of help. Thinking is a very human process. "Among other things, thinking or thought constitutes the ability to understand complex relationships in an open environment. This is where machines fail miserably," says Plöger. When, for example, a robot and a human child are given the same task (that of learning to play with a ball), the machine will lag way behind the child. "Children have an inborn curiosity that makes them want to find out how things work," Plöger adds.

Right now, researchers know far too little about what this behaviour entails to be able to achieve similar results with machines. In his own field of research, Plöger focuses on the mistakes that can occur when a robot interacts with its surroundings: "I don't think you can programme a robot in such a way that it can deal with all kinds of erroneous situations and be able to give an adequate response. Programmers can't predict every eventuality." This is why the research team are working on robots that have the ability to learn from their own mistakes.



Linguistic differences and similarities

Different language, different thinking

It is not language that provokes different ways of thinking, but the culture it conveys. We cannot learn a foreign language without delving into the associated culture as well. What is allowed? What isn't? There's a challenge that lies in this culture-based variance in values and norms. Language becomes a proxy for culture. Because it's instantly recognisable, it often gets the blame when communication problems come up.

What language do you think in?

It depends. If I'm talking to my bilingual daughter about her German identity card, then I'm in a constant code-switching state. In America, we have no Einwohnermeldeamt (residents' registration office), so I have to switch back and forth between German and English. If we needed a residents' registration office in the US, we'd have a word for it. That's where culture gets in the way of the spoken word. Even after 30 years in Germany, I still don't understand everything – not because I don't speak German well enough, but because I didn't grow up with the same set of norms.

Do you deal with thinking and language in your work as well?

Yes. When working with my intercultural communication students, we distinguish between speech bubbles and thought bubbles. We may think we speak the same language, but we still think differently because of our different cultural backgrounds. Of course, that also happens with people of the same culture – we don't always say what we think. In my particular field of research, we're constantly on the lookout for potential problem words so we can check whether everyone involved in the conversation has interpreted them in the same way.

James Chamberlain has been Language Centre Director at BRSU since 1998 and conducts research into intercultural communication. He was born in the US, where he studied German literature and language. In the interview he talks about the relationship between speech and thought.



Professor Winzkers' thoughts on learning



"How exactly do we learn? The simplest way, known as spoon-feeding, involves a mechanical approach whereby students attend a lecture, listen to what the lecturer says and then go home with a head full of knowledge that was 'fed' into their brains. That's nonsense, of course. Learning is far more complex than that.

The amount of time needed to learn a given piece of information depends on the person wanting to learn it. At BRSU, we have students with differing backgrounds: those who come straight from high school are used to learning theory, while those who completed vocational training before starting their studies tend to learn from practical experience. Some learn better by reading the subject matter over and over again, others prefer the mock questions and answers route, and there are those who fare best by putting knowledge into practice.

BRSU has the triple task of creating the right learning environment, providing the right opportunities and setting the right goals and objectives. It's up to the students to embrace what's on offer and to think about what helps them learn best. That's where our Pro-MINT-us programme comes in. It supports active learning and links the various disciplines with the language centre, the library and the e-learning platform. It's a highly effective approach."

Professor Marco Winzker coordinates Pro-MINT-us. Designed to support students in their first semester, the programme receives funding under the Federal Ministry of Education and Research (BMBF) Teaching Quality Pact.



Creative thinking

Nächtlicher Flug über die Küste

Nächtiger Himmel, ungeheuer weit!
Sterndurchwirktes dunkles All:
ich bin Dir nah – und fern Dir, Erde!
Vor unserm starren Flügel preisgegeben,
in sammetschwarzer Tiefe hingestreut,
erfunkeIn plötzlich Städte wie Kristall,
und die Gespinste leuchtender Gefährte
verknüpfen sie zu schimmernden Geweben.

From *Insel des Phönix*, a collection of poems by Professor Richard Jäger

In his youth, Richard Jäger wrote poems – simply for his own enjoyment. In fact, before going on to study biology, he'd dabbled into literature and philosophy quite a bit. He eventually stopped writing when he was 25. Some 20 years on, while working as a researcher in Ireland in 2011, he began to rework his old poems and published them in a small book via print-on-demand. "And it started all over again," says Jäger. "New verses more or less wrote themselves. There was a lot of personal stuff crying to be put down in words." He sees a certain synergy between writing poems and working as a biology lecturer at BRSU: "Most of my ideas come when things are really hectic and I'm stressed." Apart from lyrical works, Jäger has published stories with a scientific edge. He also has ideas for a novel tucked away in his desk drawer: "I don't really have the time for that right now, though," he explains. "Poetry is slightly more accommodating. I can break off from writing whenever I want."

Dayglo green e-waste eater

The BRSU e-Bin on raising recycling awareness

• Could you introduce yourself for those who haven't met you before?

I'm the e-Bin. I've been designed to raise environmental awareness among students and staff at BRSU. They can feed me their e-waste and dispose of it in a responsible way. As the vision-come-to-life of Rhein-Sieg-Abfallwirtschaftsgesellschaft (RSAG), a local waste management organisation, I took up residence on the university's Sankt Augustin and Rheinbach campuses in November 2014.

• And where are you located?

In Room E 002 in Sankt Augustin and A 039 in Rheinbach. I'd prefer to be much more visible, but I'd only block potential escape routes that have to be kept free. That's why there are e-Bin signs on the doors to both of my rooms, so people know I'm there.

• So how often are you fed?

Not as often as I'd like. That's why we've arranged this interview. I have had to be emptied a few times, but it has usually been staff that filled me up. Students just tend to ignore me. Many just haven't developed a sustainability mindset and some don't even know I exist.

• What kind of things do you eat?

Oh, whatever's going really. Mobile phones, fax machines, cameras, tablet computers. I'm also partial to small household appliances. You know, toasters, electric alarm clocks and hair dryers and such. But I don't eat batteries or energy-saving light bulbs. They have to be collected separately. I shouldn't be fed any of those.

• What is your ultimate e-Bin goal?

I want to promote recycling and raise environmental awareness. As I only collect electronic waste, it can be sorted quickly and easily. That increases the chances of it being recycled or reused. If I didn't exist, I think people would just throw their devices into their normal household waste – the recycling depot is probably too far away.





BRSU Expansion: Facts and Figures

5,438 m² of usable space

Rheinbach Campus

700 m² for the Management Sciences and Natural Sciences departments

600 m² for the Institute for Detection Technology

400 m² for the Centre for Applied Research (ZAF)

350 m² for general university purposes

Sankt Augustin Campus

2,000 m² for teaching and administration

800 m² for the Centre for Applied Research (ZAF)

Budget: 36 million euros

Two-thirds provided by the State of North Rhine-Westphalia as part of a decentralised facility management programme; one-third provided by BRSU.

German Building Ministry Certifies New Premises

BRSU was awarded the Silver Quality Certificate under the Assessment System for Sustainable Building (BNB). Silver is awarded for above-average sustainability. The catalogue contains some 164 criteria that must be observed. BRSU is the first university in Germany to build according to BNB standards.

Room
to
think



The perfect team

Alfred Krupp, Professor of Business Management, talks about team thinking

For a team to think as a team... they need clearly defined goals. A team functions particularly well when given time to evolve. And it should be allowed to go through the five team-building phases, with supervision if needed. Problems that arise from differing behavioural patterns and values must be recognised and addressed.

A team can only be effective if... its individual members come together voluntarily and the various personalities bond, show mutual respect and complement one another. In a well-established team, the members feel at ease and are willing to pull their weight.

As a professor, I focus on teams because... I communicate models for business thinking and business management. This involves operational planning and change management, which in today's world always involves a team. As a researcher, I focus on intercultural competence in businesses and organisations. Among other things, this means looking at the instruments and communications style I can apply in intercultural teams to achieve my goals in the most efficient and least stressful way.

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On tram stops and lecture halls



In 2014 we continued to make progress in our construction planning for the Rheinbach and Sankt Augustin campuses and took an important step towards the future of BRSU and university life. The entire university community will benefit from the expansion. At both campuses, for example, we will create more room for work and study by expanding the libraries, we will give departments and institutes the space they need, and help alleviate the “tension” resulting from a general shortage of office and classroom space. In 2014, construction was nearly completed on the additional lecture halls in Sankt Augustin, which means that BRSU will have two new, well-equipped teaching rooms in 2015. As part of the renovations on the Sankt Augustin Campus, we plan to close off the street between Building E and the main building to create a central campus square – a gathering spot that will intensify the campus “feel” for all members of the university community. Construction on the square is scheduled to begin at the end of 2015.

We are also focussing more on the health of BRSU faculty and staff. In 2014 we introduced special courses for back health and the response was very positive. We want to expand this offering in 2015 and develop a health and prevention concept plan that defines additional courses of action, including measures for the Rheinbach campus.

We are also actively engaged in dialogue with the cities of Sankt Augustin and Rheinbach about ways to make the university surroundings even more attractive for students, faculty, staff and visitors. This includes efforts to enhance BRSU's visibility. In collaboration with the Bonn municipal works (Stadtwerke Bonn), the Rhein-Sieg district authority (Rhein-Sieg-Kreis) and the city of Sankt Augustin, we managed to change the name of the “Sankt Augustin Markt” tram stop to “Sankt Augustin Zentrum / Hochschule Bonn-Rhein-Sieg”. The reopening of the expanded tram stop is planned for 2015. The new name makes it easier for newcomers and visitors to find their way to BRSU – a small but important contribution to better university life.

Dr. Michaela Schuhmann
Chancellor

Great campus cook-off

Student teams from three campuses show off culinary skills

In 15 seconds ...

A budget of 30 euros, a limit of 45 minutes and a hungry jury of four: rules in the Great Campus Cook-off are few and far between. Rising to the challenge in 2014, four teams quickly quashed the theory that when it comes to cooking, students shy away.

Beetroot salad with smoked trout, breast of duck on a bed of creamed potato and cabbage, carrot and orange mousse for dessert: entitled "Gold aus der Erde", the winning menu for 2014 was a feast for the palate and the eye. With free license to cook to their hearts' content, the teams knew no bounds: meat-based meals, vegetarian variations, regional and international cuisine – flavour was the order of the day. "Some of the entries contained menus from Asia and Poland," says Fabienne Fischer, Deputy Chair of



While the teams concentrate on cooking, the audience test their knowledge in a food-based quiz

the Student Committee (AstA) and cook-off jury member. "The campus cook-off gives foreign students a chance to communicate their culture through cooking." In judging the dishes the teams served up, Fischer was joined by BRSU President Hartmut Ihne, Cafeteria Manager Birgit Goldbach and Head of Facility Management Jürgen Gerth. "The event also gives students the chance to encounter key university staff they wouldn't otherwise meet."

Originally, the cook-off was designed to build a bridge between the campus in Hennef and those in Rheinbach and Sankt Augustin in a way that gave students a evening's entertainment of a different kind. Many students find out about the event when visiting the library and spontaneously decide to stay around. And they're never disappointed as a catering service enables them to enjoy a drink and a meal. While the teams concentrate on cooking, the audience test their knowledge in a food-based quiz. Question: what's the nearest relative to the almond? Answer: the rose. The person with the right answer wins a small prize.

Flavour, form and freshness

Now in its fifth year, the campus cook-off has become so popular that teams have to be selected. "We try to choose teams from all locations and disciplines to ensure representation is fair," says Fischer. The food they produce is judged according to taste, appearance and freshness. And while judging, the jury sometimes learns a thing or two. "Fish and beetroot are not really my thing," Fischer admits, "but after tasting them in combination during the cook-off, I found a new favourite dish."

Own gallery a gateway to success

Graduate Christian Lethert makes his mark in the art world at home and abroad

Business Management graduate Christian Lethert is one of the youngest gallery owners in Germany. He has been exhibiting abstract artwork at his premises on Friesenplatz in Cologne since 2006. Within just a year of opening, Lethert was accepted to exhibit at an international art fair. "It was a financial and logistical challenge," he recalls. "Most people have to wait two or three years for an opportunity like that." Today, he shows at seven fairs a year and employs a team of four.

Lethert paved the way to self-employment while still at university, using his meagre savings to set up his gallery: "I worked at the gallery in the mornings, cleaning, painting and putting up shelves. I used my evenings to write my thesis." It was a thesis that focused on a subject close to his heart – that of starting up a business in the art sector. "Of course, I tried to transfer what I was writing about to my own start-up efforts. I was the focus of my own research."

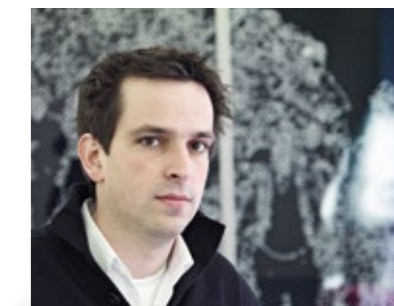
Laying the foundations

His passion for art came quite by accident. While still at school, he was looking for a job and happened to knock

on the door of renowned gallery owner Erhard Klein, with whom artists like Joseph Beuys and Sigmar Polke had exhibited their works. In the autumn holidays, Lethert framed and re-framed pictures, tidied up the storage room and answered the telephone when Klein was away. He soon advanced to become Klein's assistant and also his close confidant.

After leaving school, Lethert looked for a course of study that matched his expectations and was easy to reach from the gallery. Business Management at BRSU fitted the bill. He spent his internship semester at the Griffin Contemporary Gallery in Los Angeles, which just happened to be owned by someone he knew.

These days, Lethert spends little time in Cologne: "I travel a lot, gathering impressions from other countries, observing trends, managing existing exhibitors and meeting potential new ones." He also advises clients on building up their private collections. A nine-to-five job wouldn't do: "I'd be bored. I'm doing what I enjoy. I can't really imagine doing anything else."



"I was the focus of my own research."

Business Management graduate and gallery owner Christian Lethert

➔ www.christianlethert.com

University president issues dinner invitation

Contacts and common ground: at the President's Dinner, businesses representatives, cooperation partners and university staff get together round the table. But before settling down to a dinner of a different kind, some 75 participants visited the FLORENCE! exhibition at the Federal German Art and Exhibitions Hall in Bonn. Once seated, diners were treated to a menu offering entrepreneurship for starters, innovative spirit as the main course and sponsorship for dessert. These were the three set talking points used to foster conversation while the meal was being served. And they couldn't have been more fitting, following an exhibition about Florence – a city whose connections with business and science go back a long way.



University of fairness and respect

New Code of Conduct

In 15 seconds ...

At BRSU, treating one another with fairness and respect applies right across the board. An annual opinion survey tests the interpersonal climate and ensures that students and staff walk the talk. As Equal Opportunities Officer Annegret Schnell explains, the approach comes from a new Code of Conduct.

Improved services for families at BRSU

A playground in Sankt Augustin for children of university students and staff, a new computer science (zdi) laboratory for school children aged 10+ and a newly-designed parent-child office – all services that testify to BRSU's commitment to becoming a family-friendly university. BRSU was re-certified twice in 2014. "Students and staff welcome the opportunity to have their children cared for on campus," says Equal Opportunities Officer Annegret Schnell. See the website for more about the family-friendly services at BRSU:

➔ <http://gleichstellung.h-brs.de>

What led you to issue a code or policy on fairness and respect?

In many universities, staff sign agreements in which they declare their willingness to treat everyone as equal. But BRSU has opted for a different approach, one that applies to all – to students and to staff. The Code addresses everyone, the rules apply to us all and we can all refer to it for guidance should a breach occur.

What kind of things does the Code address?

It addresses sexual discrimination and the infringement of personal rights. It also covers discrimination on grounds of gender, origin, religion and age. BRSU is an open university and wants to underscore this by introducing the Code.

Who ensures that the Code is observed?

The team from the University Ombuds Office investigates any and all breaches by means of an anonymous process. The team includes representatives from departments that have an advisory role: staff from student advisory services, disabled students' representation, the employee representation, AStA and others in positions of trust. The Ombuds Office reports annually to the Senate and the Office of the President.



What kinds of measures does the Code of Conduct contain?

We believe it's important that the Code is not just observed, but enforced. It's not designed to gather dust on a file. That's why the Ombuds Office documents whether a specific type of breach occurs on a frequent basis and develops concrete proposals as to how the problem might be addressed. We'll be offering associated training, especially for managers. We want to teach them how to deal with conflict and manage diversity.

What is the longer-term aim?

The Code is designed to create a culture of dialogue and help ensure that conflict is resolved fairly and justly. Many of our staff and students aren't aware of the advisory services we provide. I hope that the Code will raise people's awareness to these, so they know who to go to should the need arise. Our advisory staff always take time to listen to people's concerns and encourage anyone to contact them should they encounter discrimination of any kind.

➔ http://gleichstellung.h-brs.de/gleichstellungsstellemedia/Partnerschaftliches_Verhalten.pdf



Playing for points

Students develop accident insurance game

The Get Well: Play for Your Health game comprises 300 health points, 110 playing cards, 6 characters, 2 dice and a board. It was designed by six students on the dual degree programme Social Security Studies with a focus on Accident Insurance.

"We want to illustrate the world of statutory accident insurance in the form of a game," explains Ricarda Sadowski, the project manager responsible for implementing the idea she and five fellow students had been working on for quite some time. In the game, the players move from field to field and through the life of a person covered by the statutory accident insurance scheme. As the game proceeds, that person is confronted with a range of illnesses and treatments, learning key terms of phrase in the process. For example, players learn when they are entitled to household help and about the responsibilities of an accident insurance consultant (the physician who treats the patient immediately following an accident). If the dice roll right and the answers are correct, players receive health chips. The player with the most chips at the end of the game is the winner. While their course of study required them to officially conduct a project, none of the six really liked the project ideas they had to choose from, so they came up with their own: "If I tell people I work for the Berufsgenossenschaft, that's the employers' liability insurance association, they haven't got a clue what that is. That's what gave us the idea for the game."

Launch at Einstieg education fair

The Get Well game was first presented to fellow students in December 2014 and an exhibit followed at the Einstieg education fair in February 2015. In future, it will be used in schools to reach as many potential university entrants as possible. The game's basic scenario is enhanced with additional information from the Internet. Anyone wanting yet more information on an accident insurance term scans the QR code with their smartphone and is instantly linked to the website that accompanies the game. There they can access a list explaining all the key terms in detail. And it's proving popular: "We've tested Get Well with students in Electrical Engineering. They liked the idea of a game based on integrated knowledge transfer," Sadowski says.

"We've tested Get Well with students in Electrical Engineering. They liked the idea of a game based on integrated knowledge transfer."

Ricarda Sadowski, undergraduate studying Social Security Studies with a focus on Accident Insurance

350 handshakes



The 2014 graduation ceremony at the Telekom Forum began with more graduates and guests than ever before: University President Hartmut Ihne shook hands with all 350 of the former undergraduates and congratulated each of them in person. "The President always takes time to congratulate our graduates. It gives the ceremony a personal touch," says Caroline Pesch, event manager at BRSU. Addressing the audience, Lord Mayor of Bonn Jürgen Nimptsch emphasised the university's importance for the region and encouraged graduates to seek career options in and around Bonn.

Thinking ahead

Susanne Kundmüller,

Deputy Library Director and organiser of the 'On the Sofa' event, escapes to the library's literature room when in need of a place to think.

A place to cultivate contemplation and broaden students' horizons: this is what Susanne Kundmüller aims to achieve with the university library. "Literature is important. It opens doors and takes people to places they wouldn't otherwise explore." As the e-Learning and Electronic Media representative, she's something of a pioneer in making the library future-proof: "By providing less printed material and offering more online, we can create even more space for students to work and think."



Room to research, think and teach

BSRU begins building and creates new space

With campuses getting crowded, more space is needed for students and for staff. A new BRSU expansion programme covering both Rheinbach and Sankt Augustin is to provide just that. Providing some 5,500 m² of available space, the programme meets all the criteria of the campus development plan. "We're acting responsibly and are embracing the chance for change," explains Chancellor Michaela Schuhmann. "The university has grown at a rapid pace. If we're to keep up with the trend, we need to give virtually all our departments more space."

Space to teach, room for research

In Rheinbach, some 700 m² of space is slotted for the Management Sciences and Natural Sciences departments. Almost as much goes to research laboratories for the Institute for Detection Technologies. "And the Rheinbach and Sankt Augustin sites will each have a new a Centre for Applied Research (ZAF) so we can consolidate and intensify our application-based research with local businesses and research institutes," Schuhmann explains. "Rheinbach is to get 400 square metres and there'll be 800 in Sankt Augustin." An additional 2,000 m² will be given over to teaching and administration. Sankt Augustin has already gained two new lecture halls: in addition to the original lecture centre, an additional 450 places are also available for lectures.

Sustainable building

Around one-third of the expansion costs are borne by BRSU, with the remaining 24 million being provided as part of a decentralised facility management programme operated by the State of North Rhine-Westphalia. With the university acting as the developer, the project is unique. "The University of Cologne aside, we are the only university in North Rhine-Westphalia to be given a legal mandate to act as an official property developer," the Chancellor says. And it was that mandate that led BRSU to achieve another first:

"We are the first university in the region to aim for certification under Germany's Assessment System for Sustainable Building (BNB)."

To achieve the coveted Silver Certification (for above-average fulfilment of sustainability requirements) all kinds of standards must be observed. From socio-cultural aspects to functional requirements like barrier free access and flexible use, the catalogue contains over 160 criteria. BRSU plans to ensure this level of sustainability is achieved across all areas and phases of construction. The buildings are characteristic for their robust, easy-to-clean materials and optimised heat insulation.

"Sustainability is an integral component of the campus development plan and will continue to be a key focus beyond construction completion in 2017."

Michaela Schuhmann,
Chancellor, BRSU



Exams and medals

Internationally successful athletes study at BRSU

Christian Heimann is the university's fastest sprinter. What's more, he ranks among Germany's top ten in the hurdles. Despite a long break due to injury, he fought his way into sixth place in the German Athletics Championships in 2014. "That was my greatest achievement last year," Heimann explains.

Now in his fourth semester, the business management student starts his day with a short endurance run or a weights session before heading off to university. Despite studying and attending lectures, he fits in 20 training hours a week. "When studying, I concentrate on key subjects. I invest more time in those than in the basic ones," says Heimann, who would like to go into marketing when his athletics career comes to an end.

Floret fencer Sebastian Bachmann is yet another student who needs to be well organised. He's been studying business information systems at BRSU since 2013. Despite his arduous training programme, he is aiming for top marks – and to get them he sits fewer exams. "It means studying longer to finish my degree, but my priority is to attain a good grade."

Five times German Floret Champion, Bachmann now ranks in second place among Germany's top floret fencers and won in the team event at the European Championships in 2013. While he sometimes has to miss lectures in order to compete, he has never once missed an exam: "BRSU is very accommodating. If I have a competition on the day of an exam, I'm allowed to sit it at a later date. The response has always been good whenever I've had to ask."



Seminars put to good use

At the ripe old age of 20, karateka Jenny Warling has already achieved a lot. She specialises in a form of karate called kumite – a sort of freestyle sparring in which the players must brace their movement short of actually touching their opponent with a blow. A fourth semester student of forensic science, Warling took silver as the youngest competitor in the U21 Kumite Female competition at the European Karate Championships last year. She went to gain an impressive fifth place in the subsequent World Championships and was named Sportswoman of the Year in her native Luxembourg in December 2014.

Warling says finding time to study during the semester can be difficult. "That's why I get as much out of the seminars as I can. If I really pay attention and get to grips with the subject, I need less time to process it later down the line." After exams, she switches off completely and meets up with friends: "An evening out with the girls is the perfect way to relax."

Floret fencer Sebastian Bachmann (left) completes an intensive training programme in addition to his studies

9th Science Night in Bonn

Digital Sport Assessment: Do I take more steps in half an hour playing badminton or handball? At the event held on 23 May 2014, visitors got the answer by participating in a course set up in the Social Security Studies department. As they engaged in light, medium and strenuous exercise, a movement sensor attached to their bodies measured the number of paces they took and the type of activity involved. The information stored by the sensor's chip was then evaluated to produce the result. Some 20,000 people attended the Science Night event.

In 15 seconds ...

Careers kick off in summer

Company Day and Summer Careers Fair: A service from BRSU

At BRSU, students learn more than the subject they sign up to study. Apart from the subject matter that accompanies the various disciplines, the university offers a range of services and skills to help students' transition to the working world. The Summer Careers Fair is a new component in all of this.

In cooperation with high-ranking business representatives, preparative programmes and workshops were conducted in summer 2014, offering career planning, project management and tips on how to make job applications impress. In this top-class programme from top-class professionals, students learned how to use job fairs and social networks to further their careers. The experts showed them how to avoid the classic mistakes when applying for a job and gave a detailed insight into what project management entails and how it works in practice. One particular workshop covered the food retail sector, looking at the challenges managers face and how they can be overcome.

The fair also gave the upcoming graduates a chance to get to know the companies involved. "The response from students was so great that we had to offer repeat events," says Udo Scheuer, Director of BRSU's Centre for Science and Technology Transfer. "The companies were more than satisfied with the level of interest shown and they praised the excellent planning and organisation performed by BRSU. I'd say the prototype has developed into a promising long-term programme."

Company Day is another future-focused project introduced some ten years ago and is now a firm favourite with students and businesses alike. While just over 50 companies were represented at the first event, attendance grew to more than 100 in November 2014. BRSU was pushed to its spatial limits. "Businesses see us as an attractive source of recruitment because we offer the complete package of job matching, careers fair and mentoring," Scheuer explains. It's a classic win-win situation: students and graduates receive information about potential employment opportunities, while the companies showcase their offerings and position themselves as prospective employers of choice.

Workshops offering job application checks, simulated job interviews, presentations on how head hunters work and the renowned 'elevator' pitches – where potential candidates have less than two minutes to convey their message in a convincing way – have long been part of the programme. Additional attractions such as image consulting (style and colour choice), tips on self-presentation and business speed-dating turned the month of November into a kind of autumn careers fair.

There'll be another Company Day in 2015 and the Summer Careers Fair will go into the next round with a new, extended programme. As Scheuer explains, "It's another step towards providing a careers advisory service that helps students manage their transition to the working world."

"The prototype has developed into a promising long-term programme."

Udo Scheuer, Director of the Centre for Science and Technology Transfer

Experiencing authors in the flesh

Writers of fact and fiction sit 'On the Sofa' and talk

In 15 seconds ...

Zsuzsa Bánk (*Die hellen Tage*), Kathrin Bauerfeind (*Mir fehlt ein Tag zwischen Sonntag und Montag: Geschichten vom schönen Scheitern*) and Herfried Münkler (*Der große Krieg: Die Welt 1914–1918*) – three authors interviewed during 'On the Sofa' events in 2014. After adding fiction to its shelves, the Bonn-Rhein-Sieg University and District Library revised its popular book reading programme: along with text books, novels are now the order of the day.

Wladimir Kaminer's readings smack of satirical review, Helge Timmerberg litters his with his own compositions played on his guitar, while well-known maths professor Günter M. Ziegler has become something of a students' favourite. Book readings at the BRSU University and District Library are as diverse as the audiences they attract. "We want to use the readings to spread the BRSU word and open up the university environment for all," says Susanne Kundmüller, Deputy Library Director. 'On the Sofa' interviews take up topics that students cover in their studies, with authors from business and industry, technology and science presenting their latest works on neuro-science and artificial intelligence in an entertaining and informative way. And for those with a journalistic bent, readings by the likes of Handelsblatt Editor Gabor Steingart, Ulrich Schnabel from Die ZEIT and Gregor Gysi, leader of the Linke party, are bound to quench their investigative thirst.

The introduction of fiction brought in authors like Terézia Mora and Jennifer Teege, both of whom are firm fixtures in the monthly book reading programme. And the audience don't just look for the big names in literature: they are more than content with content from text books. "In

Rheinbach, we have an average 90 visitors per reading. And in Sankt Augustin it's almost twice as many," Kundmüller explains.

Some authors attract rather large followings. "Fans have even handed in gifts for an author," Kundmüller says. As a result, it often happens that the library is unable to accommodate the numbers, so author and audience have to move to the Audimax lecture hall instead. The reading over, it's time to socialise, with visitors enjoying a glass of wine in the library while chatting with their favourite author and fellow fans.



➔ www.bib.h-bonn-rhein-sieg.de/Lesungstermine.html



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Well positioned through strategic cooperation at home and abroad



Businesses are among the key strategic partners who share the visions of BRSU. By engaging in proactive knowledge and technology transfer, the university promotes its visibility, both in the region and further afield. But technology and knowledge are not the only things to be transferred by BRSU. Transfer also means focusing on what is needed not just in society, but in industry as well. Only in a sphere of reciprocity can the results of science and research reach those who need them most. The Office of the President thus visited some 70 local companies to learn about their needs and find new cooperation partners. The idea is to work with these partners in joint activities to be conducted in a new Centre for Applied Research to be built directly on campus. As part of the BRSU Science Campus project, it will use application-oriented innovation activities to forge close links between research and industry, and particularly SMEs. The new campus will provide the space needed to accommodate the needs of research and business – from renting an office and using certain technologies, to providing permanent premises for research-related institutes and innovative enterprises.

This cross-border cooperation initiative takes in businesses from abroad, global players and partner universities. With 70 such partners worldwide, BRSU engages in regular exchange between students, lecturers and administrative staff – an approach that helps them acquire the intercultural communication skills that play an ever-greater role in our interconnected world. Equally as important are the benefits to be had from international exchange: learning from best practices, broadening horizons and developing character traits like communicativeness and flexibility. Complex research projects can only be tackled when the best of the best from several countries work together as one. Rather than being a mere means to an end, international cooperation enhances the quality of both the education and the science that BRSU offers and represents.

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

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

Measuring quality of life

Lectures look at happiness

In 15 seconds ...

Burn-out, dissatisfaction, feelings of meaninglessness: affluence doesn't necessarily equate to happiness. A series of public lectures entitled *Affluence Outside, Poverty Within* considered why the appearance of a full life on the outside often conflicts with chronic feelings of emptiness on the inside. The lectures were held as part of a joint project conducted by the Bonn-Rhein-Sieg University of Applied Sciences, the Bonn-based Alanus University of Arts and Sciences, the University of Bonn and Bonn's local General-Anzeiger newspaper.

Be it wellness as a way to care for the soul, or work-life balance as a means to a harmonious existence – many of the trends seen in society today signal the fact that something is missing despite the affluence people have achieved. "Studies show that many people in Germany are unhappy

even though their standard of living is steadily on the rise," says Reiner Clement, Professor of Economics and Innovation Economics at BRSU.

So what does this mean for society and for future development? This was the question that BRSU and partners investigated and developed for a series of public lectures. *Affluence Outside, Poverty Within*: is it an unavoidable conflict or dependent relationship? Can the gap be proven scientifically or is it merely a well-cited stereotype? How might this conflict be resolved?

Philosophers, economists, sociologists, psychologists, medical doctors and art therapists all shared their views as part of the lecture series held between September and December 2014. The experts addressed subjects such as waste, company health programmes, motivation in the workplace, work satisfaction and anhedonia – a mental disorder involving the inability to experience pleasure from pleasurable activity.

Performance as the only accepted ideal

Salzburg-based poverty researcher Helmut Gaisbauer bemoaned the fact that society tends to see performance as the only accepted ideal and that other factors that make for a successful lifestyle are disappearing from view. Reiner Clement posed the question 'Can wealth be measured?' and came to the conclusion that wealth is less about income levels and more about personal development. With average audiences of 150 at each presentation, it was clear that BRSU and its three cooperation partners had chosen the topic well.



Tea for the teacher

Guest lecturer in India

It seems that in India it is perfectly normal for a university professor to receive a cup of tea while giving a lecture. But for Iris Groß, vice president and professor of mechanical engineering, it was a strange experience to say the least. She was lecturing for a week at the PSG College of Technology in the Indian town of Coimbatore. The college belongs to the Indo German Center for Higher Education (IGCHE), a consortium comprising six technical universities in Germany and four in India whose work focuses on cross-border

"I was interested to see how lectures are given in India and was curious about how the college ticks."

Iris Groß, Professor of Mechanical Engineering

studies. As one of the six German members, BRSU offers young people the opportunity to begin their academic studies by attending specially designed courses in India and then returning to Germany to complete their degrees. Three guest students from India are currently studying mechanical engineering and computer science at BRSU.

Groß, who coordinates cooperation within IGCHE, wanted to experience an Indian partner university for herself. "I was interested to see how lectures are given in India and I was curious about how the college ticks," she explains. "I also wanted to prepare the students for Germany and tell them what to expect, both in terms of the specialist language and the teaching methods used at BRSU." The

differences are great. While students in Germany practice discourse from elementary school up, those in India are used to frontal teaching and tend to be rather reserved and shy when communicating with teaching staff. "My visit to India and what I experienced while there helped me better understand the local ways," says Groß. "Another important difference can be seen in the way children grow up. Compared with the situation in Germany, Groß found that young people in India are far more protected by worried parents: "With insight like this, it's easier for me to give our Indian students the right kind of support."

Indo German Center for Higher Education website:

➔ www.igche.de



Bonn in their hearts and minds

Active networking, proximity to decision-makers and saying the right thing at the right time – these are the things that Jürgen Nimptsch, Lord Mayor of Bonn, would like to see from what he called the 'Ambassadors of Bonn'. University President Hartmut Ihne is now one of the 24 specially selected 'diplomats'. They are the first to know about new ideas and projects, and with their excellent contacts, their role is to help make Bonn one of the first addresses businesses think about when looking to invest in new premises, seek partners for cooperation or meet conference needs. Ihne received his 'ambassadorial' appointment as recognition for his efforts in forging links between BRSU and regional SMEs.

From Media Managers to Media Masters

International Media Studies in Istanbul

In 15 seconds ...

With news editors switching from CNN to Al Jazeera to Russia Today, the global news arena is not a vision of the future, but a reality in here and now. Journalists and reporters need to be more internationally focused if they are to keep up with the trend. For BRSU, this is the perfect stage on which to promote its popular International Media Studies programme not just in Bonn, but also in Istanbul – albeit it in slightly adapted form.

“The companies we deal with all rely on globalisation,” says Michael Krzeminski, Professor of Media and Communications Studies at BRSU. “And the same applies to the media,” adds Krzeminski, who recently began teaching students in Turkey as well as Bonn. In offering its International Media Studies – Turkish German Master’s Program (IMS), BRSU joined forces with the Deutsche Welle Academy and the University of Istanbul in November 2014.

Intercultural expertise as a stepping stone

Taught in English and targeting employed academics in Turkey and Germany, this post graduate course covers intercultural communication, media and society, journalism, communication science, media management and the media industry as a whole. And as Krzeminski explains, most of the applicants have clear career goals: “Having primarily worked on content, they want to shift their focus to media management, structure and design.” After completing four semesters of regular study, students can obtain two independent degrees: a Master of Arts (M.A.) from the University of Istanbul and – given that they have a good command of English and at least twelve month’s work experience following their Bachelor’s degree – another from BRSU.

The Deutsche Welle Academy, the University of Bonn and BRSU launched the IMS Master’s Programme in 2009. Providing a course of study that is unique in Germany, they

“It was a great start despite the short notice.”

Michael Krzeminski,
Professor of
Communications
Studies

give journalists from developing countries and emerging economies the chance to earn a Master’s degree and further their careers back home. As it

turned out, many of the candidates contacting the German Academic Exchange Service (DAAD) to apply for the course came from Turkey. This is what led BRSU to join forces with the University of Istanbul, which has one of the biggest media studies departments in Turkey, to offer an additional degree course with a slightly adapted curriculum.

Although the IMS programme was only announced three weeks before the semester began, there were 52 applicants for the 25 available places. From those 52, BRSU selected eight eligible candidates. “It was a great start despite the short notice,” Krzeminski enthuses.

Presentation on Gas: Africa’s new face

Africa is the up and coming continent of the next millennium, and Ghana is Africa’s gateway. That was the message in a public lecture on Doing Business in Africa and Ghana given by Danial Agyapong, Head Lecturer for Entrepreneurship and Management at Ghana’s University of Cape Coast. Amid all the news of civil war, disease and malnutrition, Africa is less known for its natural resources and huge economic potential. Still, the lecture showed that Africa is about to change its face, introducing civil reform and widening distribution of Internet access and mobile telephones. Agyapong had visited BRSU under a cooperation-in-education project in which Business Administration students at the University of Cape Coast and BRSU work together as part of an Africa-German study on entrepreneurship.

IZNE and United Nations Day

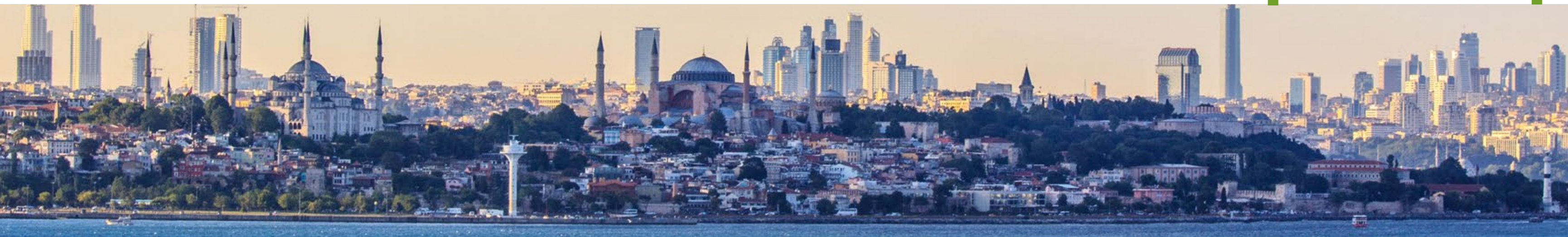
Education for Sustainable Development is one of the key prerequisites for reaching the United Nation’s eight Millennium Development Goals. To remind people of the progress made in achieving those goals, the City of Bonn flew the banner ‘8:0 for Development – Education Wins’ at its Bürgerfest (public festival) held on United Nations Day on 24 October 2014. At the event, the International Center for Sustainable Development (IZNE) showcased its activities, one of which involves a project in Africa to equip long-distance buses with solar cells as a back-up energy source. As a central component of BRSU, IZNE coordinates courses of study that promote an understanding of the links between the environment and globalisation.

➔ <http://izne.h-brs.de/en/home.html>



➔ <http://fb03.h-brs.de/InternationalMediaStudies.html>

Studying in the metropolis of Istanbul: International Media Studies with dual Master’s degrees



Thinking ahead

As a Professor of Innovation Communications,

Michael Krzeminski

is a pioneer in his field. He often spends time with students when away from the lecture hall.

How can innovation become embedded in a target group's minds? This is something Michael Krzeminski aims to find out: "To answer that question, we first need to know how communication works," he says. Communication constitutes the exchange of notions and ideas. "Many people are afraid that their patterns of thought will be thrown off key if they engage in exchange," he explains. "If you ask me, communication and thinking are adversaries." But in teaching the Technology and Innovation Communications Master's degree, Krzeminski shows students how dialogue develops nonetheless.



Lightening the lecturer recruitment load

New service point provides common pool



➔ www.lehrbeauftragtenpool.de

No university can function without them, but they are not always easy to find. Contract lecturers who fill in for full-time staff and provide subject-related support build an important bridge between teaching and practice. This is why the Niederrhein, Rhein-Waal, Bonn-Rhein-Sieg and Düsseldorf universities have established a Service Point to manage the new Contract Lecturer Pool. In setting up the new service, BRSU has taken charge of developing and managing the online portal which allows potential candidates to register and set up a profile to showcase their expertise. All four partner universities are able to recruit from the common pool.

“We believe the contract lecturer pool is the first of its kind in the German education sector.”

Cornelia Al Naqib, project manager at BRSU

“We believe this is the first service of its kind in the German education sector,” says Cornelia Al Naqib, project manager at BRSU. The main task of the service, which has a point of contact at each university, is to match supply with demand. For data privacy reasons, it is not possible for lecturers to search the pool themselves. To spread the word, the new service will be promoted at conferences, in universities and within the business world.

New training service for contract lecturers

In addition to creating the new pool, the German Ministry of Education and Research has allocated some 4.12 million euros to provide a new training programme for contract lecturers under its Teaching Quality Pact. Under the programme, lecturers can take further training free of charge, including courses in teaching skills. A further responsibility involves HR development. Contract lecturers aiming to complete a doctorate or professorship can seek advice from the new service point. Female candidates in particular will receive support in career planning and developing their chosen career paths.

Experience gained with the new service at the partner universities has been good, says project coordinator Professor Christof Menzel from the Niederrhein University of Applied Sciences: “They are able to recruit far faster and find better qualified people.” In the eight months since the service was launched, some 100 enquiries have been received from the deaneries, and for 45% of vacant positions there were suitable candidates in the pool.

Non-traditional students welcome

Work & Study: Flexible courses attract new target groups

An academic qualification can be achieved even by those who wouldn't normally qualify for university – that is the goal of Work & Study – Open University Rhein-Saar. The joint venture between the Bonn-Rhein-Sieg University of Applied Sciences, Koblenz University of Applied Sciences, Worms University of Applied Sciences and htw saar University of Applied Sciences was launched in August 2014. The partners had taken part in a German Ministry of Education and Research competition entitled “Advancement through Education: Open Universities” and had been granted funding in the amount of 4.8 million euros over a period of six years.

In those six years, they will develop courses of study for non-traditional target groups – people in employment who want to attain an academic qualification, students with young children or other family commitments, and former students who were forced to give up their studies for logistical reasons. “Our new courses are designed to improve permeability between the education system and the working world,” says Professor Manfred Kaul, who until mid-December 2014 was Vice President for Teaching, Studies and Further Education at BRSU. “In this way, technical universities can help secure the skilled, highly trained workforce needed in dealing with demographic change.”

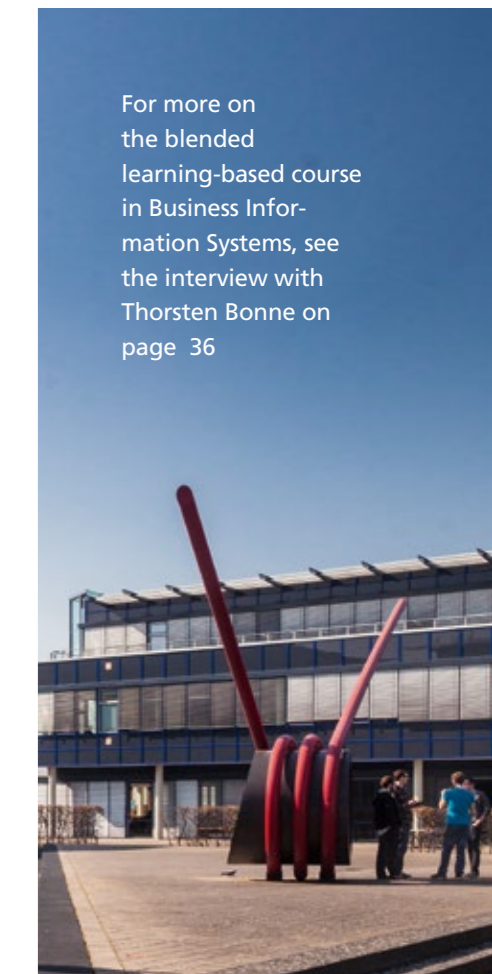
One hurdle to be overcome involves calculating candidates' achievements in their former fields of work or study. Other than traditional forms of higher education, Work & Study is designed to provide educational opportunities at differing entry levels and with a range of possible qualifications and degrees. This can only be achieved by offering modules that can be studied individually and give students a certificate upon completion.

The second challenge arises from participants' personal circumstances. People in employment and those with young children have only limited opportunity to attend regular lectures. They need blended learning – a combination of e-learning and presence events on campus. The aim of the sub-project at BRSU is to develop and provide a blended learning course of study in Business Information Systems. The curriculum, content and teaching methods are to be aligned to the needs of a future working world.

Company-based collaboration

Work & Study involves collaboration with companies and other organisations in the region. These include the Virtual Campus Rhineland-Palatinate (VCRP), Zentrum für Qualitätssicherung und -entwicklung Rheinland-Pfalz (ZQ), Zentralstelle für Fernstudien (ZFH), Bonn/Rhein-Sieg Chamber of Industry and Commerce, the Debeka-Gruppe, the Food Company, Imperia AG, Rheinhessen Chamber of Industry and Commerce and the Handwerkskammer der Pfalz (Palatine Chamber of Skilled Crafts). These will provide expert advice to ensure the course allows knowledge transfer and is also practice-related.

➔ www.h-brs.de/de/pressemitteilung/hochschule-gewinnt-projekt-des-bundesministeriums-fur-bildung-und-forschung



For more on the blended learning-based course in Business Information Systems, see the interview with Thorsten Bonne on page 36



Entrepreneurism and education

Networking conference brings researchers and practitioners under one roof

In 15 seconds ...

According to the World Bank, Africa could be on the brink of economic breakthrough – just like the one seen in China 30 years ago and in India ten years later. Thus, the time has come to take a closer look at Africa's potential as cooperation partner. A platform for this purpose is provided by the "Universities, Entrepreneurship and Enterprise Development in Africa" conference organised by BRSU, the University of Cape Coast in Ghana and the Chamber of Commerce Bonn/Rhein-Sieg.

Some 200 invitees from 23 countries attended the conference in November 2014. Gathering on the Rheinbach campus, they discussed entrepreneurial opportunities in and with Africa. The event serves in linking up researchers and practitioners who are interested in the interaction between education, industry and economic development. With the venue alternating between Germany and Africa, it was the third conference of its kind.



One section of the conference focused on the companies themselves. What are the success factors behind the rise in small and medium-sized businesses, both in Africa and in Germany? Are there any obstacles that stand in their way? What are the financial aspects that need to be considered? Do the founders of these new companies demonstrate social and environmental responsibility? Another section looked at tertiary education to see how entrepreneurship can be promoted through academic study. Professor Edward Marfo-Yiadom, Dean of the School of Business at the University of Cape Coast, and BRSU President Professor Hartmut Ihne emphasised the importance of cooperation between universities and industry in this field. "There's a difference between teaching about entrepreneurship and teaching for it," says Professor Jürgen Bode, Vice President for International Affairs and Diversity at BRSU. "The former teaches students the theory, while the latter brings them closer to founding their own enterprise." Most African universities are, however, nowhere near in a position to apply this kind of practice-oriented teaching.

Conference give-aways from award-winning start-up

During the conference, the DEG Young Entrepreneurship Award was presented to three enterprising ideas from the University of Cape Coast – among them a business plan for the production of ice-cream made from baobab fruit. Faustina Abena Nti-Boakye, one of the winners from 2013, has since successfully established her business, making bags out of scraps of material printed with traditional African patterns. And thanks to support from a private sponsor, each of the conference participants received a Nti-Boakye mobile phone cover to take home.

Formula 1 flair

BRSU Motorsport team drive electric

In 15 seconds ...

It's about much more than the mere sensation of speed. At the Formula Student Electric, some 90 student teams compete in professionally designed race cars, jostling for the top finishes as the fastest car, most cost-effective car, or for the best marketing campaign. Thanks to the support of its sponsors, the BRSU team saw its most successful season to date in 2014.

The latest model driven by the Sankt Augustin team goes by the name of Rosanna. "Great safety technology, with low centre of gravity and a great chassis," say those who built her. The first electric-powered car to be driven by the BRS Motorsport team, Rosanna saw two appearances in 2014 – first at Germany's Hockenheimring and later in northern Italy, at the Circuit Varano de' Melegari.

Coming in third in Italy

In Hockenheim, Rosanna and team got through the technical round with the second-fastest time. "A clear success," says Dirk Reith, Professor of Basic Engineering Science and Faculty Advisor to the Motorsport Team. "It shows the car passed with flying colours." But the 22-kilometre circuit proved too much: Rosanna's safety system began reporting problems and she grinded to a halt, dropping back to 40th place as a result. "But it's still not bad for a car in its first year," Reith explains. The team learned from the experience and were able to make some adjustments before going on to the race in Italy, where Rosanna's performance improved. In one of four disciplines out on the track, known as the skidpad or driving 'eights', the car took first place. That gave the team enough points in total to take third place overall.

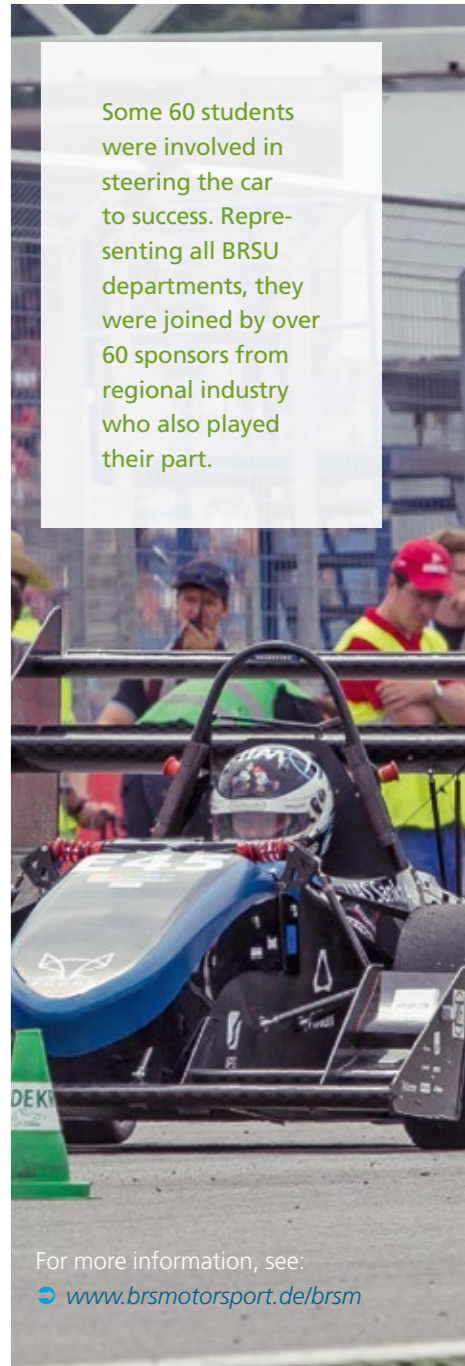
There were some 60 students involved in steering the car to success. Representing all BRSU departments, they were joined by over 60 sponsors from regional industry who also played their part. The companies provide materials or know-how, offer students internships and propose topics for Bachelor degree theses. They also stand to benefit most from the entire event. "The students are both highly dedicated and highly educated," says Uwe Häberer, technical team lead at Cologne-based engineering company Bertrandt, which serves customers from the automobile sector and is always on the lookout for new talent. "We get to know the students through our cooperation on the Formula Student projects and hope to win them as employees later on."

Prize for practice-related studies

As a key component of interdisciplinary, practice-related education at BRSU, BRS Motorsport received recognition in 2014. The University Innovation Prize, which comes with a cash award of 5,000 euros, goes to projects that link academic study with work-related practice. The in-house prize for 2014 went to four students from the BRS Motorsport team. They had used their company internship semester to conduct a project on sustainable electro-mobility and enhance the car they currently race.

Some 60 students were involved in steering the car to success. Representing all BRSU departments, they were joined by over 60 sponsors from regional industry who also played their part.

For more information, see:
www.brsmotorsport.de/brsm



Tailor-made training

Social Security Studies both interdisciplinary and practice-related

In 15 seconds ...

With a workforce of around 370,000, Germany's social security scheme is one of the country's biggest employers. It is also the predominant model of social insurance, making for an attractive research field. For some eleven years now, the Social Security Studies department has served both research and education through close collaboration with practitioners in the working world. A Master's programme introduced in 2014 is to welcome its first students in 2015.

The original idea was to collaborate with statutory social security funds to develop a customised course of study to meet training needs in the occupational fields covered by the social security scheme. The six-semester dual Bachelor degree course, Social Security with a focus on Accident Insurance, was developed on the Hennef campus in 2003. It has been offered to students in collaboration with the German Social Accident Insurance (DGUV) Academy in Bad Hersfeld in Hesse since 2011. A post-graduate Master's

programme, Analysis and Design of Social Protection Systems, was added in 2014 and will also be available to students in 2015. Aimed at decision-makers from developing and developed countries, the three-semester course teaches them how to develop and reform state-run social security systems.

To achieve these goals, the future social security experts and managers must be proficient in a range of scientific disciplines. These include law, economics, medicine, computer science, psychology and case management. "The lecturers and researchers come from a wide range of disciplines and are themselves as diverse as the occupations covered by existing social security schemes," says Dean Laurenz Müheims.

New research territory

The aim of the research is to understand and optimise social security schemes. The projects are highly diverse, with research looking, for example, at how rehabilitation measures affect patients' employability and quality of life, and how children perceive health prevention measures in day-care centres. Taking students into new research territory, this interdisciplinary approach has given rise to a text book on Rehab Management and the Handbook of Social Security Studies, which is scheduled for publication in July 2015.

With the Gesunder Campus Hennef (Healthier Hennef Campus) campaign, the department fosters health and wellbeing in its own 'back yard'. Work-life balance has been a focal point in professional and research development since 2012 – not just for staff, but also for students living on campus. For them, seminars are offered on subjects such as exam nerves and management of time and stress. Sports courses are also part of the programme. And with an elective course on Workplace Health Management, the subject is now an integral part of the BRSU curriculum.



Capturing the sun

Research cooperation makes solar yields easier to predict

In 15 seconds ...

Energy from the sun is clean and available almost anywhere, but the weather controls how much is on offer at any given time, which makes it difficult to manage its generation and use. This is where the new research field of Energy Meteorology comes in, with weather forecasts and predictions that can be used to project yields in solar-powered facilities. BRSU works on calculation models, has its own weather station, and collaborates with the Meteomedia weather service.

Come rain or shine, conditions on the Sankt Augustin campus are documented in detail. The university's own weather station measures the hours of sunshine, irradiation, wind speeds, humidity, rainfall, temperature and delivers the results online at fifteen-minute intervals. This service is of huge benefit to the Meteomedia weather service, which BRSU supplies with data to feed into its prognosis models. It also benefits the researchers who receive optimised regional weather forecasts and adjusted datasets in return. "Meteomedia gains from an additional site in its measurement network and we gain from the resulting quality control," says Stefanie Meilinger, Professor for Sustainable Technologies. "There are benefits all round."

Sensitive solar modules

In this way, researchers have access to weather and radiation prognoses without the need for an on-site meteorological team. They can then use the data to draw conclusions on the expected yield from given photovoltaic facilities. Over at the Electrical Engineering, Mechanical Engineering and Technical Journalism (EMT) department,



researchers in the energy meteorology laboratory combine basic weather data with measurements of the individual components of the sun's radiation and of recordings that show cloud structure. The data is then compared with the electricity generated by specific solar modules in the same time frame. "For each module, the manufacturer states an expected yield, but that only applies in standard conditions. Depending on the weather and the location, huge deviations can occur," Meilinger explains. And some solar modules are more sensitive than others to changes in the weather. "If these deviations can be foreseen and the yields predicted, it can benefit system planners and energy managers alike."

Solar panels on campus contribute to sustainable building management

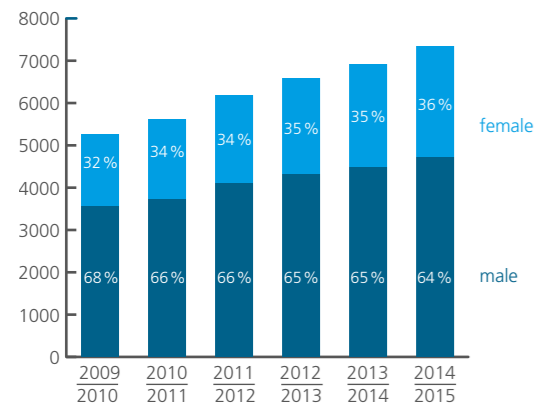
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Facts and figures

Number of students

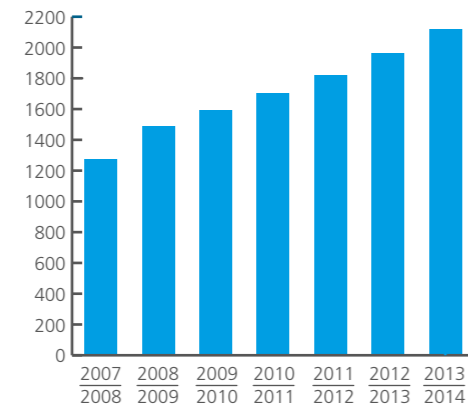


Study programmes

Bachelor's programmes

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

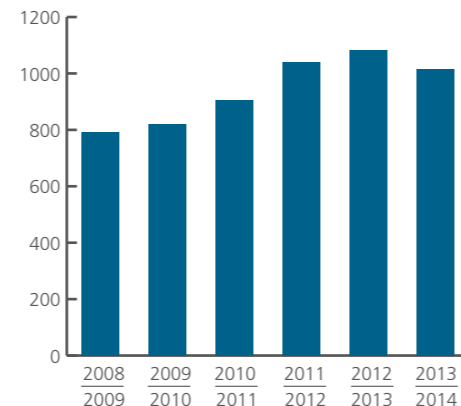
First-semester students



Master's programmes

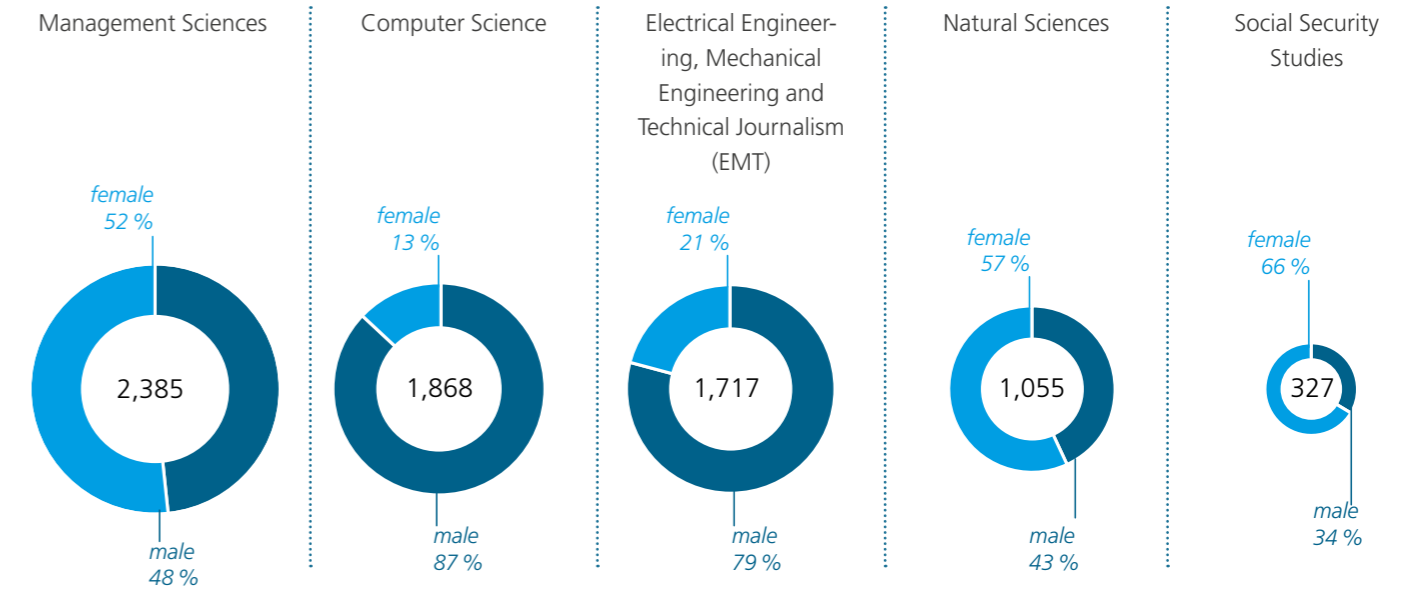
- Analysis and Design of Social Protection Systems
- Analytical Chemistry
- Autonomous Systems
- Biomedical Sciences
- Controlling and Management
- Electrical Systems Design
- Computer Science
- Innovation and Information Management
- International Media Studies (cooperative)
- Mechatronics
- Corporate Social Responsibility & Non-Governmental Organisation (CSR & NGO) Management
- Technology and Innovation Communication

Graduates

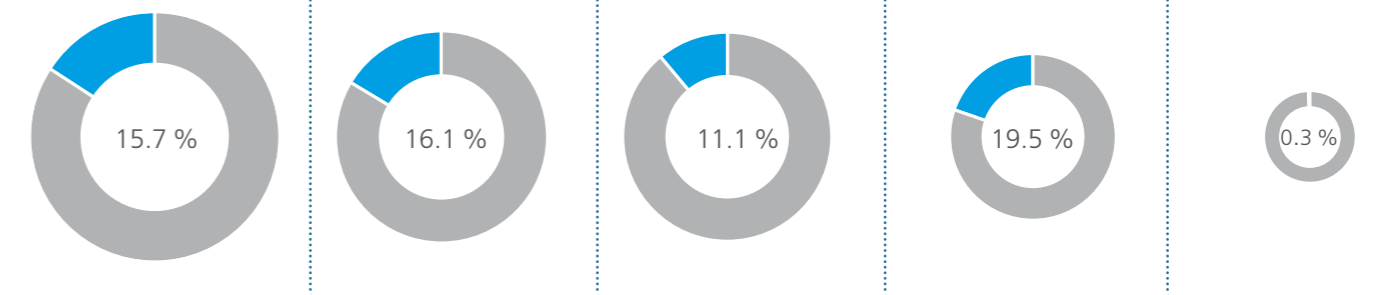


Students in the winter term 2014/15

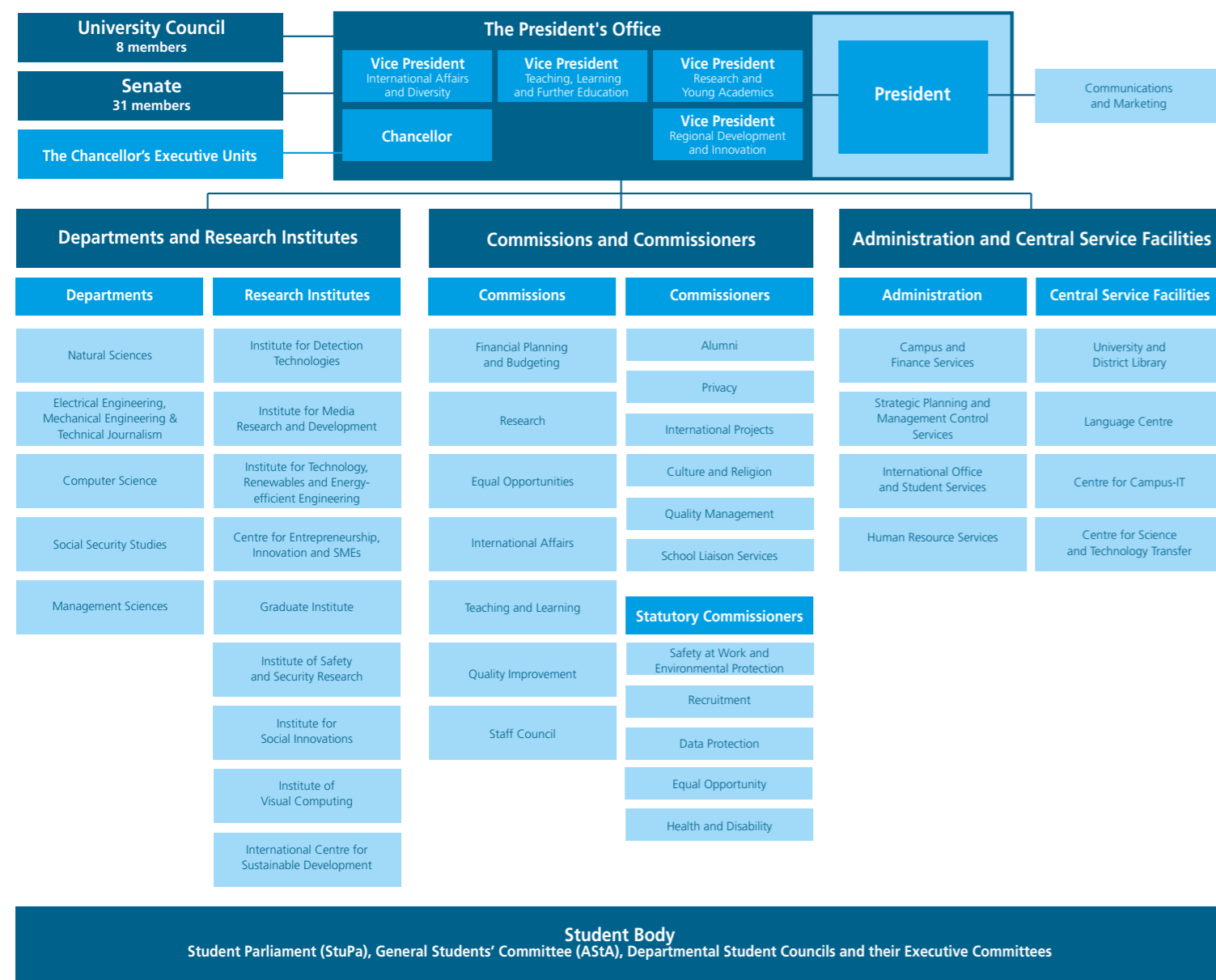
Students by department and gender



Percentage of international students by department



Structure of the University



New appointments

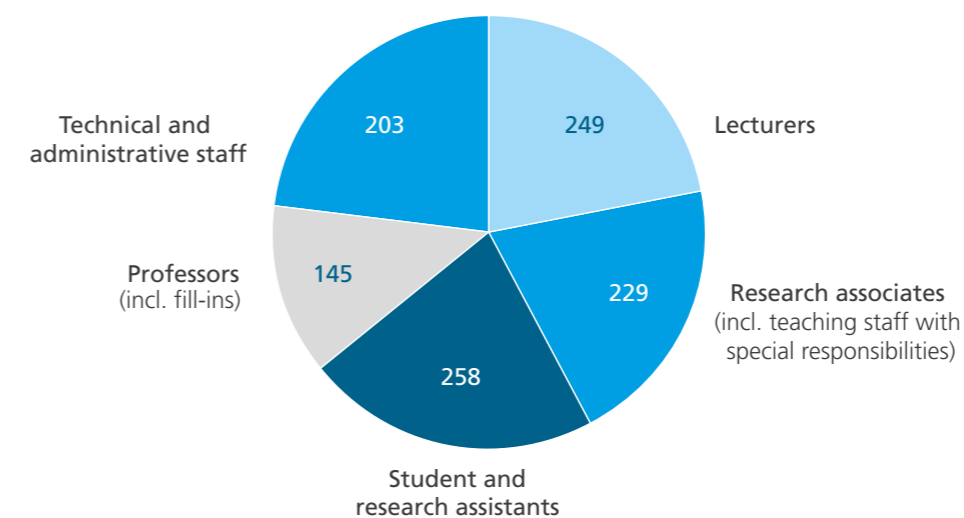
- 01.7.2014 **Prof. Dr. Peter Muck**
Department of Management Sciences; Area of teaching: Economic Psychology, esp. Personnel, Organisational and Differential Psychology
- 01.03.2014 **Prof. Dr. Christina Massen**
Department of Management Sciences; Area of teaching: Economic Psychology, esp. General Psychology and Methodology
- 16.06.2014 **Hon.-Prof. Dr. Hartmut Kopf**
Institute for Social Innovations

University Council

The current members of the University Council were appointed in August 2007 and were 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 Office of the President and monitors the way the Office of the President conducts its business. Furthermore, it appoints the President of the Bonn-Rhein-Sieg University of Applied Sciences and acts as his/her supervisory body. The eight voting members of the University Council are:

- **Prof. Dr. Rupert Gerzer**
(Chairman) Director of the Institute of Aerospace Medicine at the German Aerospace Center (DLR)
- **Prof. Dr. Tobias Amely**
Bonn-Rhein-Sieg University of Applied Sciences
- **Prof. Dr. Elvira Jankowski**
Bonn-Rhein-Sieg University of Applied Sciences
- **Dr. Eckart John von Freyend**
(Deputy Chairman) Gebrüder John von Freyend GbR
- **Dr. Ines Knauber-Daubenbüchel**
Managing Partner, Carl Knauber Holding GmbH & Co. KG
- **Prof. Dr. Gerd Knupp**
Bonn-Rhein-Sieg University of Applied Sciences
- **Prof. Dr. Karl W. Neunast**
Bonn-Rhein-Sieg University of Applied Sciences
- **Dr. Andrea Niehaus**
Director of the Deutsches Museum Bonn

University employee structure



Partner universities around the world

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

In Shanghai Ranking:

Top 50:

- Victoria University in Melbourne, Australia

Top 500:

- University of Palermo, Italy
- York University, Toronto, Canada
- Dalhousie University, Halifax, Canada
- Universidad de Valencia, Spain
- University of Dundee, Scotland

Partner universities with double degrees

- Victoria University in Melbourne, Australia
- University of Sunshine Coast, Queensland, Australia
- Queensland University of Technology, Australia
- Dublin Business School, Dublin, Ireland
- York University, Toronto, Canada
- University of New Brunswick, Canada
- Hogeschool van Arnhem in Nijmegen, Netherlands

Times Higher Education World University Ranking:

Top 50:

- University of Melbourne, Australia

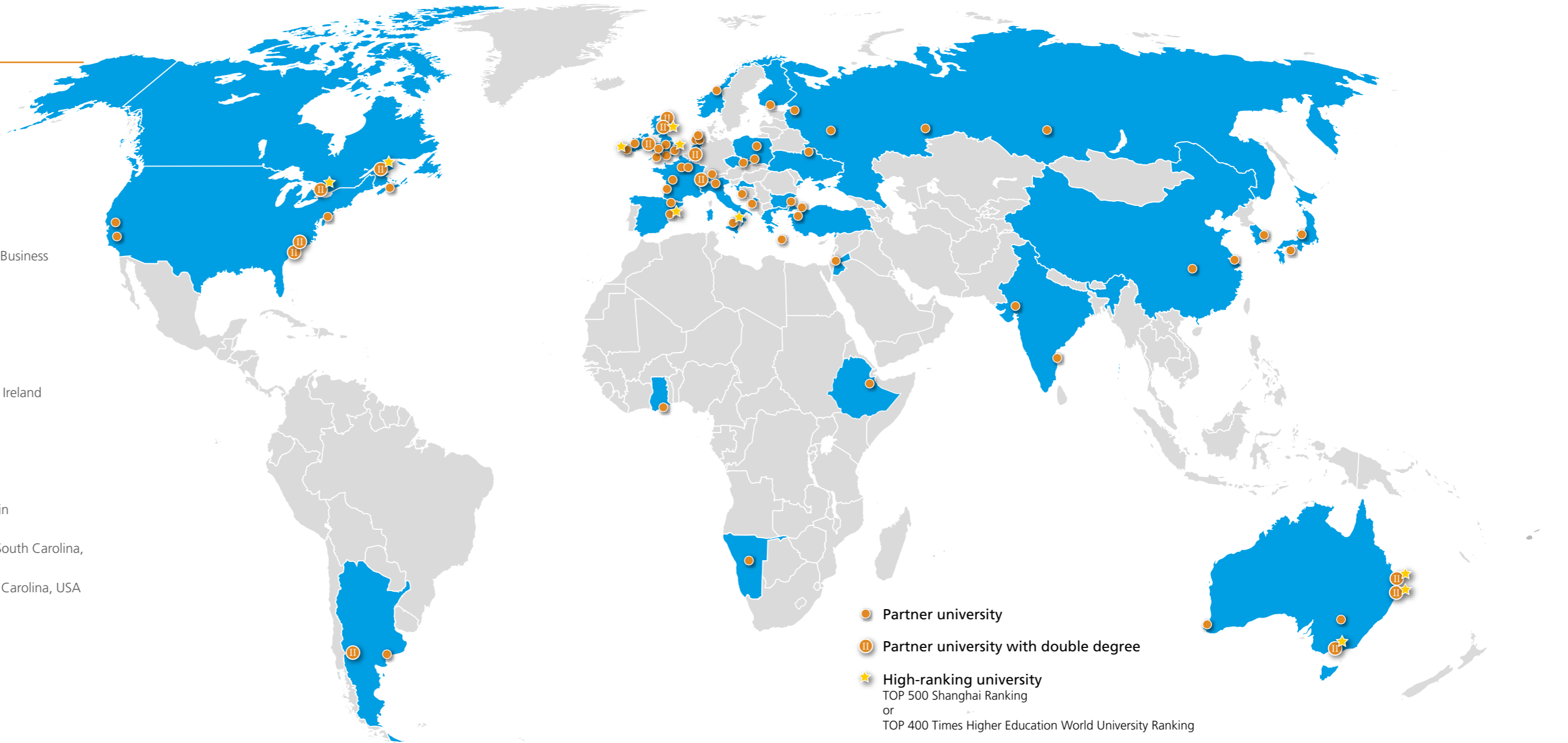
Top 100:

- University of Queensland, Australia
- Queensland University of Technology Business School, Australia

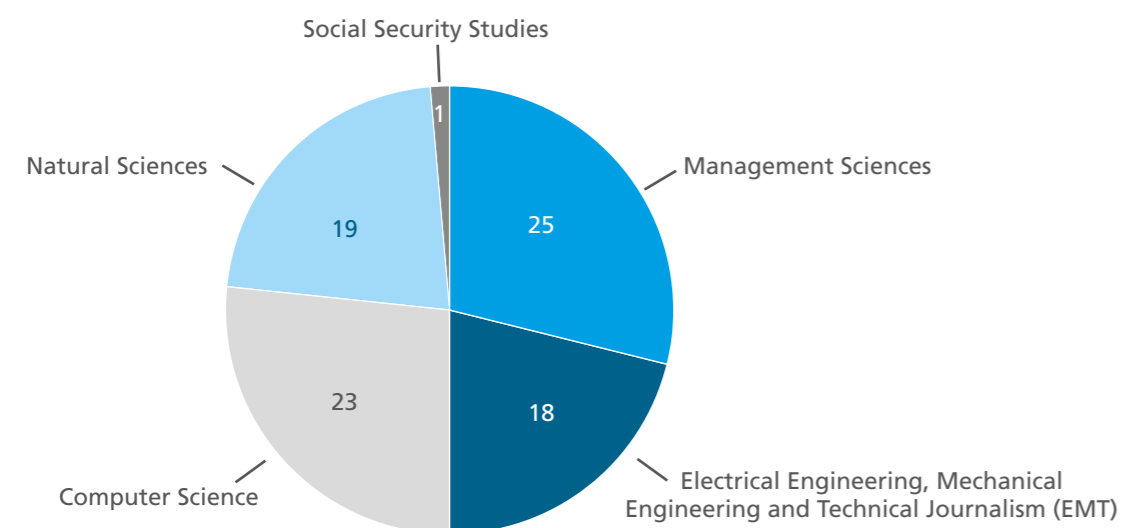
Top 400:

- University of Dundee, Scotland
- Brunel University London, UK
- Dalhousie University, Halifax, Canada
- York University, Toronto, Canada
- National University of Ireland Galway, Ireland
- Universidad de Valencia, Spain

- Zurich University of Applied Sciences in Winterthur, Switzerland
- Coastal Carolina University, Conway, South Carolina, USA
- Pfeiffer University in Charlotte, North Carolina, USA
- Robert Gordon University, Aberdeen, Scotland
- University of Aberdeen, Scotland
- University of Dundee, Scotland



Number of international partnerships by department



Country	University	Department
Argentina	Universidad Nacional de San Luis	EMT
	Universidad Tecnológica Nacional in Buenos Aires	EMT
Australia	Murdoch University in Perth	Natural Sciences (Biology) Management Sciences
	Victoria University in Melbourne	Natural Sciences (Biology) Management Sciences All other departments
	University of Sunshine Coast, Queensland	Management Sciences
	Griffith School of Engineering	EMT
	Queensland University of Technology, Business School	Management Sciences

Country	University	Department
Bulgaria	University of Economics in Varna	Management Sciences Computer Science
Canada	York University in Toronto	Computer Science
	Dalhousie University in Halifax	Computer Science
	University of New Brunswick in New Brunswick	Computer Science
Croatia	University of Dubrovnik	Computer Science
Czech Republic	Tomas Bata University in Zlín, Faculty of Technology	Natural Sciences (Chemistry with Materials Science) All departments (Ph.D. programmes)
Ethiopia	Agro Technical and Technology College in Harar	EMT
Finland	Helsinki Metropolia University of Applied Sciences in Espoo, Institute of Technology	Computer Science
France	Université de Poitiers, Institut d'Administration des Entreprises (I.A.E.)	Management Sciences
	Institut Universitaire de Technologie (IUT) Paris Descartes	Management Sciences
	Université Paris-Est Créteil Val de Marne (UPEC)	Natural Sciences (Biology)
	Université de Bordeaux	Natural Sciences (Biology)
Ghana	University of Cape Coast	Management Sciences
Greece	University of Crete	Computer Science
India	Indo-German Center for Higher Education	Computer Science EMT (Mechanical Engineering)
	Mudra Institute of Communication (MICA) Ahmedabad, Gujarat	EMT (Media Studies)
Ireland	Institute of Technology Tralee (ITT)	Management Sciences
	National University of Ireland in Galway	Management Sciences
	Dublin Business School in Dublin	Management Sciences
	National University of Ireland, Maynooth Innovation Value Institute	Management Sciences
Italy	Università di Palermo, Dipartimento di Biologia Cellulare e dello Sviluppo	Natural Sciences (Biology)
	Università degli Studi dell'Insubria in Varese	Natural Sciences (Biology)

Country	University	Department
Japan	Kagawa University in Takamatsu	Management Sciences Computer Science EMT
	Nagaoka University of Technology	Computer Science
Jordan	Deutsch-Jordanische Hochschule/ German-Jordanian University (GJU)	Computer Science Management Sciences
Montenegro	University of Montenegro, Podgorica	Computer Science
Namibia	Polytechnic of Namibia in Windhoek	Social Security Management
Netherlands	Hogeschool van Arnhem in Nijmegen	Natural Sciences (Biology)
	Hogeschool van Amsterdam	Computer Science
	Van Hall Larenstein, University of Applied Sciences in Leeuwarden	Natural Sciences (Biology)
	Radboud University Nijmegen	Natural Sciences (Biology)
Norway	HIST, Sør-Trøndelag University College in Trondheim	Computer Science EMT (Electronics) Natural Sciences (Biology and Chemistry with Materials Science)
People's Republic of China	Nantong University	Computer Science EMT
	Hunan University in Changsha	Management Sciences
Poland	Jagiellonen-Universität in Kraków	Natural Sciences (Biology)
	Warsaw University of Technology	Computer Science
Russian Federation	St. Petersburg State University of Information Technologies, Mechanics and Optics	EMT
	Moscow State Institute of Radioengineering, Electronics and Automation (Technical University)	Computer Science
	Moscow Institute of Electronic Technology (Technical University) (MIET) in Zelenograd, National Research University of Electronic Technology	EMT
	Ufa State Aviation Technical University	Computer Science
	Tomsk Polytechnic University in Tomsk	Computer Science

Country	University	Department
Spain	University of Valencia	Natural Sciences (Biology)
	Universitat Politècnica de València	EMT Computer Science
	Universitat Politècnica de Catalunya/BarcelonaTech, Barcelona School of Informatics	Computer Science
Switzerland	La Haute Ecole Arc	Computer Science EMT
	Zurich University of Applied Sciences in Winterthur (ZHAW)	EMT (Technical Journalism)
Turkey	Istanbul University	EMT (Technical Journalism)
	Yeditepe University in Istanbul	Natural Sciences (Biology)
	Yalova University	Management Sciences
Ukraine	Chernihiv State Technological University (CSTU) in Chernihiv	EMT
United Kingdom	Robert Gordon University in Aberdeen	Natural Sciences Management Sciences
	University of Aberdeen	Natural Sciences (Biology)
	University of Dundee	Natural Sciences (Biology)
	Keele University in Staffordshire	Management Sciences, Natural Sciences (Forensic Science)
	London South Bank University	Natural Sciences (Chemistry) Management Sciences
	Glyndŵr University in Wrexham/Wales	EMT
	Brunel University London	Ph.D. programmes
	University of Westminster London	Management Sciences
	Regent's University London	Management Sciences
	USA	Coastal Carolina University in Conway
Pfeiffer University in Charlotte, North Carolina		Management Sciences
California State University in Sacramento		Computer Science
University of Bridgeport		Management Sciences
University of California, Riverside (UCR)		Management Sciences
Wartburg College in Waverly, Iowa		EMT (Technical Journalism)

Prizes and awards

Linux Award

Sebastian Roland, Computer Science

AFCEA Bonn e.V. student awards

1st place: Michael Rademacher, Computer Science

2nd place: Sebastian Sporrer, Computer Science

3rd place: Oliver Jato, Computer Science

German Award for Innovation Journalism

Thomas Reintjes, Alumnus, Technical Journalism

DAAD Prize

Teena Hassan, Computer Science

Equal Opportunity Commissioner's Award

Teena Hassan, Computer Science

Special award for outstanding student commitment

Praveen Ramanujam, Computer Science

University Innovation Prize

Lukas Gemein, Tobias Haedecke, Maurits van de Velde (all from Mechanical Engineering/Bachelor's programme),
Matthias Metzen (Mechatronics/Master's programme)

Teaching prize

Prof. Dr. Iris Groß, EMT

Prize for Sustainability and Responsibility

Tobias Rechmann, Management Sciences

IZNE Prize for Sustainability and Responsibility

Andrea Wurzenberger, Publication

Yu Zhang, Biomedical Sciences, Doctoral Student Award

Advancement Award from BRSU donors

Peter Poggel, Management Sciences

Jakob Lindner, Management Sciences

Sergey Alexandrov, Computer Science

Michael Rademacher, Computer Science

Martin Schenk, Electrical Engineering

Janine Heinen, Mechanical Engineering

Verena Scheuer, Technical Journalism

Marina Ley, Chemistry with Materials Science

Inga Hochheiser, Applied Biology

Jessica Welzel, Forensic Science

Daniel Engel, Social Security Studies

FBTI Award

Philipp Frericks, Computer Science

DOAG Technology Ambassador Award

Prof. Dr. Harm Knolle, Computer Science

LfM Radio Prize

Giacomo Zucca, Technical Journalism

VDI Award

Michael Rademacher, Computer Science

Tobias Schwank, Natural Sciences

Best Paper Award

Prof. Dr. Rudolf Berrendorf, Computer Science



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