

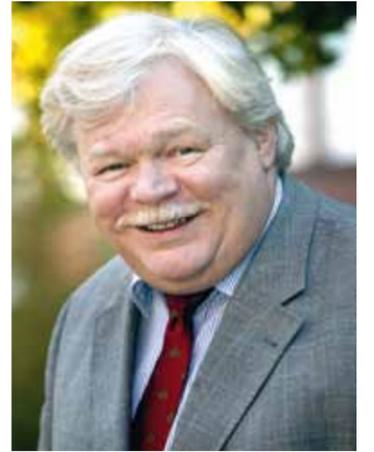
Master's Programmes – Models of Success

Open to international cooperation and
individual educational biographies





* lifelong learning



Professor Horst Hippler
President of the German Rectors' Conference (HRK)

Dear Reader,

Education and qualifications have come to play a key role in almost all areas of current policy. The "path to a knowledge-based economy" is – as hackneyed as this phrase may now sound – an issue of essential importance: our future prosperity depends to a considerable extent on how successful we are in managing this change.

Higher education institutions in Germany have long since recognised the challenges which this demands. The many developments in the past years are a clear testimony to this. In this magazine we wish to concentrate on one particular area in which pioneering efforts are underway both at universities and at universities of applied sciences in equal measure: countless Master's degree programmes have been established that represent enormous opportunities both for students and for the HEIs themselves.

Many teachers have reconsidered how they teach their subject and have revised the way in which the degree programme curriculum is structured. In this magazine we embark on a journey around Germany tracking down the numerous ideas and innovations. On the following pages, you will find impressive examples of both consecutive Master's, which follow on directly from the Bachelor's degree, and of 'continuing education' Master's, aimed at students who are already enjoying professional success.

We'd like to highlight three different aspects. In the first section of the magazine, we take a look at how higher education institutions have integrated continuing education Master's programmes into their existing structures. In the second section, we focus on higher education cooperation on Master's programmes whether this be through international partnerships or interdisciplinary collaborations. And in the third section we show how innovative Master's programmes can help to ensure that students at different stages of their lives can find a course that meets their particular needs exactly.

Naturally, in this particular magazine we are only able to report on a fraction of the many innovative concepts, and these must therefore represent – pars pro toto – the countless examples of successful degree programmes currently available at German higher education institutions.

I hope you enjoy the tour of our higher education institutions and wish you an illuminating and inspiring read!

Yours,

Contents

- 03 Editorial
- 06 "Courage, optimism and perseverance are needed"
Swiss continuing education pioneer Andreas Fischer discusses continuing education, new structures at higher education institutions and business risks

Opportunities for Defining Profiles

- 12 **Continuing Education – an Integral Task**
Freiburg University aims to develop a comprehensive range of professional Master's degree programmes
- 20 **A Course to Suit Everyone**
In Oldenburg they want to give everyone the taste for continuing education at university. Hopes are that the hunger for education is great
- 26 **The Public Private University**
A public higher education institution and a private education provider jointly run the Berlin University for Professional Studies
- 30 **Incubator with Outreach**
Leuphana University of Lüneburg is the only higher education institution able to use EU Structural Funds for regional benefit
- 34 **Master's Programmes for the Whole World**
Bremen University of Applied Sciences is reaching out to an international and global audience through its Graduate Center
- 38 **The Career Master's**
Part of the Karlsruhe Institute of Technology (KIT), the HECTOR School focuses on management training for industry executives
- 40 **The Master's as a Competitive Edge**
Baden-Wuerttemberg Cooperative State University has traditionally specialised in Bachelor's degree programmes. Now it is expanding into the field of Master's education

Opportunities for Bridge Building

- 46 **Internationality Included**
The University of Flensburg sets store by its proximity to Denmark – with a bi-national degree programme in Business and Economics
- 50 **The Science of Helping**
Ruhr University Bochum prepares students for humanitarian intervention in disaster relief areas
- 54 **Knowledge for Change**
The Master's in Global Change Ecology at the University of Bayreuth is part of the Elite Network of Bavaria
- 58 **High-Tech Forestry**
The University of Applied Sciences in Eberswalde creates an internationally interconnected model of success from conventional forestry
- 60 **Research in the Vineyard**
People from all over the world apply to degree programmes in Geisenheim. Students unravel the secrets of wine in state-of-the-art laboratories
- 64 **Policing on the Net**
Albstadt-Sigmaringen University opens up the field of online security

Opportunities for Individualised Educational Biographies

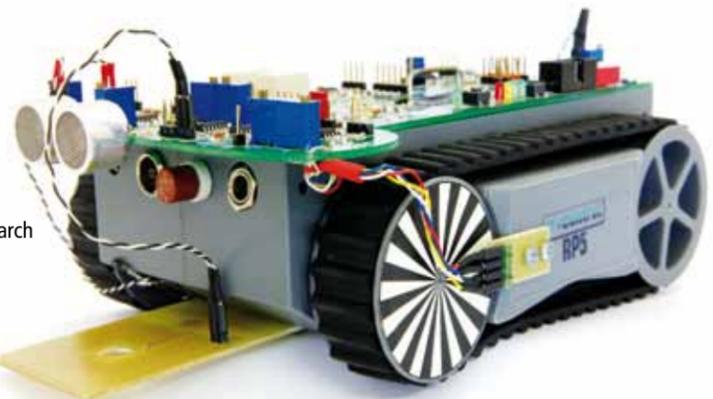
- 70 **Individualised Study**
FernUniversität in Hagen has over three decades of experience in teaching and learning concepts for part-time degree programmes for professionals
- 74 **Reinventing Histories**
Historians at Freie Universität Berlin are fit for innovations
- 76 **The Insurance Theorist**
The Executive Master of Insurance offered by Munich's Ludwig-Maximilians-Universität (LMU Munich) is a degree programme for professional students with theory at its heart
- 78 **Leadership for Schools**
In a specialist Master's degree programme, the University of Kaiserslautern trains future head teachers so that they are able to help shape the future transformations in the field of education
- 80 **Two Different Perspectives on Art**
A collaboration between Heidelberg University and the École du Louvre in Paris unites two Art History schools

The Student View

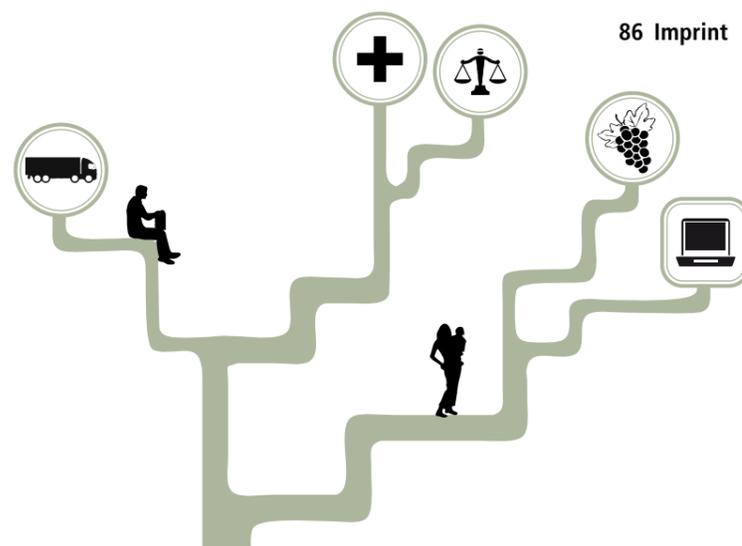
- 25 **Dr. Helen Schultz**, Graduate from Freiburg
A dentist returns to university
- 33 **Elvia Gaida**, Student in Lüneburg
The scholarship which also benefits the regional economy
- 37 **Mariann Karlstad and Detrick Brown**, Students in Bremen
Driven by a curiosity about Germany
- 49 **Kim Plätz**, Student in Flensburg
Research in the border region as a springboard to the EU
- 53 **Laura Puts**, Student in Bochum
An average working day? Making water filters, clearing ruins, building schools
- 73 **Thilo Rörtgen**, Student in Hagen
From the parliamentary chamber back to university
- 82 **German higher education institutions on the way towards individualised study pathways**
An analysis by Dr. Peter A. Zervakis, head of the HRK Project nexus
- 84 **Glossary of Terms**
- 86 **Imprint**



Tomorrow's future today
Karlsruhe students work on a 3D presentation



Learning through hands-on research



“Establishing continuing education takes courage, optimism and perseverance.”

Swiss continuing education pioneer Andreas Fischer discusses academic standards, business risks and the reasons for Switzerland’s boom in continuing education

Congratulations are in order, Mr. Fischer. The continuing education programmes you’ve created in Switzerland enjoy a level of popularity many higher education institutions elsewhere could only dream of. What’s your secret?

(Laughs.) Success didn’t come overnight, it was an ongoing process. Keep in mind that we’ve been doing this for more than 20 years now. I suppose the Swiss universities’ success is due to a couple of factors: for one thing, they have an appealing offer; and for another, there’s a lot of demand for continuing education in the working world.

And then there’s a third factor: society’s acceptance of continuing education.

That is true. For continuing education to have a chance, going back to university after years or decades in the job first needs to be viewed by society as something normal. We’ve no doubt benefited from the fact that Switzerland promoted continuing education for some time through a large-scale federal initiative. That really helped to draw public attention to continuing education.

The initiative you mentioned was launched back in 1990, when public funding was available for the establishment of continuing education at Swiss universities. That funding has long since dried up – how do you currently fund continuing education?

We knew as early as 1990 that public funding wouldn’t be available forever, so we were able to prepare ourselves. Funding for specific programmes

ended in 1996, and funding for continuing education centres in 1999. Thankfully, after all the effort that went into establishing continuing education, all universities decided to stay the course.

How long did it take to break even?

Starting in 1996, programmes needed to be more or less self-supporting, and we have achieved that. Leading up to that point, we had to increase fees gradually. It wouldn’t have been possible otherwise.

Still, continuing education providers in Germany often find that some programmes simply aren’t in sufficient demand to be viable. Do you not find you have the same problem?

Of course you have to look at each programme on its own merits. Some of our programmes are consistently fully booked, for instance management or psychology. Obviously, some programmes were never intended to run more than once or twice, and some didn’t produce the necessary response and were discontinued as a result.

Wait a minute – there are hundreds of continuing education programmes offered in Switzerland. Do you mean to say that they’re all full, or do you experiment to see what the response is like?

No, the cost of developing a Master’s programme is far too high for us to embark on any experiments. We can’t afford to float any trial balloons. In setting up new programmes, we basically take one of two approaches. Sometimes we start small and then scale up,



Photo: © Jkey | Dreamstime.com

The sky’s the limit: Switzerland boasts one of Europe’s most sophisticated continuing education systems

The Swiss System

Switzerland’s universities are organised in a national association called SwissUni, where they share experience and plan joint projects. All of them offer distinctive continuing education programmes. SwissUni has also standardised continuing education degrees: graduates receive the degree of Master of Advanced Studies (MAS), which is worth 60 credits, a Diploma of Advanced Studies (DAS) worth 30 credits or a Certificate of Advanced Studies (CAS) worth 10 credits. Not only has the introduction of these degrees ensured that different institutions offer comparable programmes, but it has also secured continuing education a definite place in the system of university degrees. With continuing education programmes in high demand at all Swiss universities, Switzerland is seen by other European countries as an example to follow. A study found that a total of 320 continuing education Master’s programmes were run in Switzerland in 2010. Experts estimate that there are currently around 400.

Programmes are often mutually compatible. For instance, a CAS can count towards a DAS in the same subject, which in turn can count towards a MAS. However, a master’s degree gained through continuing education does not normally create an entitlement to admission to a doctoral programme.



Library of the University of Bern

meaning that we start with a CAS course and then develop it into a Master's programme once we're happy that the demand is there. We use the other approach whenever we've decided from the start that we want to offer a Master's programme. When that's the case, you have to start by assessing demand, which is possible only if you have good links to practitioners and industry. So we'll approach professional organisations and associations and simply ask whether a programme we're thinking about creating is likely to appeal to its target audience.

That sounds as though there are more business aspects to be considered than meet the eye. Given that there are distinguished continuing education programmes offered practically all over Switzerland, do universities see one another as competition?

As far as management and business courses are concerned, there's no doubt that universities compete with each other, but apart from that, I think not. One reason for this is probably that we don't offer pure distance learning programmes. All universities run a large number of face-to-face seminars, which makes geographical proximity a crucial factor. Which in turn significantly reduces competition. Actually, it's not at all unusual for two universities to collaborate, which takes the form of maintaining communication with each other and organising joint programmes that involve professors from both institutions in teaching.

A distance learning programme would be a way of extending activities beyond particular regions, wouldn't it?

I should mention that we do offer some blended learning, so e-learning elements and other forms of media-based learning do play a role. Having said that, pure distance learning programmes are not an option for us. There's no tradition here of that sort of thing. Don't forget that Switzerland is a small country with short distances, so driving to university isn't really inconvenient. We've also consistently found that students very much appreciate face-to-face courses, which take them out of their familiar surroundings and offer the opportunity to discover a new study environment.

How does the Centre for Continuing Education at the University of Bern, where you work, coordinate its work with the various faculties – which side provides the ideas?

Suggestions for programmes tend to come from the faculties. Our job is to translate those ideas into products that both make sense and have market potential. The first thing we have to decide on is the format: would the idea sustain an entire Master's programme or is a certificate course as far as it will go? Obviously, we need to identify a target audience as well, because suggestions from within the university are often based on the supply side of things. They'll say, "We have this knowledge we'd like to share." We naturally approach things from a different perspective. The question we need to ask is: "Who would benefit from that knowledge?"

Is the whole concept of providing continuing education accepted enough at universities for you to be able to discuss these things on equal terms?

It varies greatly. You certainly can't take that level of acceptance for granted. Professors often perceive support from continuing education centres as just another university service. They tend to think of continuing education in administrative terms rather than in terms of its academic usefulness. We're lucky at Bern in that our Centre for University Continuing Education is a recognised academic institution. In my experience, a great deal depends on the people involved: unless you've got some strong personalities on a university's management team and in other decision-making bodies who really care about continuing education, you're always going to face an uphill battle. Experience has shown us that it takes three things to es-

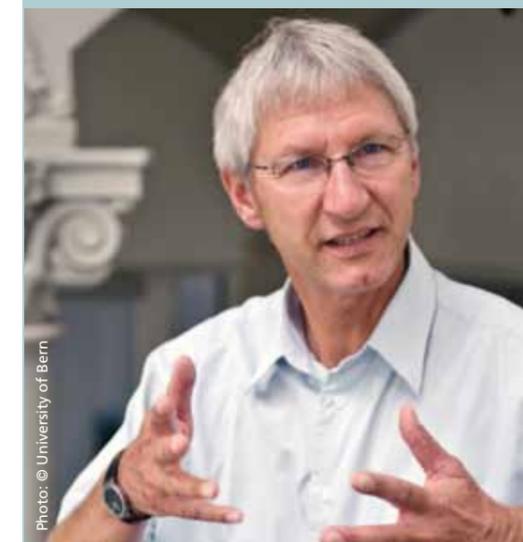
tablish continuing education at universities: courage, optimism and perseverance.

The reason for some faculties' scepticism about continuing education is that they're not convinced it makes academic sense, isn't it?

It's basically true that a university's core competence is in imparting academic knowledge. That's what sets us apart from other types of institutions. On the other hand, people from a professional background typically come to us not because they want to gain academic knowledge, but because they want to do their jobs as well as possible. They already have on-the-job experience and are practically minded. So, as a university, we need to steer a middle course: we can't limit ourselves to academic content, but have to incorporate plenty of hands-on elements into our programmes. We like to say that university continuing education is grounded in academic teaching and research, enabling students to intelligently transfer knowledge they've acquired to their professional and personal lives. Lecturers are faced with a pedagogic challenge in that they find themselves speaking to people with years of professional experience rather than to people who have just finished school.

How do you manage to reconcile these different needs and requirements?

It's actually quite a complex task, which is reflected in the proliferation of terms: we talk about academic continuing education, university continuing education and continuing education for academics. These three areas entail different approaches and objectives, which we have to try and allow for. One thing we're very clear about is that we don't offer run-of-the-mill communication courses or any other kind of course you might equally well take at an institution other than a university. That's one way we differentiate ourselves from other education providers. At Bern, every programme – including continuing education – has to be approved by the University Senate, which helps enforce academic standards. Another safeguard comes from assessing student achievements. The faculties obviously make sure that students' seminar papers and Master's theses meet those standards. That's how we keep the balance.



Dr. Andreas Fischer is head of the Centre for University Continuing Education (ZUW) at the University of Bern. He holds a PhD in geography and is a member of the board of directors of SwissUni. ZUW offers 26 Master's programmes and a large variety of certificate courses. There are currently around 5,500 students enrolled on continuing education programmes at Bern.

“A university's core competence is in imparting academic knowledge. That's what sets us apart from other types of institutions.”

Continuing Education – an Integral Task

Freiburg University is one of the pioneers in providing part-time Master's degree programmes for professionals. Now the range of courses on offer is to be expanded and will extend throughout the entire university



Among colleagues: experienced dentists study for a Master's in Periodontology in their free time

T

he management offices of Freiburg University are in the very same place where once the commanders of the French occupation zone were located. A huge building with six floors, the location is highly symbolic for the university: looking out from the management offices in a northerly direction, one can see the natural sciences' campus. To the south the buildings that house the humanities and social sciences lie nestled in the old town where the long tradition of the Freiburg Albert Ludwigs University began with its founding in 1457.

This is where Vice-Rector Professor Heiner Schanz is based. Portraits of the past rectors are hung along the corridor of the rector's office. Connecting the traditional with the modern – the sense of bridge building is tangible here amongst oil paintings and designer office furniture. This aspiration also applies to the degree programmes on offer. "We've noticed that the target group for the Master's courses is changing," says Schanz. "In spite of all the doubting voices, many of our graduates from the Bachelor's programmes go straight into employment; this trend is particularly pronounced in those areas of the job market that have a great demand for workers, for instance information technology." A few years later, the graduates often want to return to university better equipped at this time with the valuable experience of work. The same is true for the traditional degrees. "And we can't simply leave it up to private providers of continuing education to meet the needs of this target group."

Freiburg's solution to this permanent shift is an innovative one: a special department for continuing education has been established at the university to coordinate degree programmes offered by the faculties. "What is special about our model here at Freiburg is that we are very deliberately creating a community of professionals and not simply engaged in just supplying knowledge," explains Jan Ihwe, Director of the Freiburg Academy of Continuing Education (FRAUW). Seven Master's degree programmes are currently available from three faculties; each of them is unique in Germany in the approach taken. In addition to complete degree programmes, certificate courses are available with respect to individual modules.

"In organisational terms, we represent the link between the academic and the administrative world. We do the transla-

tion work," says Toni Charlotte Bünemann, Head of Academic Continuing Education at the FRAUW. The idea is that the FRAUW will provide a central point of contact and will function as a type of service provider, since the continuing education programmes remain broadly based at the faculties, both in terms of organisation and content. This is one of guiding principles, that the specialist subject areas remain the driving force behind the programmes. Mostly, it works in a similar way to the development of the degree programme in Periodontology offered at the Faculty of Medicine (see page 15): professors recognised an acute need for specialist knowledge and decided to close this gap. Teaching is done on a separate, secondary contract to ensure that the additional courses do not affect a lecturer's contracted **teaching load**. In the medium term, it is hoped that the degree programmes will be self-financing; they are aimed at people in employment studying part-time, and the total costs up until graduation are in the five figure range. "It's a difficult balance to strike between covering costs and meeting market demand," admits Jan Ihwe. However, the continuing education programmes are not intended to be profit centres. In any case, the income does not go to a central university fund, but rather remains with the faculties in order to finance teaching materials and teachers.

Since the continuing education Masters are offered as part-time degree programmes for professionals, a common feature is the inclusion of, on average, just 20 per cent face-to-face attendance with the rest of the material available online. "The teaching materials come directly from the teachers and we provide support with the technical realization of didactic concepts," says Dr. Nicole Wöhrle, head of the **e-learning service centre** at the University of Freiburg. Freiburg University has years of experience of combining a learning platform with a virtual classroom where students can interact and communicate: in 2001

Number of teaching hours specified in the employment contract of a lecturer at a higher education institution.

Learning, communication and interaction supported by electronic and digital media. This includes, amongst others, online study materials, videos of lectures and online interaction between students and lecturers





Photo: © Peter Mesenholl

Return to university: Freiburg provides students with new stimulus after the first few years of professional experience

Students with professional experience: “We can’t simply leave it up to private educational providers to meet the needs of this target group”

Freiburg was one of the first universities in the whole of Germany to implement a progressive Learning Management System (LMS).

This framework has a significant influence on the nature and content of the degree programmes. “Our fundamental idea is not to offer a simple continuation of the academic teaching from the first degree programmes, but rather to seek close cooperation within a community of peers,” says Academy Director Jan Ihwe. Given that the participants are experienced professionals some of whom have already completed a doctorate, they can all benefit from the experience of others. “We’ve observed during the online meetings that the teachers will often take a back seat while students lead the discussions themselves,” says Wöhrle. This is exactly what the phrase “a community of professionals” means and this is the declared aim of all the continuing education courses.

Courses on offer at Freiburg also demonstrate just how much content can be taught online thanks to the latest technological possibilities. “We’ve gone far beyond simply putting a text online and then having the students answer multiple-choice questions on it,” says Nicole Wöhrle. At the Faculty of Medicine, teachers can upload videos of operations or entire virtual patient cases including photos or animations; students can then produce a proposal for treatment based on this information. And in Computer Science: students on the Embedded Microsystems degree programme receive a mini laboratory by post to their own homes. This enables them to work largely independently of the infrastructure of the university institute (see page 18).

Freiburg University’s management supports an expansion in the range of

continuing education Masters over the coming years. “There are a number of other subjects that we could imagine including,” says Vice-Rector Heiner Schanz: “We regard these programmes as an integral part of our university.” He explains the deliberate intention here to distance Freiburg from an approach that creates “quasi-independent programmes onto which the university simply attaches its name.”

To achieve this, Freiburg has announced a targeted Master’s strategy which includes both the consecutive and the continuing education degree programmes. A foundation to support the continuation onto a Master’s is laid in the Bachelor’s programmes: students on these programmes have the opportunity to add a fourth year to the standard three years. During this year they can focus on a specific subject as preparation for a particular Master’s degree programme. The ‘Individual Track’ and ‘Global Track’ programmes have earned the University an award for excellent teaching – for two semesters students are allowed to take the initiative either in spending time abroad or taking courses from other subject areas in Freiburg in a type of ‘Studium Generale’. Credits can then be awarded for their achievements in this year if the students decide to continue with a Master’s programme.

The guiding principle for the Albert Ludwigs University in Freiburg is to make every effort to offer attractive courses. In this overall concept, the continuing education Masters play a role equal in importance to that of the consecutive programmes. “The approach to studying is changing,” concludes Vice-Rector Heiner Schanz, “and it’s our duty to provide ideal study options for everyone.”



Photo: © Baschi Bender

A Brief Portrait of Continuing Education Masters at Freiburg

Periodontology and Peri-implant Treatment

The need for treatment of the periodontal apparatus is great: “Around 45 per cent of adult patients have some form of periodontal disease,” says Professor Petra Ratka-Krüger, “yet in spite of this, only five per cent of treatment time in dental surgeries is dedicated to such diseases.” Ratka-Krüger is head of the Master’s degree programme in Periodontology & Peri-implant Treatment, which is aimed at providing solutions to meet this need: the programme is targeted at dentists who have already gained several years of clinical experience following graduation and who then wish to develop a new specialism. Although Periodontology is covered at undergraduate level, in most cases the syllabi do not actually leave enough time to go into the subject in any great depth. “Due to this discrepancy between clinical epidemiological importance and the structurally limited possibilities of the individual university hospitals, there is a huge need for specialisation in the field of Periodontology,” says Petra Ratka-Krüger. Consequently, we receive applications from throughout the entire German-

speaking area to this degree programme, which is unique in structure in the whole of Germany. Ratka-Krüger believes that the blend of online and face-to-face sessions is ideal: fictitious patients with various types of problems present themselves by way of example in virtual classrooms, and students are supplied with photos, videos and further supporting information. This enables students to gain realistic insights from a distance; specialist tutors are always available to answer questions – these are experts in Periodontology who are also trained in virtual tutoring. In the practical sessions, the dentists are required to put their skills to the test. Complicated operations are practised on animal preparations and procedures are then later carried out on real patients in the dental hospital. (See “student view” on page 19)

Key facts:

- ◉ **Number of credits:** 80
- ◉ **Standard duration:** 6 semesters
- ◉ **Qualification:** Master of Science
- ◉ **Type:** part-time for professionals, continuing education, 80 per cent distance learning: 20 per cent face-to-face





Photo: Markus Lassmann



© iStockphoto.com | Alexander Ra

Doctors as medical technologists: in Freiburg medical practitioners are trained in cutting-edge high-tech

The guiding aim of academic continuing education: cooperating on a par with peers instead of a teacher-pupil relationship

Physical-technical Medicine

The training provided on traditional degrees in medicine only partly takes account of the increasing presence of medical technical devices in doctors' surgeries and hospitals. "Naturally, the fundamentals of physics are also covered on a degree in medicine, but usually the link to medical applications is not made to any great extent," says Professor Josef Guttman, head of the Master's degree programme in Physical-Technical Medicine. This is the area in which the continuing education Master's programme will offer some progress: while engineers already have the possibility to specialise as a medical engineer at tens of higher education institutions in Germany, the reverse case – where doctors can take courses in the fundamentals of engineering to become specialists in medical technology – has not been seen until now. An understanding of devices and procedures does, however, have wide-reaching effects on medical practice. "Doctors are constantly measuring and interpreting various types of vital data of their patients," says Guttman, "but they don't have much background in measurement technologies." How are the results produced, what potential sources of error are there, and how large are the possible deviations? Answers to these questions play an important role in an increasing number of areas – in imaging methods such as ultrasound and endoscopy, as well as in respiration technology and anaesthetic technologies or in robotics. During the course, students initially take several modules that deal with the fundamentals of physics and engineering. Subsequently, each individual can choose two areas of specialism from a broad range of subjects. After one semester of distance learning there is always

one week of face-to-face attendance; the standard duration of study is six semesters. Almost all applicants are doctors working in hospitals and in many cases the employer will provide some support to their employee for their studies. "The master's thesis is written on a work-based subject, for example the solution to a medical technical problem. In this way, not only does the graduate profit directly, but so too does the clinical department where he or she works," explains Josef Guttman, head of the degree programme.

Key facts:

- **Number of credits:** 90
- **Standard duration:** 6 semesters
- **Qualification:** Master of Science
- **Type:** part-time for professionals, continuing education, 80 per cent distance learning, 20 per cent face-to-face

Palliative Care

The key term "multi-professional access" explains Bettina Couné is the most fitting way to describe the degree programme in Palliative Care, which she coordinates: "In palliative care it really is the case that all members of staff need to cooperate: doctors, carers, social workers, psychologists, chaplains, pharmacists and voluntary helpers." This is the focus of the degree programme: the intention is that participants from the various professional groups will be given a more nuanced understanding of the issues and that each will come to understand the other's perspective. At present, around two thirds of participants are practising doctors; a prerequisite for admission is a university degree as well as

professional experience in a relevant area of specialism. "There are some cases in which even patients receiving high doses of morphine still experience pain. Sometimes this is psychosomatic pain – for instance, when people perceive their illness as a punishment," says Bettina Couné: "In these cases, opiates are not enough, the doctor needs a spiritual and psychological approach." The degree programme is structured accordingly so that it covers the areas of health economics and psycho-oncology as well as ethical and legal questions, which play a huge role particularly as regards dealing with advance directives and treatment decisions. Students take two-thirds of the modules together; a range of different specialism materials and tutorials are then offered in addition, depending on the student's prior knowledge and individual interests. "We transfer the learning of subject knowledge to the e-learning components and use the face-to-face sessions predominantly for training, role play, reflection and discussions, which are particularly highly valued in this degree programme," says Bettina Couné. The experiences of their peers are so important for the students that they also maintain close contact via the virtual classrooms: "They really do form a genuine group and open up to each other; this works via computer as well," degree programme coordinator Couné has observed. "There is a great deal of exchange, even outside the face-to-face sessions."

Key facts:

- **Number of credits:** 80-120 (depending on first degree)
- **Standard duration:** 4-6 semesters
- **Qualification:** Master of Science
- **Type:** part-time for professionals, continuing education, 80 per cent internet-based self-study; 20 per cent face-to-face

Photovoltaics

The Master's degree programme in Photovoltaics is the only continuing education Master's at the University of Freiburg conducted entirely in English. "Germany is a leader in the field of solar technology and the level of interest from other countries is remarkably high," says degree programme coordinator Dr. Martin Kasemann. The degree programme benefits from the enormous global demand for renewable energies: in four semesters, the students

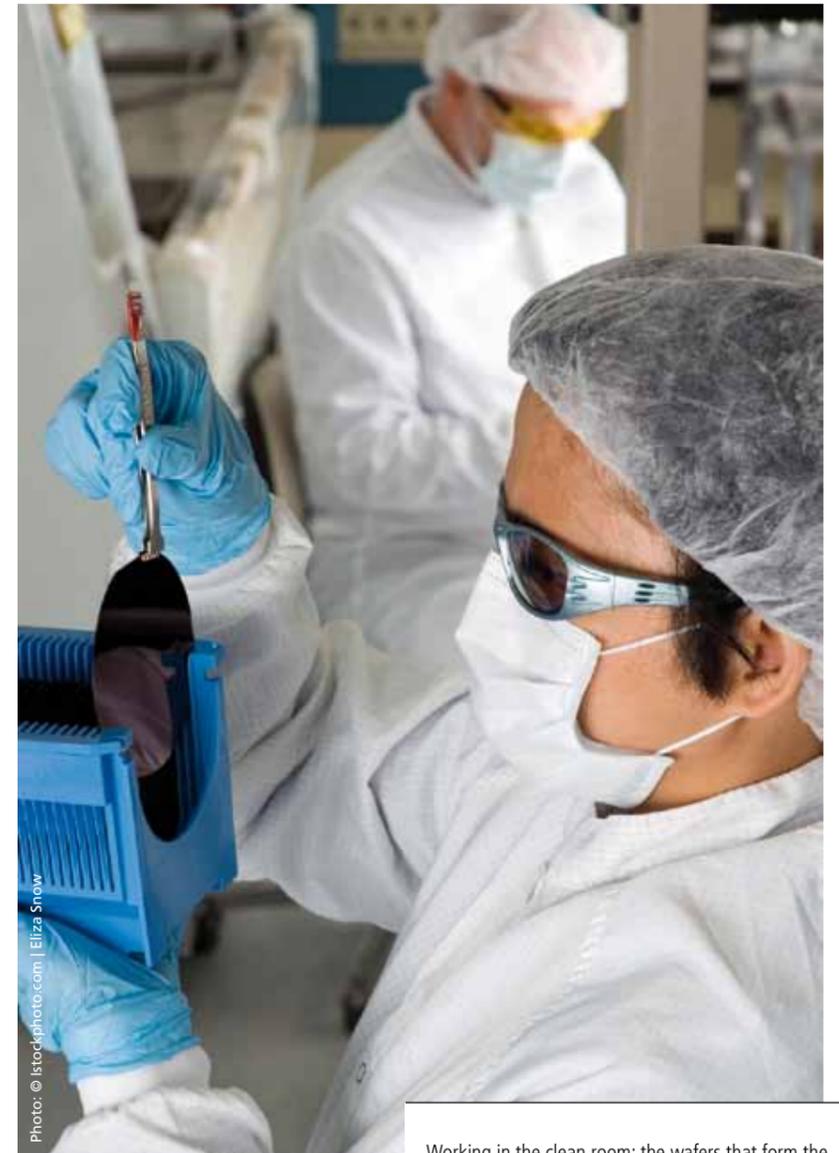


Photo: © iStockphoto.com | Eliza Snow

Working in the clean room: the wafers that form the basis of the solar cells are highly sensitive

are taught to become experts in the field of solar technology. Freiburg has developed to become one of the most important research centres in this area worldwide. If you were to visit Kasemann in his office, you would walk past laboratories with the most sophisticated measuring technology. In the spectacularly exposed concrete building on the campus of the Faculty of Engineering experts in photovoltaics are distributed over three floors. The Fraunhofer Institute for Solar Energy Systems is a close neighbour and the Master's programme was actually developed in close cooperation with the Fraunhofer. The majority of applicants are physicists; some have even done a doctoral degree. "We want to put graduates in a position to develop existing technologies, but



also to be innovative,” explains Kasemann. Large sections of the course take place online. The face-to-face sessions in Freiburg are then scrupulously scheduled to cover the workload required; on some days students can have up to ten hours of seminars. One of the practical seminars takes place in a specially equipped measurement laboratory; another seminar is held on a production line at the Fraunhofer Institute, where solar cells with freely selectable parameters are manufactured. This enables researchers to study in precise detail the influencing variables and their effects. Most graduates work in industry; there have, however, been applicants who worked in a bank and were responsible for the technical evaluation of projects and for estimating risk when granting credit. The next intended step in developing the degree programme is to increase internationalisation: “The scientific content always comes from us,” says Martin Kasemann, “but we would really like to establish more specialist centres in cooperation with other universities, so that not all students need to fly into Freiburg for the face-to-face sessions.” There are plans to locate centres in the USA, the Arab countries and, above all, in Asia. Freiburg University will remain responsible for the distance learning modules, just as before, but students can attend the face-to-face sessions at a choice of locations throughout the world.

Key facts:

- **Number of credits:** 60-120
- **Standard duration:** 4-6 semesters
- **Qualification:** Master of Science
- **Type:** part-time for professionals, continuing education, 80 per cent distance learning: 20 per cent face-to-face

Intelligent Embedded Microsystems

The students are sent their laboratory equipment by post to their own homes: it comes in a box that is lined on the inside with foam padding. The case holds a robot which has a chain drive that makes it look a like a caterpillar bulldozer. Instead of a roof, the robot has a soldered circuit board; there are additional pieces of equipment on all sides and a central connection for an external control device. “This enables it to be programmed,” explains Christoph Hermann, programme coordinator of the Master’s in Intelligent Embedded Microsystems. When

experts speak of embedded systems, they refer to various technologies or even different devices connected to and interacting with each other. There are plenty of examples of practical application – from complex industrial machinery to chips inside washing machines through to components in modern cars. The robot used on the Master’s programme is also an embedded system, in which several elements work together. Students have to programme, for example, a built-in sensor so that it will recognize a coin as the robot rolls over the floor. They must be able to avoid crashes using ultrasound sensors or monitor movement via special light sensors on the drive. The robot demonstrates how fluid the boundaries between face-to-face and distance learning can be: students receive their own laboratory sent to their home shortly after the course begins and can, by themselves, learn things which previously they were not able to learn without the university infrastructure.

The Master’s degree programme in Intelligent Embedded Microsystems was launched in 2007. It is aimed predominantly at computer scientists, microsystems technologist, mechanical engineers and physicists and is the only one of its kind in Germany. “We also deliberately target graduates of dual degree programmes or universities of applied sciences,” says coordinator Christoph Hermann. For some participants the Master’s opens up a path to a doctoral degree. The feedback from the programme has been highly satisfactory, according to the people in Freiburg – “although, the fact that they have to give the robot back after one semester doesn’t please some students one little bit!”

Key facts:

- **Number of credits:** 60-120
(depending on first degree)
- **Standard duration:** 3-7 semesters
- **Qualification:** Master of Science
- **Type:** part-time for professionals, continuing education, 90 per cent distance learning: 10 per cent face-to-face

Taxation

These two degree programmes are aimed at business graduates and lawyers working in the area of taxation and tax law. The Master of Arts in Taxation is targeted mainly at graduates with a Bachelor’s degree and some initial professional experience.

The programme combines a demanding continuing education degree programme with preparation for the state tax-advisor state exam. This exam is not taken within the framework of the degree programme; however, on passing the exam students will be awarded approximately 40 per cent of the total of 120 ECTS points for doing so. “On the one hand, this tight intermeshing shortens the length of study time, and ensures a more in-depth understanding of the topics. On the other hand, our students are optimally prepared for taking their tax advisor state exam,” says degree programme coordinator Falk Mehlhorn. Students are guided through ten self-study units followed up by face-to-face sessions to complete their Master’s degree. The MBA programme in “International Taxation” has a slightly different target group and is based at the same university chair: applicants to this programme are usually already working as tax advisors, often for one of the major international firms. “The tax advisor exam is very demanding, but it largely excludes international taxation law,” says Niels Arnold, the degree programme coordinator. However, the current wide-ranging international crossover between companies leads to complex international scenarios, particularly in the area of taxation law. This is what the MBA programme curriculum emphasizes: in addition to in-depth training in German international taxation law, participants learn about the taxation systems of other significant countries. The focus here is on the practical application of the content taught. The ultimate aim is to equip graduates for management roles, in particular in multinational concerns and consultancy firms, as well as in associations and organisations.

Key facts:

Master of Arts Taxation

- **Number of credits:** 120
- **Standard duration:** 7 semesters
- **Qualification:** Master of Arts
- **Type:** part-time for professionals, continuing education, 80 per cent distance learning: 20 per cent face-to-face

MBA International Taxation

- **Number of credits:** 90
- **Standard duration:** 4 semesters
- **Qualification:** Master of Business Administration “International Taxation”
- **Type:** part-time for professionals, continuing education, 80 per cent distance learning: 20 per cent face-to-face



Photo: private

Dr Helen Schultz
Dentist and graduate in Periodontology from the continuing education programme at the University of Freiburg

A dentist returns to university

While studying for our dentistry degrees we learned a bit about periodontology, of course, but it was treated only as a fringe subject. In fact, it’s a very important problem. Periodontitis refers to disease of the periodontium, which is the basis of everything else. Diseases of the gums or jawbone are becoming more and more common; without treatment, they can even lead to loss of teeth. In spite of this, periodontology accounts for only a small part of the traditional dental degree. That is why I opted for the Master’s programme. I had already been working as a qualified dentist for several years, but I wanted to acquire the extra knowledge to bridge this gap. So I re-enrolled at the University of Freiburg. Seminars were mostly at weekends. Much of the teaching materials came by mail or was available digitally, so I could access them whenever I wanted. We were supervised by tutors online, who were on hand to support us throughout the course. What really surprised me was the group dynamic in my class. Because we all are dentists already with varying degrees of professional experience, the seminars were completely different from those I attended when taking my first degree. We treated one another – and the teachers – very much as colleagues. And because each of us had our own specialism, we were able to learn things not just from the professors, but also from one another. So what will I get from having this additional degree? Well, now I can make periodontology the focus of my practice. The first patients have started making enquiries; it doesn’t take long for news like that to get around.

A Course to Suit Everyone

In Oldenburg, the university is working systematically to attract people to continuing education. Applicants can start by taking just a couple of classes, which they can later use as the basis for a full Bachelor's or Master's degree. The course structure is tailor-made for this purpose



Not simply slogans: Oldenburg is bringing the idea of continuing education to life. In the picture: a video projection at the opening of the Center for Lifelong Learning

M

inute by minute the rows fill up; before long, there isn't an empty seat in the house. It is a Saturday morning in Oldenburg. Outside the theatre, where the weekly market is under way, students are busy advertising a short lecture to shoppers. For half an hour a professor will speak on the subject "Do people really know how to invest money wisely?" The audience is made up of interested locals, with or without a university education.

The event at the theatre is part of an initiative called "Uni at the Market", organised by the University of Oldenburg. Its aim is explicitly to address people's fears about engaging with higher education. "We want to make people curious and to interest them in learning more," says Dr Michaela Zilling, one of the directors of the university's Center for Lifelong Learning, known in Oldenburg by the abbreviation C3L. The Center employs close to 70 staff who, as well as engaging in public understanding of science provide certificate courses for people in work and also company-supported part-time and/or continuing education Bachelor's and Master's programmes.

"We brought together this broad spectrum of tasks quite deliberately, because at the end of the day they are closely connected," explains Zilling. The basic idea is that people who are curious about the university should feel they are in good hands. There is a range of oppor-

tunities to get started. If someone then finds they want to study a subject in more depth, they can even take a university degree – all in the same place.

The Center for Lifelong Learning is the product of decades of experience at the university. It was set up in 2006 by bringing together a number of previously separate areas. The bodies that amalgamated to form C3L included the Center for Distributed e-Learning (CDL), the distance learning centre (ZEF) and the Centre for Academic Continuing Education (ZWW). On an organisational level, C3L reports directly to the Executive Board.

Currently there are four continuing education Master's programmes and two company-supported part-time Bachelor's programmes (see page 23), with further programmes planned. To minimise the burden on academic staff, C3L takes organisational and financial responsibility for these courses. Subject expertise is provided by the faculties. Accreditation takes place in close collaboration with C3L. According to Dr Michaela Zilling, the Center's managing director, later on in the process "around 90 per cent of assignments that are due go through C3L". "In C3L, we deal with the organisational side of things. We handle recruitment and remuneration of lecturers, process registrations and issue certificates." Finally, academic degrees are awarded by the relevant faculty. Participants' tuition fees remain with C3L. "We aren't profit orientated - we work to cover our costs,"

Public Understanding of Science events provide an opportunity for researchers to present their work to a wider audience, who would not usually come into contact with higher education institutions and academia.

Master's programme for professional students who wish to return to university education after several years of professional experience.





Photo: © Uta Rauser



Photo: © University of Oldenburg

Open to all ages: in Oldenburg, both young people in work and seniors are becoming curious about academic topics

A clear division of labour: the faculties provide the expertise, while the Center for Lifelong Learning deals with organisational issues

says Michaela Zilling. A number of programmes have started to yield surpluses, but the new courses, in particular depend on attracting larger numbers of participants and are part-funded from external resources and the Center's own funds.

The Center for Lifelong Learning is housed in its own building complex, the Lifelong Learning Campus, which has just been renovated. The co-ordinators of continuing education courses and certificate programmes, staff from the IT/media/learning design department and advisors from the contact office, which is the first port of call for potential applicants, have their offices along the corridors. On the ground floor are the seminar rooms, which are used by the university during the week and for continuing education classes at the weekend. As regards technological equipment, they are state of the art. When visitors enter the foyer, they are greeted by a large screen showing which lectures are in progress and where they are happening. In the lecture theatres themselves, lecturers stand in front of a large desk with a smart board that allows them to control a screen, a digital projector and electronic media at the touch of a button. Outside the seminar rooms there is a lounge set up as a recreation area, where participants can meet up during seminar breaks. With lavish facilities like these, it is clear that continuing education at Oldenburg is no poor relation, but rather a key element of the university's strategy.

"We are trying to keep the entry threshold for our courses as low as possible," says Dr Christiane Brokmann-Nooren, who is in charge of public science at C3L. "Of course, we also offer full Bachelor's and Master's programmes, but

we understand that someone who hasn't been at university for years may not feel able to commit themselves to something that demanding straightaway." For this reason, all continuing education programmes are completely modularised and can also be taken individually, as **certificate courses**. In a number of subjects, courses are broken down into even smaller units, so that it is possible to choose just one class. "That allows people to decide whether in fact they find the topic as interesting as they initially thought. If they really like it, they still have the option of taking the whole programme. In such cases, they get full credit for classes they have already completed, of course." The Bachelor's and Master's programmes cost up to nearly 20,000 euro, so many participants want to see in advance what they will get for their money. "Decoupling courses from our continuing education programmes has really proven its worth," says Christiane Brokmann-Nooren.

Those who opt for one of the certificate programmes are given the status of guest students. This is done for two reasons. First, it provides participants with a legal guarantee that their results can be counted towards a subsequent degree. Second, it encourages a sense of belonging. "Everyone should feel equally part of the university", says Brokmann-Nooren. C3L also organises the 'Studium Generale' and the Children's University. "These are

Seminars given in related subject areas each of which covers one particular topic. A university certificate is issued on completion of the course and may sometimes also be awarded for successful completion of individual seminars.

At a glance

Continuing Education Master's Programmes at Oldenburg

The Master of Distance Education & E-Learning programme is offered by the University of Maryland University College (UMUC) in collaboration with Oldenburg University. The programme, which is taught in English, describes its aim as being to train the "future managers of media-supported distance education courses". Participants can specialise in management and planning aspects, the technological foundations of distance education or pedagogical issues. The degree is awarded by UMUC.

The MBA programme in Education and Research Management is targeted at specialists in adult and continuing education and research managers. To be admitted, applicants must have a first degree and at least two years' professional experience. The course is spread over six semesters and covers a large number of topics, from education marketing to new technologies and management of educational institutions. Applicants can also take individual modules or combinations of modules as part of a certificate programme, leading to the awarding of a certificate of expertise.

The Master's programme in Innovation Management, which is spread over six semesters, trains people to become expert in handling rapid changes in organisations and businesses. The key questions addressed by the course are how to incorporate innovations into existing structures, how to create an innovation-friendly environment and how to deal with the consequences of innovation and social responsibility. The modular structure of the course also allows applicants to take individual components as part of a certificate programme.

Graduates from the Master's programme in Law and Information Systems are awarded the title of LL.M, which is highly sought after internationally. The course is targeted at legal professionals who want to engage in newly emerging areas of work in the field of internet law. Data protection, IT contract law and intellectual property law are just some of the modules offered in the programme. Non-legal professionals with responsibility for dealing with questions of information law in businesses and organisations have the option of taking individual modules as part of a certificate programme.



Photo: © iStockphoto.com | Zeynep Ogan

Freedom to study anywhere: thanks to modern teaching methods, students at Oldenburg are not tied to a particular location

Expert advice on teaching material – “as even the best teachers aren’t necessarily experienced in distance learning!”

all ways of reaching out to members of the general public who maybe interested to make them aware of the contents, programmes and quality of C3L courses.”

Another focus for C3L is professionalisation programmes. Its work in this area is headed by Dr Joseph Rieforth and Dr Christiane Brokmann-Nooren. These courses, most of which can be taken part time, alongside work, allow people to study at university level for professional qualifications. One area where this approach has been tried is psychotherapy training, leading right up to state certification.

All Master’s programmes – the Center for Lifelong Learning at the University of Oldenburg offers four such courses – are designed according to the concept of **blended learning**, which combines distance and face-to-face classroom learning. For the distance learning elements, Oldenburg maintains a department at C3L dedicated solely to course design. “We have developed a distinct learning environment that forms the basis for our courses,” says Axel Kleinschmidt, who heads the department. It is a system unique to Oldenburg and draws on many years’ experience of online teaching. “We have designed it to reflect the course programme and teaching context perfectly,” says Kleinschmidt. The demands vary from subject to subject. “Take law, for instance. All the teaching materials are online, and the texts include links to relevant laws and court judgments, so they can be kept continually up to date. That is very different from the requirements for other disciplines, where we can work with videos or other tools, for example.”

His department is also responsible for the design of printed course materials. There is a handout for teachers summarising the teaching principles behind the programme, which provide the basis for guidance on creating course materials. “Even the best teachers aren’t necessarily experienced in distance learning,” says Axel Kleinschmidt. When preparing a module, professors can input material into a template that automatically adjusts the layout. Finally, the course materials are

Combines the advantages of face-to-face communication during the sessions held at the higher education institution with the flexibility and effectiveness of autonomous learning. Also known as integrated or hybrid learning.

reviewed by teaching experts, so that they can apply the finishing touches. Reading assignments can be adapted to the needs of students in work, for instance, or illustrations, examples and reflective tasks can be incorporated to aid understanding. The process is aimed at reducing the workload for those involved and ensuring that preparation goes as smoothly as possible for the academic experts responsible for producing the materials.

If the previous trend continues, it is likely that C3L will play an increasingly important role within the university in future. Interest in continuing education is growing, and new courses are being added all the time. “We may decouple more certificate courses from existing programmes, as that is a tried-and-tested approach and many people are interested,” says Michaela Zilling. This strategy allows you to reach two different target groups. While there is strong demand for certificate courses from businesses seeking work-related qualifications for their employees, most of the applicants to Bachelor’s and Master’s programmes are people with a thirst for knowledge, who choose to take an additional degree on their own initiative. Ideally, says Zilling, an employee who is sent on a continuing education course by their company will find it so interesting that they decide to use this first certificate as the springboard to a full degree – an option built into the Oldenburg system from the very start.

Research and Development

No fewer than three professors work in close cooperation with the Center for Lifelong Learning (C3L) in Oldenburg – an arrangement unique in Germany, as universities do not usually establish professorships within their continuing education departments. The academic head of C3L, Professor Anke Hanft, has a reduced teaching load so she can devote more time to her duties at C3L. In return, C3L helps fund Professor Olaf Zawacki-Richter’s professorship in “Research Transfer and Learning with New Technologies”. “My teaching duties also include continuing education,” he says. In fact, he divides up his study, teaching and research activities on an equal basis between the faculty and C3L.

Research plays an important role in the structure of C3L. The focus is on approaches to teaching in continuing education, a topic that features on several of the Master’s programmes offered by the Center. Participants in the Master of Distance Education & E-Learning programme and the MBA programme in Education Management, for instance, are trained in ways to support part-time professional students (see “At a glance” on page 23). Oldenburg’s research findings are helping to improve the quality of continuing education seminars across Germany. Together with the professorship of education management and C3L, Zawacki-Richter heads the joint research project “mint.online: establishing professional part-time degree courses in mathematics, information technology, natural sciences and technology (MINT)”, which is funded by the Federal Ministry of Education and Research and is run in cooperation with renowned partners in the field such as the Fraunhofer Society. “Our aim is to ensure that programmes are geared as much as possible to the learning requirements of professional people in employment,” notes Professor Olaf Zawacki-Richter. The description of the mint.online project states: “The teaching methods (and media) used in professional supported part-time programmes must meet the requirements of adult learners. Professional skills should be taken fully into account, with appropriate quality assurance, so that courses are tied in directly to learners’ existing knowledge and build on their skill levels. The aim of this joint research project is to equip German higher education institutions with programmes that will position them to succeed in the continuing education market.” The intention is to develop several degree and certificate programmes at participating universities as an outcome of the project, with a focus on the MINT subject areas.

Olaf Zawacki-Richter feels that the professorships are changing perceptions of continuing education at the university. “Because we have established our own academic centre here, people don’t look down on us as ‘that continuing education place’,” he concludes.

Acronym used to describe the subject areas ‘Mathematics, Information technology, Natural Sciences and Technology’.

Accreditation procedure

All continuing education programmes at Oldenburg University allow for accreditation of professional skills and additional qualifications from either a previous degree or a recognised continuing education course. The process is most straightforward when dealing with university degree results, but there is also an ingenious system of across-the-board and individual accreditation procedures. Relevant courses taken with a chamber of industry and commerce, for instance, are assessed on a case-by-case basis by the academics overseeing the programme and can be counted towards the assessment requirements. Qualifications earned in previous academic or professional work – whether or not they come with a certificate – are individually assessed and, if they are found to be equivalent, can be recognised.

The Public-Private University

Berlin University for Professional Studies originated as a joint project between a renowned public higher education institution and a private education provider. Together they intend to open up a new market – with a strong emphasis on service and a unique study concept

“Professional people expect a good service. If you have a job, you can’t afford to spend two hours waiting outside the student advisory office for an appointment.”

B

erlin University for Professional Studies originated as a joint project between a renowned public higher education institution and a private education provider. Together they intend to open up a new market – with a strong emphasis on service and a unique study concept

On arrival, one is struck by the magnificent setting: an imposing brick villa in the upmarket Berlin suburb of Dahlem, fronted by extensive grounds, with a manicured lawn and alcoves decked out with white garden benches. The parquet floors in the villa are freshly sanded, the seminar rooms furnished simply and elegantly. “Everything is only a few years old. It was renovated to suit our needs during the set-up phase,” says Dr Udo Thelen, Provost of Berlin University for Professional Studies (DUW).

His institution is one of the most eye-catching projects on the German continuing education landscape. Freie Universität Berlin (FU) formed a partnership with the Klett Group, from Stuttgart, to establish DUW as an independent university. In 2008, the state granted it university status; with just 40 permanent members of staff, it is probably the smallest higher education institution in Germany. Its target group is graduates who have been in work for at least a year and would like to continue their education.

According to Provost Udo Thelen, this collaboration between a renowned university and a private education provider has produced a “classic win-win situation”. “The two partners contribute the experience they have built up in different areas. Alone, neither could have put together the sort of programme we

are offering!” The partnership allowed FU Berlin to tap into the education firm’s extensive know-how in teaching and learning logistics, a field where very few public universities have sufficient internal resources. The Klett Group supervises 180,000 people a year in adult education, although until now most of them have been in the non-academic sphere. It also has considerable sales expertise. “Our target group is completely different from that of a traditional university, so we have to employ different methods,” explains Thelen. The FU, on the other hand, contributes its academic reputation and experience in setting up degree programmes.

The result of this unusual collaboration is an institution that sees its students as customers. This is evident even at a formal level; when students register, for instance, they receive a customer number rather than a matriculation number. The aim is to make service a hallmark of DUW. There is a free hotline for potential applicants, open daily until 8pm, and stamped addressed envelopes are provided with the glossy university magazines to allow people to request further information. The service team is happy to chat to people in person; the offer includes an extensive tour of the campus. It is even possible to undertake a one-month trial study period free of charge. “Professional people expect a good service,” says Provost Udo Thelen – “nothing can work without that. If you have a job, you can’t afford to spend two hours waiting outside the student advisory office for an appointment.”

DUW is similar in structure to conventional universities, although here the



Tasteful surroundings: the university is housed in an old villa in the upmarket Berlin suburb of Dahlem

Photo: © DUW | Aussenhofer





A particular target group: the Berlin University for Professional Studies is aimed at students with professional experience. It promises prospective students an intensive learning atmosphere

Flexibility is paramount: if you register today, you can start your programme in three days

faculties are termed departments. There are four: economics and management, health, education and communication. Degree programmes are located within these units, each of which is set up to be interdisciplinary. Currently the university offers seven Master's programmes, from European Public Affairs to Security Management and Enterprise Security. There are also around two dozen certificate programmes. In total, 500 students are enrolled at present, but DUW plans to expand significantly over the coming years, with three or four new Master's programmes envisaged within five years.

In all programmes, the curriculum is spread over four semesters (90 credits in total). Courses can be taken on a part-time basis, alongside work. Two of the six modules – general management and personal skills – are the same for all programmes. They cover issues such as dealing with change processes, intercultural communication and leadership skills. The other four modules are subject specific.

"When developing our approach to teaching, we were able to draw on the experience of the Klett Group, so we didn't have to reinvent the wheel," says Dr Roswitha Grassl, the head of programme development. The company has a wealth of practical knowledge, built up over many years in its own continuing education institutions, about how best to adapt materials for distance learning, how many days of **face-to-face attendance** does it make sense to have, and what types of support are used most frequently. DUW offers a mixture of different formats ranging from traditional course workbooks and self-directed learning via online units on the virtual campus (especially for project work in groups) right

through to classroom teaching.

"The thing that sets our study model apart is that we have removed the idea of fixed entry dates at the beginning of the semester," says Roswitha Grassl. "Applicants can register at any time and start their course three days later." This flexibility is made possible by the variety of teaching methods used and the fact that classes and lectures are offered on a regular basis, not just on a one- or two-year cycle. "That makes it easier to fit them in around people's professional and private lives," says Grassl. "Often course participants want to attend a family gathering or are on a business trip that can't be put off until another time. With our system, people don't have to plan their entire lives around their studies."

Students are expected to spend a total of 18 days on campus during their course. These are spread over weekend seminars held on a quarterly basis. Five days are set aside for the so-called field trip, which is unique to DUW. Its purpose is to highlight the practical relevance of the Master's programmes. Students meet experts in businesses or organisations and put together a seminar paper based on the conversations they have had and the insights they have gained. This approach, which is integral to every programme, is described as "reflective practice" in DUW's marketing material.

Distance learning programmes are usually divided into study materials which the students work through independently and block attendance sessions at the higher education institution. These attendance sessions are described as 'face-to-face' sessions.

Dr Eva Cendon, the director of the Master's course in education and skills management, took her last field trip to Helsinki. "We visited the Palmenia Centre for Continuing Education, one of the cutting-edge institutions for lifelong learning," she says. DUW students devoted a whole seminar, lasting two months, to the trip. First, the students were given a preparatory workbook, which they used to formulate a research question. Literature searches are carried out on an individual basis; participants then supplement these with interviews conducted on site. After presenting their findings to the group, the students prepare a project assignment. "When doing so, they pick out questions related to their respective professional backgrounds," says Eva Cendon. One question discussed by her group, for instance, was what makes an organisation a learning organisation. "That is an example of what we understand by reflection in practice," says Cendon.

In future, DUW wants to target its courses at institutions as well as individual students. It describes itself as "a partner in staff development of organisations in both the profit-making and the non-profit sectors," supporting them "through a combination of continuing education in-house, learning in the workplace and courses at formal education institutions." Already many students at the university are there with their employers' support. This proportion is likely to rise further in future.

Financially, Berlin University for Professional Studies has still to break even. "In this field, you have to be prepared to hang in there, as it may take a long time to produce a surplus," says Provost Udo Thelen. DUW expects that it will take at least five years for the institution to become self-supporting. Just in case, however, the contracts agreed between the FU and the Klett Group spell out what should happen to any profits that may one day accrue: they are to be split exactly 50:50 between the two partners.

At a glance

DUW in figures

Berlin University for Professional Studies (DUW) was established in 2008 as a public-private partnership between Freie Universität Berlin and the Klett Group. Although it has strong organisational ties to FU Berlin, which provides many of its lecturers, it is an independent university. All courses are directed at practitioners who have been in work for at least a year. Seven degree programmes and 21 certificate courses are now available, and approximately 500 students are currently enrolled. DUW has around 40 members of staff, half of whom are academics. To guarantee course availability, it also employs teachers on a freelance basis; these include practitioners as well as academics. Depending on the subject, courses cost between 650 euro a month, for Master's programmes, and 925 euro a month, for certificate programmes lasting between two and eight months. For a regular two-year Master's programme, that works out at an overall cost of 15,600 euro. Many students come to DUW in their mid-20s, relatively soon after finishing their first degree, but applicants include people returning to university even in their late 50s.

Independent research

Although DUW specialises in continuing education, as an independent university it is also engaged in research. Considerable importance is attached to ensuring that this research involves or benefits students in continuing education. Most current projects are based at the university's Department of Education. Research topics include approaches to the teaching and study of mathematics, study formats for distance learning and studying without a first degree.

The university is still in the process of recruiting its academic staff. There are already a few professorships, and the number is projected to rise to a good dozen in the medium term. "The ability to appoint professors is one of the cornerstones of our independence as a university," says Provost Udo Thelen. When making appointments, DUW applies different criteria to other higher education institutions. "In our case, student satisfaction is at least as important as high-ranking publications when it comes to making a decision," Thelen notes.

An Incubator with Outreach

EU Structural Funds are to be used to push forward regional development in the Lüneburg area. At the centre of the various projects stands Leuphana University of Lüneburg. The contribution from Brussels benefits the students in several ways at once – for instance through scholarships, a closer involvement in research or from advice on starting up businesses

T

horsten Kurtz has long known the statistical data inside out and back to front: the region around Lüneburg has a lower than average share of employees with a university degree, there are few workers in knowledge intensive service branches, and the level of research and development in the area is below average. “That is something we want to change,” claims Kurtz – and changing things is exactly his job: Kurtz is one of the leading members of the Innovation Incubator at Leuphana University of Lüneburg. Over the next few years 86 million euro in funding will flow into the project, a large proportion of it from **European Union Structural Funds**.

What is remarkable about this is that EU Structural Funds are actually intended to support regional development. No other higher education institution in Germany is subsidised in this manner, but Lüneburg receives the money because the university and regional development are interconnected. “This is a fabulous opportunity to put new ideas into practice throughout the whole university,” explains Thorsten Kurtz. The project is already in full swing, and it is clear even at this stage that everyone can profit from it: the students through a greater range of courses and scholarships, academics through more money for research, local businesses through joint projects with the university, and the region

EU Structural Funds are an instrument of EU funding policy to support regional economic development in structurally weak regions. A subsidiary aim is to enable the modification and modernisation of systems of education, training and employment.

through the influx of qualified workers. The university as the catalyst for regional development – this is the concept that will be tested in Lüneburg under laboratory conditions.

The constraints on the ways in which EU funds can be used are strict. For instance, the university may not finance any regular courses with money from this source, nor may it subsidise existing degree programmes. The effect of the money is much more indirect – “to keep up the metaphor of an incubator: the whole university will be positively infected,” says University President, Professor Sascha Spoun.

To guarantee success in this endeavour, an additional level has been created in the institutional structure at Leuphana. Lüneburg University was originally modelled on the Anglo-Saxon system, with a College for those taking a Bachelor’s degree, a Graduate School for the Master’s and doctoral students, and a Professional School for continuing education programmes. The Innovation Incubator has now been added as an independent organisational unit – a department within and of itself, but one which impacts all other areas. All projects relating to regional aid will be controlled centrally from here; with more than 200 employees, the Incubator has instantly become a large independent unit. Priority areas for the funding are digital media, health and sustainable energy.

The Innovation Incubator has several interfaces with the Master’s degree programmes offered at the university. For example, over the next few years funding will enable 15 visiting professors to work at the Graduate School. Commitment has already been secured from leading experts



Shining example: thanks to the support of EU funding, the university in Lüneburg is at the heart of regional development





Photo: © Leuphana

Hands-on experience: in Lüneburg students are encouraged to play an active part

from several countries. These professors will have no teaching duties, since that would conflict with the constraints on the use of funding. The aim is rather that the visiting professors create connections with local business and initiate joint projects. The decision as to how exactly this should be done is left up to them. They may give guest lectures at their faculties, advise students with regard to specific research projects or act as second assessors for Master's theses. "A purely additive structure," says Professor Andreas Reindl, "and yet one with tremendous potential for the faculty".

Reindl is an internationally recognised expert in European and US-American competition law. He is one of the first academics to have been appointed to Lüneburg under the auspices of the Incubator. He has outlined his plans quite clearly: for local business he will engage with the topic of compliance. The issues here are, for example, laws governing competition and patents. His observations suggest that such topics are not currently on the agenda of many small- and medium-sized companies, but ignoring these issues could, in fact, have serious consequences. The particular challenge for me is to make my experience at the international level useful at the regional level," says Reindl. He intends to set up a preventative programme and to offer concrete help on how to integrate the issue into company structures. Round table discussions, for instance, would be one possible way of doing this. "These discussions will, of course, be open to students," notes Reindl. It offers them an opportunity to participate actively and at the same time gain insights into company practices. Although this involves extra effort which is not be recognised as part of their studies, it does promise valuable experience. Such meetings might also provide inspiration for a dissertation, for which Professor Reindl could be an advisor within the framework of supervision.

The integration of the other visiting professors into the Master's programmes works in a similar fashion: they offer additional lectures which students are not obliged to attend, but which would serve to broaden the students' horizons. Students also benefit indirectly: whenever contacts created with the regional economy by a visiting professor lead to permanent cooperation with the university then research tasks will arise in which students can of course become involved.

Benefits from Lüneburg Innovation

Incubator are also available for the Graduate School: a total of 30 Master's students and 20 doctoral students receive scholarships for between 24 and 36 months of 800 euro or 1,300 euro per month respectively. Students' research work must be related to regional development in accordance with the conditions set by EU funding programme (see "the student view", page 33). Here, too, the connection between regional development and university research, of the very kind the Incubator is intended to create, is immediately evident.

The effects of the Incubator on the students can also be seen in the area of continuing education: "Many more than half of our positions are financed through the Incubator," says Heiko Franken, managing director of the Professional School. The start-up financing for new Master's programmes – from project development through to the creation of case studies for use in teaching materials, including the design of e-learning components, and even marketing – comes from the EU via the Incubator. The ultimate objective is that what is offered will promote the region in two ways at once: in the first place, the degree programmes provide opportunities for people within the region to gain further qualifications. These programmes are open to local companies and their employees, and so can therefore help to increase competitiveness. In the second place, the continuing education programmes attract high-quality people to Lüneburg, and this opens up the possibility that these people will be persuaded to stay.

There are currently six continuing education Master's programmes on offer at the Professional School, and another five are in preparation. These programmes are designed with face-to-face sessions every three to four weeks along with additional coursework assignments and project work. One example is the Master's in Building Law and Building Management which has just been launched and which is unique in Germany. "To put it simply, this course deals with commercial risk-management with regard to construction projects," explains programme director Professor Ralf Schottke. The programme sits at the interface of engineering, law and economics and focuses on key questions of why almost all construction projects ultimately cost more than planned, and how this can be controlled. The way a contract is drafted plays as great a role in this as does the actual construction management itself. For

this reason knowledge from several areas is required: familiarity with basic legal terms just as much as an understanding of technical interdependencies and commercial considerations. Graduates should later be able to solve a range of highly consequential problems at the interface between these areas. "Imagine a construction company arrives with 100 workers at a large construction site – and then imagine that there are no plans to give to these workers, although they are ready to start work immediately." Preventing such mistakes may very well be the kind of task graduates are later asked to undertake. In the event of such mistakes or delays they can also then immediately clarify who was responsible for them. In the industry this is known as construction design and planning and the Lüneburg degree programme prepares students for exactly this. Sixty to seventy jobs on a large construction site must be coordinated. "The graduates are destined for management responsibilities in large companies," says Professor Schottke – "or they may set up their own office and become self-employed."

In this case the Innovation Incubator can also immediately offer further assistance, since advice on entrepreneurship is also part of the broad range of services offered.

And this is precisely where the added value for regional development arises: one of the central ideas is to encourage the best people to remain in and commit to Lüneburg and the region. A further contribution is made by the Professional School through its range of offers from certificate courses to company supported part-time Bachelor's degree programmes. Partnerships between business and science are also to be found here. "This is exactly how the Incubator works," says University President Sascha Spoun: "Its aim is to bring together various strands and to connect exciting areas."

The long-term goal to which Spoun is aspiring is also a further enhancement of Lüneburg's profile as a centre of research. Nowhere else in Germany is there such a gaping lack of non-university research institutes as in the gigantic area which lies between Hamburg, Hanover, and Bremen – therefore, including the very the area surrounding Lüneburg. The intention is to fill this gap with a focus on pioneering projects from which the university would directly benefit. For those at Leuphana, the Innovation Incubator is a key driving force in this development.



Photo: © Private

Elvia Gaida studies Management and Marketing at Leuphana University of Lüneburg

The scholarship which also enriches the regional economy

From the very beginning I always knew I would do my Master's degree in Lüneburg. I study Management and Marketing, and here at Lüneburg I have found exactly the specialist subject areas that interest me: marketing, tourism, and regional development. The last of these is the most important point of contact with the Innovation Incubator at the university. Every year it awards scholarships to Master's students whose final dissertation addresses a topic related to regional development. This seemed just made for me! I applied immediately and now, via the Incubator, I receive financial support for my work. My topic? I am developing a local advantage card for tourists. Many other towns and cities have something similar. If you are a visitor, the card may for instance give you a discount on entry prices to museums or free travel on local transport. I want to apply this principle to Web 2.0, and so appeal to a younger target group. To do this I'm working very closely with the local tourist board. I'm now also going to Malaga for six months to be able to apply this experience abroad. There, I am going to put together a case study on the advantage cards that are already established. I'm sure that I'll discover interesting aspects which it will be possible to adapt for the region here. This is a classic win-win situation: the local economy will profit from the results of my work. And for students, Lüneburg will become an even more attractive study location. I would never have been awarded a similar scholarship anywhere else. My experience of Lüneburg has been so positive that I can really imagine settling down around here on a permanent basis.

Master's Programmes for the Whole World

Bremen University of Applied Sciences is looking to target its continuing education programmes at an international clientele. Its Graduate Center is an independent organisation – and such is its success that it has long been bursting at the seams



Up and away: from the Bremen city ramparts, graduates will head out into the world

Photo: © IGC, Bremen University of Applied Sciences

If you take the short flight of stone steps up from the street, you find yourself in an unprepossessing office building – and right in the heart of the International Graduate Center. The building, which used to house a company's administrative department, is now buzzing with students. Little lecture halls are crammed in over three floors; in the corridors, you catch snippets of English, while the coffee machine in the tiny kitchen is running flat out. Outside the window lies Bremen's new town, with the Weser only a stone's throw away. "We are reaching our limits in terms of space," says Ramón Spiecker, director of the International Graduate Center (IGC): "If we had more room, we could put on additional programmes and expand even more!"

The IGC has become a successful model for Bremen University of Applied Sciences. Nine Master's and MBA programmes are on offer, mostly on a full-time basis. The courses are targeted intentionally at students from across the world, and Bremen has managed to attract a truly international clientele: 40 countries are represented at the IGC, and around half of the 200 students are from abroad. What interests them most is the distinctive profile of Bremen's courses. The spectrum of subjects ranges from aeronautical management to European studies and international tourism management – in other words, there is a clear focus on economics, supplemented by expertise from areas or sectors with future potential.

The distinctive feature of the International Graduate Center is its independence. This is even evident from its location, as the office and seminar building is not situated right on the university campus. They are a few hundred metres apart as the crow flies – close, but not under the same roof. "We have been a separate business unit since 2009," says Professor Tim Goydke, the IGC's academic director. His institution is financially independent, for the most part, and the majority of programmes are self-

supporting. In terms of staffing, however, it retains close ties to the university. Most of the teachers are university professors who teach at the IGC on a freelance basis in addition to their university teaching commitments. Even Goydke, the academic director, has an additional office at the university. "I sit on a few committees there and work to raise the IGC's profile within the university."

There is a clear division of responsibilities within the university. While all consecutive Master's degree programmes are provided directly by the faculties, the IGC is in charge of most continuing education formats. All programmes, without exception, require applicants to have at least one year's practical experience. In addition, all participants must pay tuition fees ranging from 8,000 to 16,000 euro for a full programme.

The International Graduate Center has extended its role over the years. It started with an MBA programme in 1998, at a time when it had very few rivals. "Participants came to Bremen from all over northern and western Germany," says Ramón Spiecker, the IGC's managing director. We were literally overwhelmed with applications for this part-time course for professionals he recalls. To build on this success, three years later the university added a continuing education Master's in European Studies. "Gradually the organisational problems grew out of control," Spiecker recalls. "We needed to use university premises for classes on Saturdays and Sundays, but of course the university was actually closed then." How do you get into rooms if you need to run off some copies at short notice

Follows on directly from the first (usually Bachelor's) degree, in contrast to a continuing education Master's degree. In terms of content and subject expertise, the course builds on the previous degree. No professional experience is required.





Photo: © IGC, Bremen University of Applied Sciences



The real German touch: students in front of the statue of the famous Town Musicians of Bremen

A laboratory for innovation: what works in the Graduate Center has implications for the university as a whole

or want to make participants a cup of coffee? The solution was for the International Graduate Center to have its own premises. In 2004, it moved into a former office block, which was completely refurbished to make it suitable for university work. The money for this initial investment came mainly from the surplus yielded by the two successful pioneer programmes over the years.

Having moved into its own premises, the Graduate Center continued to grow steadily; more students enrolled and new courses were added. Little by little, the full-time programmes, aimed primarily at an international clientele, were established. This approach is very much in keeping with the university's systematic internationalisation strategy. Almost all **undergraduate degree programmes** in Bremen include provision for one – and sometimes even two – compulsory semesters abroad. This means that there is a wide base of partner universities spread throughout the world – and also that for years large numbers of overseas students have been coming to Bremen on exchanges. "We felt it made sense in terms of consistency for us to develop this particular profile," says Ramón Spiecker.

Bremen has designed its full-time programmes to meet the needs of an international clientele. The taught component of most courses has been squeezed into a single year in Bremen, with all classes scheduled to take place consecutively. When working on their dissertation, which takes another six months or so, students are not tied to a specific location. The advantages

Undergraduate programmes refers to courses leading to a first degree. These include both Bachelor's programmes and the former Magister and Diplom programmes.

of this approach are obvious. Since it involves shorter stays in Germany, most visa problems can be dealt with more easily; it also keeps down participants' maintenance costs. The crowded curriculum ensures that the IGC is a lively place. During the week, the students are in seminars nearly all day; between lectures, they can be found discussing issues or working together on assignments and case studies. The building is open until 10pm, which makes for a real campus atmosphere.

The IGC employs a total of 16 staff, whose activities are geared towards this specific target group. It has its own international office to sort out any problems with immigration and help students find accommodation in Bremen. It is Bremen's boast that "hardly any other institution offers support so well tailored to the needs of international Master's students".

So what does this distinctly international clientele bring to the university? Professor Tim Goydke highlights two principal benefits. First, it maintains an international atmosphere at the university that filters through to other programmes. Second, the IGC's independent status allows it to act as a laboratory for innovation. As a relatively small organisation, it has no trouble introducing new initiatives. If these prove successful, they can then be rolled out across the university. This approach has been applied to questions of accreditation, double degree programmes and even some aspects of administrative law. "I will give you a simple example. We switched our administration over to contribution margin accounting. Based on our experience, the university as a whole is now thinking of introducing it," says Tim Goydke.

In future, alongside these successful full-time programmes, the academic direc-

tor wants the IGC to strengthen its position in the market for company supported part-time programmes. As these involve regular attendance in Bremen, they are aimed primarily at applicants from Germany. A good example is the **MBA** in East Asian Management, which is headed by Goydke, an expert in the Asian region. Our first intake was in 2011, with participants from all over the German-speaking area. Around a third of the curriculum is given over to regional studies and involves learning about cultural differences and intensive language training. The other two thirds are devoted to traditional business economics. "There, too, of course, we choose case studies and examples of practice from Asian countries," says Professor Goydke. Each participant specialises in one of several key countries (China, India, Japan or Korea); the course contents are then adapted specifically to match their chosen regional focus.

Bremen also intends to continue to plug such gaps in continuing education provision across Germany. But first, the IGC must find itself a bigger seminar and administration building. "At the moment we are driving with the handbrake on. We just don't have the space for new applicants," admits Goydke. The aim in the medium term is to increase the number of students from 200 to 500, when the IGC is likely to start generating a profit. The Center is already largely self-financing, but at that point it may even be able to transfer some income to the university.

Shortened form of 'Master of Business Administration'. A postgraduate management degree designed to equip graduates from other disciplines with methods and approaches used in the field of Business Administration.

The student view

"I want to discover more about Germany"

Mariann Karlstad (25) from Norway and Detrick Brown (31) from the USA are enrolled in the "International MBA" programme at Bremen University of Applied Sciences



Photo: © Kilian Kirchgäßner

Detrick Brown: Why did we choose to study in Bremen specifically? Well, both of us followed very similar paths. I did my first degree, in business economics, in the USA. Then I got a job, first in the accounts department of a non-profit organisation and then with a major computer company. I had also spent some time in Spain – that was my first experience of Europe. I just wanted to go

back to uni at some point, preferably abroad.

Mariann Karlstad: I studied in Oslo and Seville and worked for three years in a human resources department. I wanted to improve my career prospects and was thinking about going abroad again to study. That's when I came across the programme here in Bremen. It is jointly organised by seven higher education institutions from all over the world – Germany, Spain, France, Russia, the USA and Malaysia. The first five core modules are the same everywhere, so you can take them in the country of your choice. After that you select a university based on the specialisations they offer.

Detrick Brown: We're here for the first set of modules. I definitely wanted to come back to Europe, and I really like Germany. Everything is so organised, the people are nice and I'm impressed by the way they take care of the environment.

Mariann Karlstad: I wanted to come here because Germany is so important in European politics. I want to find out more about this country. And I must say I really like it. But there are a lot of things that take some getting used to. For example, the Germans are quite direct. We had some Germans in our programme, and sometimes I was really taken aback by them. They were constantly debating things – sometimes it got really heated. We Scandinavians are a bit more reserved.

Detrick Brown (laughs): I still remember the first group project. Before we had even really started, we were caught up in discussions about the agenda for our meeting! I learned a lot from that – I think we've all benefited from being part of this international team.

Mariann Karlstad: When the seminars here in Bremen are over, I'll go to the University of Valencia in Spain for the next part of my course. This will give me a double diploma from Germany and Spain. What will I do with it? Initially, I'll probably go back to Norway. After that – I'm happy to wait and see.

The Career Master's

Karlsruhe Institute of Technology (KIT) offers complex degree programmes at the interface of Management and Engineering via a subsidiary company. The targetgroup is leading employees in global enterprises – and companies send their managers to us by the dozen

T

he list of partner companies is impressive: BASF, BMW, Bosch, Daimler, IBM, Porsche and Siemens are all involved. In total, more than three dozen firms have close ties with the HECTOR School of Engineering and Management. For them, the seven Master's degree programmes are important instruments in executive training for their management. Consequently, the aim of the degree programmes – which are located in subject matter in the border areas between business and engineering – is to combine the academic strengths of the Karlsruhe Institute of Technology (KIT) with a practice-oriented approach.

As early as the 1990s – long before the merger with the Karlsruhe Research Centre that created KIT – Karlsruhe University founded a non-profit limited company known as "International Department". This limited company was an umbrella organization for three independent institutions: the HECTOR School, the Carl Benz School of Engineering, which offers a Bachelor's degree programme in English, the Karlsruhe School of Optics and Photonics and the Helmholtz International Research School for Teratronics. "This structure was necessary at the time of the founding of the new company in order for us to secure the commitment of partner businesses," explains managing director Judith Elsner.

The degree programmes at the HECTOR School, which is named after the co-founder of SAP, Hans-Werner Hector, are designed to take two semesters, with an additional four months given over to the writing of the Master's thesis. New applicants are accepted every 18 months; always at times when a degree programme

cycle has been completed. The degree programmes, which range from Management of Product Development, Energy Engineering & Management to Green Mobility Engineering, each consist of ten modules. Five of these address management topics and are available for all degree programmes; the other half is reserved for the content of the respective degree programmes. These are taught Master's programmes with seminars from Monday to Friday between 8am and 5.15pm. Exams are held every Saturday. Although the timetable is packed to the very limit, this makes it possible to keep the duration of each module to just two weeks. In these intensive phases, students have the option to stay on campus in small apartments belonging to the university.

"We made a conscious decision to offer high quality Master's degree programmes," says Judith Elsner. There was no desire to create an MBA programme: "Our strength in Karlsruhe is, after all, in the field of engineering, and through the Master of Science degrees we want to make that clear to the outside world, as well."

Most students are sent to the Master's programmes at the HECTOR School by their employers. For the companies this provides targeted, continuing professional training for their managers. The average age of the students is 28; in addition to a first degree and required working experience of at least one year, the entry requirements stipulate evidence of an outstanding command of English. Of the around 40 participants which in each year of entry are distributed over the seven degree programmes, 30 per cent come



Future Inc.: students on the programme in Product Development work on a 3D projection

Photo: LESCKIT in cooperation with HECTOR School of Engineering & Management/KIT

Tools for management training: companies send their best people to take part in continuing education programmes at the HECTOR School

from abroad and work either in the German branches of their company or in their subsidiaries abroad.

A Master's degree programme costs around 30,000 euro, and generally the employers support their employees with regard to this investment. Before the degree programme begins, the applicants must also pass the HECTOR School's strict selection process: in addition to the subject-related and formal requirements the process includes two interviews each lasting half an hour.

Many of the teachers come directly from KIT, but the HECTOR School also intentionally involves experts from industry. "The close contact to practitioners is very important to us," says managing director Judith Elsner. This is the reason why the programme includes additional guest lectures to which leading figures

from business and politics are invited. The former Ministers of State Lothar Späth and Günther Oettinger have already visited Karlsruhe, as have the former head of Porsche, Wendelin Wiedekind, and numerous board members of major German companies.

In Karlsruhe they are convinced that this top-class programme is creating widespread interest. "We assume that continuing education in Germany will develop in the direction that is already evident in America: there employees continue to educate themselves, even into middle age and beyond, whereas here it is principally comparatively young people who are interested in company-supported part-time study," says Judith Elsner. Thanks in no small measure to the HECTOR School, KIT is ideally prepared for this development.

The Master's as a Competitive Edge

Baden-Wuerttemberg Cooperative State University has traditionally offered only Bachelor's degree programmes – with its new Master's programmes it intends reach a new target group

Career positions: many companies hope to recruit high-quality employees through the Master's programme

T

he big milestone in the history of the **dual system** in Baden-Württemberg was reached in 2009. In that year, the eight universities of cooperative education merged to become the Baden-Wuerttemberg Cooperative State University (DHBW) with a new joint organisational structure. Student numbers rose to reach a current total of more than 27,000. This makes the DHBW one of the largest higher education institutions in Baden-Württemberg. Politicians repeatedly praise the Cooperative State University as an exemplary model from the south-west of Germany. Its eight locations and four branch campuses combine regional and local supply with a formula for success which is respected throughout Germany.

In future, the idea is that the Master's degree programmes will also contribute to this success formula. "The former universities of cooperative education concentrated on the Bachelor's," explains Professor Ulf-Daniel Ehlers. Professor Ehlers, a graduate in Educational Science, is vice-president for quality and teaching and is also responsible for research as part of the executive board the Baden-Wuerttemberg Cooperative State University. "Of course, having become an academic institution we now also have the task of developing the institution – and that means, among other things, offering Master's degree programmes and cooperative research." Ehlers has been in office since 2011, and the new orientation of the university is

Combines practical training with a company with the theoretical grounding of a university education. Students undertake both components in parallel.

his greatest challenge: "We sense an incredible dynamism. As a relatively young institution, this is all very new to us!"

The special feature of the dual system is the inclusion of employers. In the case of the Bachelor's degree courses, this has a long tradition: students sign an employment contract with one of the partner companies and divide their working time between academic study at university and the work-based component within the company. Students can, therefore, directly apply a great deal of theoretical knowledge, and the companies have a new generation of young professionals who are academically educated and also familiar with the standards within the company. Some 9,000 firms throughout Germany are involved as partners in the dual system of study. The close cooperation also has an effect on the structural set-up of the university: on many committees there are equal numbers of representatives of the university as of companies.

"Recently many companies have been expressing an ever stronger desire for us to introduce Master's degree programmes," says Vice-President Ehlers: "For them such programmes are often an essential way to recruit highly-qualified employees." The best school-leavers, namely, often want to have prospects which extend beyond a Bachelor's degree – and if the Cooperative State University cannot offer that, then the companies will fail to attract those candidates. This competition for the best candidates has significantly influenced the decision to develop Master's degree programmes.

Currently, the DHBW offers six further education Master's programmes which provide a total of eleven opportunities



Photo: DHBW / Photographer: Niels Schubert

Good prospects: for many students the Master's programmes and the associated career opportunities represent an important reason for choosing to study at the DHBW



Photo: © DHBW Stuttgart

A career bonus: companies can appeal to a new target group with the Master's degree programmes



Photo: © DHBW Stuttgart

Demands of the dual Master's: the academic combination of theory and practice

for professional specialisation. Additional degree programmes are planned for the coming semesters. The spectrum ranges from traditional business programmes such as Human Resource Management, Marketing or Banking and Finance to Computer Science or Engineering. The principle is comparable across the board: only those applicants who already have a minimum of one year of work experience will be admitted; it is not possible to enrol on a Master's programme immediately after the Bachelor's degree. The close cooperation with employers, which has already proved its value on the Bachelor's programmes, is also an important element. "In each individual case we have an in-depth discussion with the employer and the student applicant and require a clear commitment to the Master's degree programme on the part of the company," says Ulf-Daniel Ehlers. To this end, a contract is drawn up to regulate issues such as the possibility of study leave as well as the participation of the company in the practical components of the degree programme. That, after all, is an integral part of the whole concept: theoretical knowledge is mirrored in practice through a reflective task – for example, by students examining how particular processes are regulated in their company, or evaluating the criteria in accordance with which operating procedures are organised. The combination of theory and practice within the demands of an academic education is always at the core of the Master's degree programmes, which are completely integrated into the quality management processes at DHBW.

The structure of the university's Master's programmes includes a unique profile which is tailored to the particular requirements of the Cooperative State University.

One example is the degree programme in Governance of Social Work. "In Germany, many programmes in the area of social management already exist. Therefore, we did not simply want to develop another degree programme in this direction," explains academic director, Professor Paul-Stefan Roß: "Intentionally, we do not just add business courses to the social work degree, but rather pursue more of a political sciences concept which we have developed in the direction of governance." The graduates should be given more than just tools for leadership functions. They should also be made familiar with "the concept of the design and management of social / socio-economic organizations" as the description of the degree programme puts it. The course focuses on "analytical, ethical, strategic and practical competencies."

Participants in the programme come from all areas of social work: some are employed as youth workers by local government bodies and others work in geriatric or general care in the voluntary sector. Some are self-employed and have their own companies. According to the DHBW, many are in middle management. Their aim is to use the Master's degree programme as an opportunity to question established practices in their workplaces and to equip themselves for greater responsibilities.

The curriculum includes fields such as social theory and organizational sociology, which are dealt with from the perspective of practical application. A similar approach is taken in the area of empirical social research. This is seen not as an end in itself; rather the aim is that students are able to read studies thoroughly and commission complex research which goes far beyond simple surveys and tally sheets. "Partici-

pants have a great interest in the theory," says director of the degree programme Paul-Stefan Roß: "In the Bachelor's degree, some are still too practice-oriented and constantly ask themselves how the specific content will actually be applied in their professions. On the Master's programme they consciously want to look behind the practical aspects." This is also reflected in the final theses, which are significantly more research-oriented at the Master's level.

Teaching is, for the most part, undertaken by the university's professors but DHBW also engages experts from the professional field. "An experienced fundraiser from a large organization can, for example, provide essential insights," says Paul-Stefan Roß.

Although demand for the Bachelor's degree programme remains huge, it is already clear that the Master's programmes are a "necessary and valuable addition" says Vice-President Ulf-Daniel Ehlers: "In recent months we have appointed 150 new professors and many of our new colleagues warmly welcome the developments in the area of the Master's."

It is intended that the number of Master's programmes will remain small compared with the traditional areas of DHBW. The Bachelor's degree is certainly the standard qualification, says Ehlers. While up to 75 per cent of research university Bachelor's graduates and 50 per cent of Bachelor's graduates from universities of applied sciences aim to take a Master's degree, the percentage of those who go on to pursue a Master's degree programme at the Baden-Wuerttemberg Cooperative State University is likely to remain significantly lower. However, Ehlers does not want to specify a number. "We have discovered that many Bachelor's graduates are so satisfied with and so successful in their professions that they see no need to go for a Master's, which would require considerable personal and financial commitment," he says. The level of interest depends greatly on the subject studied: whereas in some areas there is barely any interest in a Master's degree programme, graduates in other fields are pushing hard to be able to study for an advanced degree. Professor Ulf-Daniel Ehlers has discovered that the demand is very high from companies in the financial industry and information technology. For this reason, many of DHBW's Master's degree programmes are offered in these areas.

At a glance



Photo: © DHBW Ravensburg

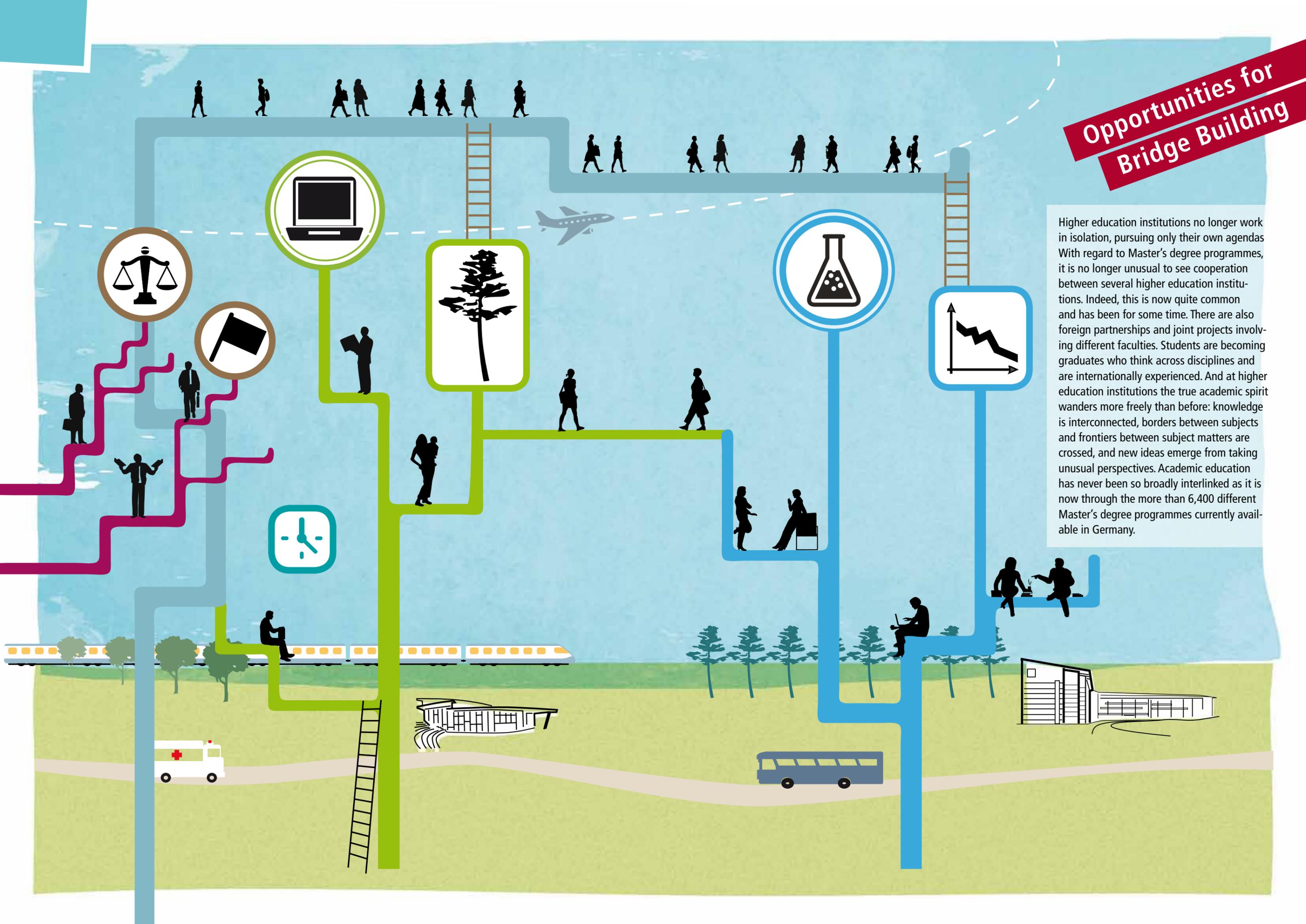
Together at the start: students at the Cooperative State University prepare their prototypes for the Formula Student race

A Master's Degree at DHBW

The Baden-Wuerttemberg Cooperative State University has intentionally created lean Master's degree programmes. Students only need to earn 90 credits by the time they graduate which is significantly fewer than the average of 120 credits that are expected at other academic institutions. This advantage arises from the fact that 210 credits are awarded to those with a Bachelor's degree from DHBW – which is more than the usual 180. To ensure that the Master's degree programmes are accessible to graduates other than their own, DHBW offers a so-called 'adapter course' in which applicants can make up the number of missing credits. "We are consciously aiming to reach prospective students from other higher education institutions who come to us after completing a Bachelor's elsewhere," says Vice-President Ulf-Daniel Ehlers.

Opportunities for Bridge Building

Higher education institutions no longer work in isolation, pursuing only their own agendas. With regard to Master's degree programmes, it is no longer unusual to see cooperation between several higher education institutions. Indeed, this is now quite common and has been for some time. There are also foreign partnerships and joint projects involving different faculties. Students are becoming graduates who think across disciplines and are internationally experienced. And at higher education institutions the true academic spirit wanders more freely than before: knowledge is interconnected, borders between subjects and frontiers between subject matters are crossed, and new ideas emerge from taking unusual perspectives. Academic education has never been so broadly interlinked as it is now through the more than 6,400 different Master's degree programmes currently available in Germany.



Internationality Included



Perfect pairing: the universities of Sønderborg and Flensburg offer several joint degree programmes

The University of Flensburg sets store by its proximity to Denmark: the university offers a bi-national degree programme in Business and Economics in cooperation with the University of Southern Denmark – the uniqueness of which attracts interested parties from all over Germany to apply to university in the far north

B

ack there," says Professor Heiner Dunkel pointing out of his office window, "you can see the cranes in the Flensburg harbour. Right beyond the harbour is Denmark." For the director of studies at the International Institute for Management this closeness to Denmark has proved fortunate: along with his colleagues at the University of Flensburg he has deliberately designed the Master's degree programme in Business Management – and also the Bachelor's programme – to be bi-national; The University of Flensburg has used its location on Germany's most northerly border to create a powerful, unique selling point.

The Flensburg model is based not on simple cooperation between a German and a Danish university; there are dozens of examples of that sort of thing. "We offer the degree programme together with the University of Southern Denmark in Sønderborg and the two universities participate on equal footing with regard both to organisation and personnel," says Dunkel. Our students come from both countries, seminar papers and final theses may be written in German, English or Danish and students are awarded a **dual degree** qualification as standard. Teaching takes place in Flensburg and is undertaken by staff from each country. The Danish teaching and administrative staff have their offices along a corridor in the institute building in Flensburg. In exchange, several German colleagues teach at Syddansk University in Sønderborg. It is clear that working together has long become a matter of course. For the natives of Flensburg, openness towards the neighbouring country

is in any case a tradition: in the shops in the old town it is possible to pay either in euro or in Danish Krone. On the street you hear both languages, and many Germans and Danes commute to work in the neighbouring country. "Unless you see this closeness," Heiner Dunkel is convinced, "you won't be able to understand the concept behind our degree programme."

Intensive courses in each other's language are an obligatory part of the programme for the participants: the intention is that students should be able to take part easily in seminars and discussions no matter which of the two languages is being used. This is also the reason why all classes have mixed student groups, and student residences are also mixed. Some German students live in Denmark, some Danish students in Germany. "The borders quickly fade away," says Professor Dunkel with a smile.

However, it is not only the organisational structure which makes the model so special. The content of the curriculum is also tailored to fit the particular situation. Alongside key qualifications such as research methods, ethics, or leadership skills, four specialisations are offered (Entrepreneurship & Small Business Management, Strategy & Organisation, Organisational Behaviour & Human Resource Management, Marketing & Media Management); more than half of the degree programme, however, is dedicated to international, linguistic and intercultural issues. "Internationality and Area Studies are the topics that make our programmes special," says Heiner Dunkel.

This all relates not just to Germany and Denmark: the programme aims to prepare graduates for working abroad generally, not just for working in each other's countries. Students can, therefore, concentrate on Latin America as well as focusing on Denmark. And above all: many skills and much

On a dual degree programme, two participating higher education institutions each award the graduate with a degree in accordance with their respective national laws / regulations.



International applicability: what students learn based on the example of Denmark can later be applied to any place in the world

of the content are easily transferable and applicable to other regions of the world. Professor Dunckel wants to enable his students to think their way into a particular country and into the particular circumstances there. "If you want to understand a country, it is not enough to know the economic data and statistics," says Heiner Dunckel, and that is, one might say, the guiding principle behind his degree programme. He wants to enable his students to apply what they have learned in situ – abroad. This concept is at the centre of the degree programme. "We are concerned with international management. Anyone who wants to become an outstanding expert in the field of, for instance, finance and accounting will be better off somewhere else!" A look at the statistics shows that this approach is successful: the number of applicants to the degree programme, which is open to 80 to 100 students per year, is continuously increasing. The graduates have no problem finding jobs. "Some time ago, former students founded a company in Belarus, others are now based in Latin America or in Kazakhstan, and many graduates work in international companies, not only in Germany and Denmark," says Professor Dunckel. There is an echo of pride in his voice because such reports show that international thinking works universally – even if you learned it simply by looking at the example of your next-door neighbour, Denmark.

"At the beginning of the programme the Danish and German students still sit apart in the student canteen," say Ina Jensen and Malte Böhmke who are both student representatives. "But after a couple of months there is no recognizable difference between them since they have all become a team."

For their Master's degrees Ina and Malte made a conscious decision to apply for places in Flensburg because the orientation of the degree programme appealed to them. And indeed there has been an interesting development at the university: whereas in the past it was mainly Bachelor's graduates from the university's own degree programmes who applied for places on Master's programmes, following straight on from their Bachelor's, now there are interested parties from other business faculties from all over Germany. The number of applications among Flensburg Bachelor's graduates is, by contrast, on the wane: they become fans of the German-Danish course very early on and, encouraged by their first

experience, tend to prefer to undertake their Master's degree programmes in Copenhagen or Aarhus.

In establishing their international degree programme, the people at Flensburg were able to draw on years of experience. There has been a German-Danish Economics degree programme since 1992. Back then it was based on a loose cooperation. With the Bologna reform this became a course offered jointly by the two universities. This long period of previous cooperation helped overcome many of the initial conflicts involved in the reform process. For example, the Danish system requires a second examiner for final theses, usually someone from the world of work. These are often graduates who in the meantime are working in business. The two examiners have completely equal rights when it comes to awarding grades. "For a German professor that is, of course, difficult to imagine," says Heiner Dunckel, "but in fact it actually works well like this!" Or the issue of the practical component: in Denmark up to 10 of a total of 120 credits in the Master's degree programme come from a work placement; this is a proportion that is achieved at the expense of the academic content. Germans and Danes have, however, found a solution here, too; a solution which transformed an initial conflict into a benefit for the students since the work placements are now made possible, without being them obligatory. Those who are interested in a work placement must discuss it with their supervisor well in advance, and determine a clear focus and defined learning goals. Afterwards, a full report on the placement is required in order for it to be recognised. In this way, the learning effect arising from the practical experience is enhanced.

Heiner Dunckel still finds himself smiling over the unique charm of the degree programme, a charm which keeps revealing itself in everyday life – for example, when a Danish student writes him an email which addresses him in casual Scandinavian style with the uncomplicated "Kaere Heiner," "Dear Heiner". After all, this could be considered a fruitful topic for the seminar on intercultural communication.

Key facts:

- **Number of credits:** 120
- **Standard duration:** 4 semesters
- **Qualification:** Master of Science, Cand.merc.int.
- **Type:** consecutive, face-to-face, dual degree

The student view



Photo: Kilian Kirchgeßner

Kim Plätz is a student on the Flensburg Master's programme in European Studies, which – like the international Management degree programme – is based on close cooperation with Denmark

Research in the border region as a springboard to the EU

I did my Bachelor's degree at the University of Duisburg-Essen where I studied Political Science. During this time I occasionally travelled abroad. I spent two semesters in Canada at the University of Winnipeg. It was there that I decided on a new focus for my studies: in my Master's I wanted to concentrate more on international politics. I made a conscious decision to apply here to Flensburg because European Studies is the only degree programme in English in Germany with this particular orientation. What I like is its interdisciplinary nature: it deals with questions of economic policy as well as European law. The location in Flensburg is a great advantage because here you find many research activities relating to border regions – a topic which is, of course, of great relevance in the EU. This is also reflected in the degree programme. Many lecturers who come from the University in Sønderborg, on the Danish side of the border, teach on the programme. This close interweaving means that the programme awards a dual degree. Most of the 45 students who register here each year come from abroad. There are 25 nationalities represented and many of my fellow students do not come from the EU but wish to study a successful example of international cooperation in person. Many of them already have practical experience. The degree programme is designed to follow on immediately after a Bachelor's, that is "consecutively" but every year there are also participants who have worked for a government or an organization. What do I want to do after my studies? I'd like to work for the European Union. My dream is one day to sit on the EU Commission's scientific advisory board. That is of course still some way off – but here in Flensburg I'm working on it.

The Science of Helping

All over the world graduates from Bochum are involved in humanitarian interventions: a Master's degree programme prepares students here for work with victims of disasters

T

he flood in Vanga is devastating: after heavy rainfall, there have, for months now, been gigantic areas of flooding. Hundreds of local people have died and some 100,000 are fleeing the region. Cases of cholera have been recorded and isolated riots in the region near the border to its neighbouring country, a region which has long been a source of unrest, have been reported. "This is the situation," calls Lisa Hilleke, "divide yourselves into groups and start planning a relief operation!"

Vanga is, of course, a fictitious country. On this particular afternoon it is located in the botanical gardens behind the campus of the Ruhr University Bochum. Hilleke is lecturer on the degree programme in Humanitarian Action, and such deployment exercises are a practical expression of the curriculum. The students swarm out, gather information and talk to the local population, played here by the teachers. "Do you need a hospital?" the students ask. The answer is prompt: "I have no idea what that is, a hospital." And while the students stand there looking a little dumbfounded, the local adds, "But since you are here... my husband is out the back in the garden, and he needs help with the cows." That, says Hilleke, is also part of the exercise: to learn how to deal with those affected, to understand what needs they have in everyday life and how to win their trust. Lisa Hilleke herself has been involved in many relief operations from Haiti to Palestine – "and I have experienced many of these kinds of exchanges there myself."

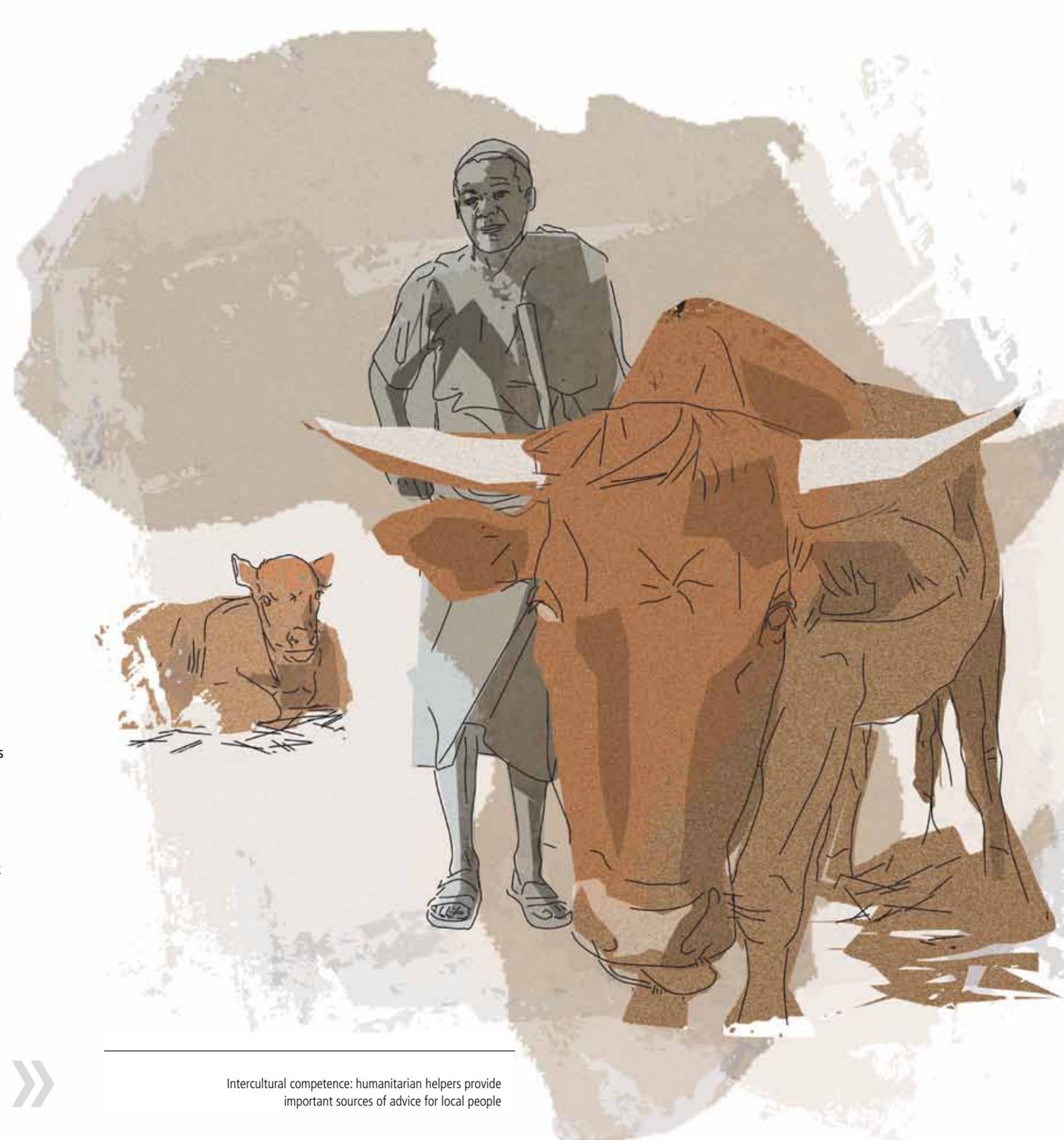
This degree programme in Bochum is unique in the German-speaking world. It focuses on humanitarian relief operations, from their legal backgrounds to practical operation leadership. While other degree programmes are aimed especially at engi-

neers or doctors who are to be prepared for such crisis interventions, Bochum chooses a broader approach. It is also part of an international network to which nine higher education institutions from all over Europe belong. Seven of these universities offer the Master's degree programme jointly; if the students wish to do so, they can apply to a different university in a different country for each of the three semesters of the programme.

This cross-border cooperation has grown over the decades. The first intake of students started in 1994 and since 2004 the former *Magister* has been offered as a Master's degree programme. In 2004, the European Union awarded the Master's programme the title of *Erasmus Mundus programme* of Excellence. The participants come from all continents – and bring with them not only expertise in their subjects but also cultural competence. "One learns immediately on the programme how the view of assistance differs from country to country," says Dr. Markus Moke who heads the degree programme in Bochum. Special religious and cultural factors must be taken into account, for example, and this makes every relief operation different.

The degree programme is known as the "NOHA Master's" – short for 'Network on Humanitarian Action' – a name which says much about how the programme sees itself: it is the networking idea which breathes life into the programme. "For us, partnership is a constitutive element,"

Joint degree programmes available at several European universities and funded by the European Union. The target group is not just European students, but also participants from throughout the world.



Intercultural competence: humanitarian helpers provide important sources of advice for local people





Photo: © Theresa Rieps

Preparing for an emergency: students taking part in "First Aid, Safety and Security Training" in Brandenburg

Theory and practice
closely combined:
the latest medical, legal
and logistical research
findings continually
flow into practical work

says Markus Moke. The participating institutions have therefore worked together on developing the curriculum, each on an equal footing with no institution in charge overall. "That was possible because we had already known each other for some time," Moke says.

The first three higher education institutions came together at the start of the programme 20 years ago – Bochum among them. Now, along with Bochum, universities in the cities of Bilbao, Uppsala, Dublin, Louvain, Aix-Marseille and Groningen are involved. The development of the NOHA network is, however, intended to grow further: the aim over the next few years is to involve a higher education institution from each of the countries in the EU. This is important not only for political reasons but also for reasons of content, since each university brings with it its own focus of research. While the Spanish, for example, concentrate on human rights, the Irish, for their part, concern themselves with the connection between humanitarian aid and developmental cooperation, and the researchers from Bochum are renowned experts in the field of international institutions and the management of international humanitarian aid. "The programme is designed to make it possible for the students to profit from these different approaches," says Moke: While the first five modules in all programmes are identical at each of the participating higher education institutions, thereafter the remaining parts of the curriculum are shaped by each of the participating partners to fit in with their own particular research projects. The students can then target and choose the particular focus which most appeals to them. The result is a huge network which includes all the graduates. "The

2,000 alumni are involved in work in every corner of the world," says Moke.

At the start of the application process, prospective students can choose between models: either they study for all three semesters at the same institution or they spread the semesters over three different universities. "Those who wish to study only in Bochum apply directly to the university, no matter which country they come from," explains Moke. "And those who wish to study at a different European university within the network after the first semester apply to do this via the general secretariat's office." The entry requirement is a first degree: most applicants have studied geography, history, psychology or law, but there are also often doctors, journalists and business graduates among the prospective students for the degree programme. Selection is based on the application documents and on interview – often in person; candidates from abroad can, however, also be interviewed via an internet call.

At Ruhr University Bochum the degree programme is offered at the Institute for International Law of Peace and Armed Conflict (IFHV). This subject area is deemed very interdisciplinary and research intensive; numerous third-party funded projects are based there, above all with regard to topics such as international law, human rights, humanitarian crises and international organisations. "We are always addressing the question of finding the right balance between academic content and relevance to practice that is right for us," says Moke. "But in our field these two aspects are almost impossible to separate. The results of research have a direct impact on practice and, naturally, we also have to reflect on results from field

research in the light of theory." Part of the degree programme, therefore, takes the form of regular outdoor training in which, for example, students build temporary relief camps. They also take a seminar in dealing with military situations. There is a piece of land near Bochum University where actors with very realistic-looking weapons simulate the situation at checkpoints. In this environment, students learn how best to behave in regions of crisis or conflict.

Those participating in lecturer Lisa Hillecke's seminar have it a little easier in this respect. They have to come up with a concept for aiding the flooded country of Vanga only on the drawing board, but that in itself is tricky enough. "For such operations there are so-called 'Sphere Minimum Standards in Humanitarian Response' which are determined internationally. These are concerned with vital questions – such as how many kilocalories an individual requires per day for survival, how much drinking water and domestic water is necessary, and what is the required minimum level of provisions in a disaster situation," says Moke. There are innumerable significant aspects which must be scrupulously researched: how many latrines must be made available in such a camp, how quickly must they be made available to inhabitants, what cultural peculiarities must be taken into account with regard to this? And, of course, the safety of both the inhabitants and aid workers must be guaranteed. In dealing with these issues, the proximity to research becomes clear: the overall quality of and accountability in humanitarian aid. Medical, legal, cultural and even logistical research findings continually flow into applied training scenarios. All this is aimed at enabling students to help the inhabitants of Vanga as quickly as possible. And then, after their studies, to better assist people in disaster-affected areas throughout the world.

Key facts:

- **Number of credits:** 90
- **Standard duration:** 3 semesters
- **Qualification:** Master of Arts in International Humanitarian Action
- **Language of instruction:** English
- **Type:** face-to-face, joint or double degree (depending on the participating institution)

The student view

An average working day? Making water filters, clearing ruins, building schools

When I began my studies I didn't yet know which direction I wanted to take professionally. At my university in Cologne I did a Bachelor's in multi-lingual communication with a particular focus on English, French and Dutch. It was clear to me, however, that translating or interpreting was not for me; I felt that I wanted to use the languages in a different way. What opened my eyes was an internship in Paris which I did during my degree: I spent six months with a doctors' organisation and helped organise two exhibitions there – one was about the forgotten crises in the world, the other about illegal immigrants in Europe. That experience showed me the path I wanted to follow. After I graduated I worked as a volunteer helper in Haiti. That was a year after the catastrophic earthquake there. Help was still very urgently required, and I was able to get involved with two international organisations. I helped to build schools and to make water filters. Using sledgehammers, we even knocked down damaged houses with our own hands to make it possible



Photo: © Kilian Kirchgeßner

Laura Puts has already worked in disaster relief in the field. She is now studying Humanitarian Action

for the owners to build something new on the land. It was then, at the latest, that I realised that I wanted to approach this kind of work in a scientific way. And that's when I found and applied for the Master's in Humanitarian Action in Bochum. My interview was conducted via an internet call from Haiti – and on my last day in Haiti I received the news that I had been accepted. In the course of the degree programme I have realised that this is exactly right for me. Here in Bochum I also had the same experience as when I was taking my Bachelor's degree: during the seminars I realise the path I want to take. It is clear to me now that what interests me most is the issue of water supply in disaster areas. I want to extend my knowledge in this area, first of all here at university and then afterwards, hopefully, in my professional career.

Knowledge for Change

Global change is the subject of a Master of Science at the University of Bayreuth. Integrated into the lavishly funded Elite Network of Bavaria, the programme offers students ideal conditions



High above La Palma: Global Change Ecology students on a summer school

Photo: © Benjamin Leutner



In the middle of a national park in the Canaries, a group of students gather around their professor to listen to an introduction to the ecology of the islands and local land use. When the lecture is over the students break into smaller groups and set out to work on individual research projects. "Being on site makes for such a direct hands-on experience that the students really get to grips with the subject," says Professor Carl Beierkuhnlein, who is in charge of the field trip to the Canary Islands.

He and his students gain practical insights such as these on a daily basis. The degree programme in Global Change Ecology (M.Sc.) is offered by the University of Bayreuth and is part of the Elite Network of Bavaria, which funds programmes aimed at high-achieving students. The selection process is rigorous, the upside being that study conditions are excellent thanks to strong support from the Bavarian government and from industry. At any given time, one of the students is usually abroad attending a climate change conference, academic symposium or summit on how to deal with the consequences of environmental change. "We try to make it possible for our students to attend these kinds of events," says Carl Beierkuhnlein. Since the idea is for every student to have the opportunity to travel to at least one such event, the costs are covered by the programme budget. There is only one condition: those who attend have to provide their fellow students with an extensive account of the experience and discuss all findings in a plenary session.

The content of the programme offered in Bayreuth is unique worldwide. It draws on various academic disciplines, incorporating elements from meteorology, geology, physics, chemistry, psychology, sociology and economics, among others. Students learn to analyse the ecological and social implications of climate change.

"Some of our graduates stay in research, while others go into politics and become involved in negotiating international agreements, and some go on to work in risk assessment for industry," says Beierkuhnlein.

Global Change Ecology was one of the first Master's programmes established at the University of Bayreuth after the implementation of the new degree structure. According to the University, the interdisciplinary nature of the programme made it an obvious choice. The curriculum is designed to allow maximum flexibility, including, for example, an optional **fast track** to a doctoral programme. Also, the programme appeals to students from all over the world and from diverse academic backgrounds. "We've deliberately kept our options open," says Beierkuhnlein. "This is an extremely challenging field, and we want to attract excellent students without overly limiting the pool to choose from."

Most applicants to the Master's programme will have just completed their Bachelor's degree. Many come from the natural sciences, others from disciplines such as business administration, sociology or psychology. Over the past few years, the syllabus has been modified to accommodate these different academic backgrounds. Beierkuhnlein admits that they made a mistake in the beginning in concentrating solely on topics in the natural sciences during the first few months. "Students with a Bachelor's degree in a non-scientific subject were thrown in at the deep end, which made things extremely difficult for them," he recalls. The current syllabus is more balanced in that

Allows students to begin work during the Master's degree stage on a doctoral degree, which can then be completed in a shorter time.





Photo: © Professor Carl Beierkuhnlein



Tracking climate change: field trip participants gaining first-hand insights



Photo: © Manuel Steinbauer

Interdisciplinary in the true sense: psychologists, physicists, business graduates, geographers and biologists combine their efforts

both social and environmental aspects are dealt with right from the outset, which allows students to feel their way into the programme. According to Carl Beierkuhnlein, this new structure, in conjunction with supplementary courses designed to fill individual students' knowledge gaps, ensures that all participants find it reasonably easy to get started. "While the students' diverse academic backgrounds continue to be a challenge for us lecturers, they do enrich the programme," he says. By way of illustration, he mentions that all participants stand to benefit from insights offered by psychology graduates, since negotiation strategies for international conferences and other types of interpersonal communication play a large role in the field of global change ecology.

Such learning synergies are enhanced by "the tremendous sense of camaraderie among students," as head of the programme Beierkuhnlein observes: students tend to form small groups in order to share their background knowledge with others and bring their own cultural experiences to the table. One example comes from a seminar concerned with drought in Africa, their impact on biodiversity and possible courses of action: "A discussion was in full flow when an African participant stopped his fellow students in their tracks by reminding them of the problem of local corruption and warning them not to dream up ivory-tower solutions," Beierkuhnlein recalls. "And that wasn't an unusual occurrence by any means; in fact that kind of input is invaluable. As a lecturer, no matter how much you stress some particular aspect, you'll never grab your students' attention in the same way as somebody speaking from personal experience."

This intensive exchange of ideas on the Bayreuth programme has even been formalised: every Thursday a meeting is held to give students and lecturers the opportunity to thrash out any problems encountered with the programme and also to compare notes. If a participant has just returned from a climate summit or other conference on environmental change, they will use the opportunity to report on the experience.

Participants in the programme are selected through an elaborate process. Applicants have to submit a letter of motivation, which is considered by two lecturers. The top 40 applicants from all over the world are invited to take part in an interview, which is conducted via Skype for the sake of convenience. Finally, about 30 of these will receive an acceptance letter. "However, about ten people on average end up not actually being able to take up their studies. The reason is very simply that they come from poor countries and don't get a grant. That is a real problem," Beierkuhnlein explains. For as well funded as the programme may be, there is no provision in the budget to help participants with their living expenses. "We would like to see more flexible funding instruments so that we could really make it easier for the best students to come to Germany."

Those that do begin their studies in Bayreuth enjoy excellent prospects: the dropout rate is extraordinarily low and the vast majority of graduates have little difficulty in finding employment.

Moreover, graduates concur that the programme has opened up new perspectives for them. The trip to the Canaries is a case in point. It involved students working in groups of three for a week, com-

pleting different research assignments, for instance on the influence of transport infrastructure on biodiversity. "There's this widespread notion that roads have a detrimental impact," says Professor Beierkuhnlein. His students had the task of investigating that claim, guided by lecturers on how to generate hypotheses and select appropriate methodologies. Their findings were surprising: some species, especially endemic ones such as those in the *Aeonium* genus (a genus of succulents only found in the Canaries) actually benefit from transport infrastructure in that they are able to propagate over a larger area. "That's a typical example of what makes this programme so exciting," he adds. "We get to ask new questions, even though we're a Master's and not a doctoral programme. In the process, we've upset many a commonly held belief."

At a glance

Master's Programme in Global Change Ecology

While the Global Change Ecology programme centres on content from the natural sciences, it incorporates key elements from the humanities and social sciences. For the benefit of overseas participants, all teaching is conducted in English. The programme is divided into three modules. One of these is concerned with climate change proper, focusing on the physical and chemical mechanisms behind it, its dynamics and influencing factors. Another module deals with ecological aspects, i.e. the ramifications of climate change for living conditions and the environment. A third module is devoted mainly to social issues, from the socioeconomic factors behind climate change to its implications, such as altered land use patterns and potential refugee movements. All three modules are accompanied by lectures on methodologies applicable to several of these areas, such as modelling, time series analysis and negotiation strategies.



Photo: © Professor Carl Beierkuhnlein

Field trip to the Alps: Professor Carl Beierkuhnlein (left) in conversation

Key facts:

- ◉ **Number of credits:** 120
- ◉ **Standard duration:** 4 semesters
- ◉ **Qualification:** Master of Science
- ◉ **Language of instruction:** English
- ◉ **Type:** consecutive, face-to-face

High-Tech Forestry

Modern information technologies have found their way into forestry and are there to stay. A new degree programme combines conventional forestry methods with IT applications, transforming a subject steeped in tradition into a trend-setting international model of success

W

hen Professor Alfred Schultz's students get ready for a trip to the woods, it's not surprising that they put on sturdy shoes and heavy-duty jackets. What is remarkable is that they take along modern equipment such as laptop computers as well as satellite navigation and measuring instruments. "Fewer and fewer foresters work as they would have done ten or twelve years ago," Alfred Schultz notes. "A whole range of information technologies that were originally intended for military applications, such as GPS, have recently found their way into forestry."

Schultz is a lecturer at the University of Applied Sciences in Eberswalde, which is located 30 km northeast of Berlin and has 1,800 students. It styles itself as a "University for Sustainable Development" and is committed to living up to that claim: its curriculum is wholly geared towards rural areas, ranging from nature conservation, landscape management and organic agriculture to forestry and wood science to regional development and tourism. That such specialisation is a good idea is evidenced by the fact that this small higher education institution in the state of Saxony is highly successful in securing third-party funding for research projects.

The Master's programme in Forest Information Technology offered by the University of Applied Sciences in Eberswalde harks back to the institution's tradition, which had its beginnings in 1830: the "Higher School of Forestry" was founded in the then Kingdom of Prussia to create a basis for sustainable management of Prussia's overexploited forest resources. While the concept of sustainability continues to be at the heart of the

institution, it is now applied through the use of state-of-the-art technology. "Forestry is moving with the times – so much so, in fact, that you wouldn't be able to do the job now without IT skills," explains Professor Alfred Schultz. The fact that he is a mathematician reflects the interdisciplinary nature of the programme. While classic sub-disciplines of forestry such as soil science or botany obviously still have a role to play, there is now a great deal of overlap with the field of IT through the use of geographic information systems, databases, computer-based data analysis and many other IT resources.

There was a time when a forester would have been in charge of fewer than 1000 hectares of woodland. Today's foresters manage areas many times that size. This is made possible by a surprising array of modern technology: stocktaking is routinely carried out using satellite data, and a variety of sensors automatically collect additional information. Forestry workers are directed to felling sites with the aid of GPS and use so-called harvesters, which cut down trees automatically. Even the quickest route from the forest floor to the sawmill is given by a computer. "Today's foresters no longer know every tree, but work increasingly from their desks," says Schultz, adding, "There's no point in trying to turn back time."

A distinguishing feature of the programme is collaboration with the Warsaw University of Life Sciences. All students spend their first semester at Eberswalde, where they are taught the basics of information technology, database management, landscape ecology and ecosystem modelling. The entire second semester is spent in Poland and gives students the



Heavy machinery in place of woodland serenity: Eberswalde has modernised its forestry programme

"Today's foresters no longer know every tree, but work increasingly from their desks."

opportunity to extend and apply their knowledge. They can choose where to spend the third and fourth semesters, depending on whether they want to focus on ecology, management, geomatics or another area. All content is taught in English, which accounts for the large number of overseas participants: one third each come from Germany and Poland; the remainder are from other parts of the world, including Spain, the USA and a number of developing countries.

Distinct from subjects such as ecological informatics in its emphasis on forestry, the Master's programme in Forest Information Technology is one of a kind in Germany. It attracts large numbers of applicants, who typically have a Bachelor's degree in forestry or less frequently in biology, geography or other related subjects.

The fact that most of his graduates find work immediately reassures Professor Schultz that his Master's programme fills a gap in the market. Some are hired by institutional or private forest owners and one-stop forestry service providers, while others find jobs with academic institutions, on research projects or in engineering companies. Their wide-

ranging knowledge of both forestry and IT methods gives these graduates a competitive advantage. What all this means is that the University of Applied Sciences in Eberswalde is at the forefront of the field internationally, just as its predecessor, the Prussian Higher School of Forestry, was back in 1830.

Key facts:

- ◉ Number of credits: 120
- ◉ Standard duration: 4 semesters
- ◉ Qualification: Master of Science
- ◉ Language of instruction: English
- ◉ Type: consecutive, face-to-face, double degree



Study with a view: working outdoors is not unusual for students at Geisenheim

Photo: © Geisenheim Campus

Research in the Vineyard

On a shared campus in Geisenheim, RheinMain University of Applied Sciences and the Geisenheim Research Center play a key role in defining the future of wine-growing. The programmes offered are so successful that people from all over the world apply to study in the central Rhine Valley

W

hen Professor Otmar Löhnertz steps out of his office, he sees vineyards all around. The Rheingau wine region extends all the way to the hilly horizon, and Geisenheim Campus is located at its very heart, on the right bank of the river Rhine. Its researchers have 72 hectares of land at their disposal, half of which is used to cultivate vines. "Follow me," Löhnertz says, striding ahead into the rows of vines and gesturing an invitation, "I'll show you what we're working on."

Löhnertz is Dean of the Geisenheim campus, where RheinMain University of Applied Sciences has concentrated all departments primarily concerned with plants and plant processing, from landscape architecture to the international wine business. All of these degree programmes are research-oriented, which is a source of particular pride at Geisenheim. Otmar Löhnertz likes to give visitors a tour of the campus, taking them past long rows of greenhouses and the horticulture students' trial fields. We have already walked a considerable distance from the university laboratories when he stops in front of a field studded with all manner of metal apparatus. This is where Geisenheim scientists are setting up a new experiment. "We're going to be growing vines in an artificially modified atmosphere," he explains. Huge CO₂ tanks will be used to increase the amount of carbon dioxide in the air by 20 per cent, taking it to a level forecast for the year 2050. The idea is to find out what consequences this will have for the plants and ultimately for the ripening and the taste of the grapes produced. This vineyard near Geisenheim will give researchers a preview of future developments, as if they had a time machine.

This emphasis on research goes back to 1872, when what is now the campus was

founded as the Royal Prussian School of Horticulture and Viticulture. There came an interruption in the 1970s, when new state government rules meant that teaching and research had to be administered separately. The upshot was that the institution was divided: teaching was delegated to the University of Applied Sciences in Wiesbaden (later renamed RheinMain University of Applied Sciences), whereas research activities remained the remit of the independent Geisenheim Research Center. The centre currently employs 13 department heads, who are simultaneously professors at the University of Applied Sciences, and around 30 scientists, who also have lecturer status. So not only are the two institutions geographically close, they also have a large number of staff in common. Benefiting from this particular organisational structure and from collaboration with Justus-Liebig-University Giessen, Geisenheim was able to launch a **doctoral school**, at which 60 students are currently enrolled. Presently, there are five science and engineering Master's programmes available: oenology, wine business, beverage technology, horticultural science and the international Vinifera programme. Most last four semesters, comprise 120 credits (except Horticulture which lasts three semesters and carries 90 credits) and all are closely interlinked with the Bachelor's programmes.

A doctoral school provides a programme of study and research leading to a doctoral degree. In contrast to the traditional doctoral thesis, several students work together on a common research project within a structured framework. Also referred to as a Graduate School ('Graduiertenkolleg').





Foto: © Campus Geisenheim

With their state-of-the-art laboratories a stone's throw from the vineyard, these future wine experts are equally well versed in microbiology

Students who have completed a Bachelor's degree in viticulture and oenology, wine business, agricultural and food science or beverage technology can directly continue onto any of the Master's programmes offered. This allows them to choose their own specialism.

That this is about more than training in the craft of wine-making is abundantly clear when walking through the corridors of the modern research building, which was opened as recently as 2009. Featuring large glass facades that look onto the surrounding vineyards, it houses a suite of laboratories. The corridor walls are lined with large-format posters with which students present their research projects. Subjects include "cell death as a cause of fermentation problems", "the characteristic taste of Greek wines" and "the impact of malolactic bacteria on wine flavour". On one of the building's long corridors is the office of Dr. Christian von Wallbrunn; he is a microbiologist and graduate advisor of the oenology Master's programme. A scent of wine pervades the laboratories where his group is working. "We're investigating yeasts," he explains: his students have been taking samples from the production of six different vineyards, at various stages from ripening to spontaneous fermentation, and are running laboratory tests to identify the yeasts present. Hundreds of Petri dishes are arranged on the tables, and specimens are being examined in turn. "The natural sciences play a key role in our syllabus," says Christian von Wallbrunn. The programme is taught over four semesters, and its modules are delivered in collaboration with Justus-Liebig-University Giessen, where the students spend their first two semesters, focusing on molecular plant pathology, plant production, biometrics and environmental chemistry. They then go on to Geisenheim, where above all else the connection with wine growing is made. "Many of our graduates stay in research," says programme leader von Wallbrunn. "If you want a degree essentially as a qualification for working in a winery, then a Bachelor's is sufficient." Indeed, a high proportion of students start work directly after obtaining their Bachelor's degree. According to the prospectus, potential careers for Master's graduates include "management or research roles in wine companies and institutions."

While the Vinifera Master's programme is similar in content, it differs in that it is the result of an international collaboration

involving universities in Lisbon, Madrid, Montpellier and Udine/Turin. "In other words, we have partners in every major European wine-growing country," explains programme leader Dr. Manfred Stoll. In addition, there is close collaboration with universities in Australia, California and South Africa. The first year is delivered at Montpellier by all partners, with all teaching conducted in English. Subsequently, the students select one of the cooperating institutions depending on their chosen specialism. This international Master's programme was launched in 2008 and is part of the EU's overarching Erasmus Mundus programme. Each year, up to 350 students from all over the world apply for one of 30 places. "We receive a lot of applications from large wine-producing countries, and we're currently seeing great demand from applicants in Asia," says Stoll. Geisenheim is one of the most renowned institutions participating in the programme: 10 in 30 students opt for Geisenheim on account of its excellent reputation in the global winemaking scene.

As early as 1996, Geisenheim offered a joint degree programme with an Italian university – and everyday life on campus has always been characterised by a mixture of nationalities: there are a large number of overseas students enrolled at Geisenheim, and thanks to long-standing international partnerships, domestic students have no difficulty finding placements abroad. "We have excellent connections to all places in the world where wine is grown," notes Dean Otmar Löhnertz. Launching the European Vinifera programme was therefore a logical step, possible only because all universities involved share a common Master's degree structure. Far from spending all of their study time in lecture halls and laboratories, Vinifera students regularly work outside. "It's not enough to know how to operate a digital projector, you need wellington boots as well," says Löhnertz. Pruning vines when there's a sharp frost in the air or cleaning tanks and barrels down in the cellar is all in a day's work. "If you study here, you'll know exactly what you're doing later on" is how they like to put it at Geisenheim, and this combination of theory and practice is something the University of Applied Sciences very much prides itself on.

Two flights of stairs below the office of programme advisor Dr. Manfred Stoll is a subterranean part of the campus called "Technicum", which replicates all types of facilities found on large wine-producing

estates, from filtration to sulphur removal, pasteurisation and bottling. Another floor down are large barrels in which the wine is matured. Here, stainless steel containers stand alongside fiasco bottles, and old oak barrels alongside glass containers which allow students to observe the fermentation process.

This close interweaving of theory and practice, research and real-life applications also characterises the Master's programme in beverage technology. "We basically take care of anything our colleagues in wine don't cover," explains programme advisor Professor Frank Will with a grin.

Apart from hot beverages such as coffee, tea and cocoa, the programme also deals with fruit juice. "Germany has the highest per capita consumption in the world of juice. On average, we each consume 40 litres of juice a year," says Will. That explains why this strand is so popular with students. Like all Master's programmes, it imparts some scientific background knowledge: despite a natural focus on the practical aspects of beverage development, the syllabus also includes content from the areas of biotechnology and genetic engineering. The results of this research can be seen on the Geisenheim Campus. For instance, its canteen sells Campunade, a carbonated soft drink that was developed by programme participants – and is a success with students. Importantly, its creators have also shown a good awareness of market potential: Campunade is available at supermarkets in and around Geisenheim.

At a glance



Photo: © Campus Geisenheim

The new university building on the Geisenheim Campus

A new university for Geisenheim?

In the past there has been a close collaboration between RheinMain University of Applied Sciences and the Geisenheim Research Center; however, in accordance with a decision by the Hessian Ministry of Science and Arts, this partnership is to be dissolved by January 2013. The Geisenheim Research Center will fuse with the Geisenheim teaching branch of RheinMain to become an independent higher education institution, the Hochschule Geisenheim, a new type of university according to the scientific advisory board to the German Federal Government. Professors and academics at the Research Center and professors from RheinMain University of Applied Sciences located on the Geisenheim campus will share the local infrastructure research and teaching will be brought together organisationally under one roof, after more than 40 years of separation.

Policing on the Net

With a Master's degree programme in Digital Forensics, Albstadt-Sigmaringen University has opened up the field of online security in Germany – now, based on their experience, they are building a centre of excellence with nation wide networks

An inventive spirit characterises the Swabian Alb. It still can be found today at the centre of excellence for cyber security

T

he piece of evidence looked somewhat unspectacular: "I was given an unlocked and undamaged CD which had on it a copy of a hard drive," the investigator writes in his report. "It was my job to check the copy for any indications of financial theft." Behind this rather dry statement hides an important search for clues to a particular type of crime, one which is causing the police and increasing amount of concern. There are a growing number of criminals using the Internet to hack into credit card details, distribute child pornography or carry out industrial espionage. "Unfortunately, the perpetrators are often one step ahead of the investigators," explains Steve Kovács.

Kovács, who is head of the Digital Forensics degree programme, intends to change this. Our students tend to be investigators working for public authorities or private security firms who want to make sure that they are equipped to tackle digital criminals. "You often see headlines about us which say: "Learn to hack at University," says Steve Kovács with a grin. Basically, this highly simplified statement – one which even made the news – is in fact true: students learn the tricks of the trade of a cyber-criminal who can gain access to protected websites and private data. "Obviously we need to know how the other side works," says Kovács, "since this is the only way that we can catch and convict them!"

The process of conviction is the real substance of the degree programmes. Just as with crimes in the real world, where traces of DNA and fingerprints are collected at the crime scene, our graduates assess the evidence left at a virtual crime scene – following Internet attacks by criminals there are always clues left behind on hard drives and servers, and these need to be documented for legal proceedings. This is why students of digital forensics learn

about both aspects: how they can find evidence and how they can document this evidence to make it forensically 'clean'.

The different threads of the degree programme come together in the town of Balingen in Baden-Württemberg, a town of 35,000 inhabitants. The journey by train to the area takes you through the pleasant rolling hills of the Swabian Alb. In every town along the route there are large, factory buildings alongside the train tracks. This is the heart of middle-class Baden-Württemberg; unemployment is at a minimum and the prosperity of the region can be seen in the numerous new developments and the elegant facades in the old town. A spirit of ingenuity has shaped this region – and the degree programme in Digital Forensics is evidence that this innovative force can still be found today. The programme is managed by the Albstadt-Sigmaringen University, in collaboration with universities in Erlangen-Nürnberg and Tübingen. Each partner institution contributes its own particular expertise: the neighbouring University of Tübingen, with its renowned Faculty of Law, provides content relating to the legal aspects, and key components of the specific IT background come from Erlangen in Bavaria. Albstadt-Sigmaringen University itself has 17 professors in the field of information technology and Computer Science, and the University also has previous experience in providing continuing education.

"We are finding people welcoming this programme with open arms," says Steve Kovács. His office is near the train station in Balingen; the latest issues of computer magazines and police publications can be found in the reception area, there are boxes full of course materials piled up in the corridor.

A total of 63 students across the first two years are supplied with study materials



© Johannes Gerhards Swaneppel | Dreamstime.com

Clear evidence: students search computers for clues to crimes

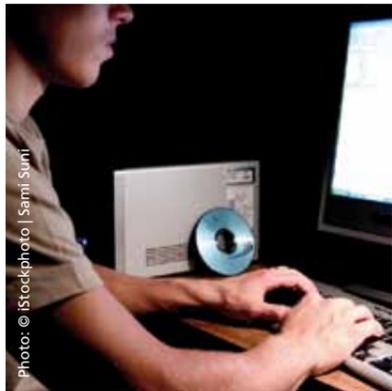
and given extensive support through online tutorials. "Participants come from throughout the entire German-speaking world from Kiel to Basel," says Steve Kovács. For this reason, the programme is organised to offer distance learning with an extended weekend seminar held in Balingen every four to six weeks to complement the online study.

Half of the applicants come from the public sector; these are predominantly police officers or employees of the state criminal police offices or the Federal Criminal Police Office. The remaining participants come from industry. Almost all major companies now have investigative departments to deal with cyber attacks ranging from online industrial espionage through to attempted theft of customer data. Given that these cases almost always involve sensitive data, firms prefer to carry out the investigations themselves rather than go to the authorities. Those presently working in the field will usually have acquired their specialist knowledge by themselves. Our degree programme is intended to fill any gaps in existing knowledge and to train the next generation to take on the ever more important role of fighting digital crime. "Many of the applicants have a first degree in Computer Science or Electrical Engineering, but not all. Almost half of our students have taken a degree in Administrative Studies, but don't have any specialist IT

skills," acknowledges Kovács.

This difference in levels of knowledge among the participants represents the greatest challenge for the universities involved. For this reason, the first of the modules on the programme cover the basics of Computer Science although the content is tailored to focus in particular on what is most relevant to cyber security. "For digital forensics it's enough if you can understand codes and commands and are familiar, for example, with cryptanalysis. You don't necessarily have to have a great talent for computer programming," says Kovács. A significant part of the course deals with the legal framework and ethical aspects: how far can you go in trying to solve a crime? What is permissible in court as evidence and how do you go about preserving such evidence? "There is no other degree programme in the entire German-speaking area that offers this combination of subjects," explains head of the programme Steve Kovács. Although there are some examples of similar programmes at institutions in the English-speaking world, these can at best provide only approximate orientation for the development of the programme in Baden-Württemberg: "The legal situation there is completely different, which means that those particular degree programmes cannot support participants from Germany in their everyday work. In-





Energetic precision work: checking a hard drive can take hours or even days – yet this is how the experts reveal well-hidden secrets

Criminals are always coming up with new methods. Students learn how to keep pace with them

investigators there have different powers and authority than we have here in Germany.”

The number of applicants to Balingen increases year on year; within the sector, news of the programme has spread like wildfire. In contrast to the types of programmes commonly offered at other institutions, our participants learn not only how to deal practically with a current problem, but also the technical background. Although criminals continually come up with new methods and the technological possibilities are constantly changing, our students can still keep up-to-date.

Albstadt-Sigmaringen University intends to continue to build upon the success of its degree programme in Digital Forensics. Stimulus funding is to be provided by the Federal Ministry of Education and Research, which is investing five million euro in the development of an “Open Competence Center for Cyber Security.” Again, the central location will be in Balingen, but the network of academic partners will be spread throughout the whole of Germany: Eberhard Karls Universität Tübingen is part of the cooperation, as are the Friedrich-Alexander-Universität Erlangen-Nürnberg, Darmstadt University of Applied Sciences, the Ruhr-Universität Bochum, Technische Universität Darmstadt, Offenburg University of Applied Sciences and Freie Universität Berlin. In addition, there are about a dozen external partners, from the software company Microsoft, to the accountancy firm PricewaterhouseCoopers and through to the Federal Office for Information Security. “We have developed many of these partnerships explicitly for the degree programme in Digital Forensics,” says Steve Kovács: “The benefits of these established partnerships can now be transferred to the new Competence Center.” Preparatory work will continue until 2015 when we will

then launch a range of additional degree programmes. There are plans for a part-time Bachelor’s degree in IT security, a part-time Master’s degree programme in IT compliance as well as numerous certificate courses.

The advantages of combining various strands of expertise in one competence centre are apparent: the know-how within the network can be applied to the different various areas, some modules might even be implemented in courses in other disciplines. “Our intention is to become, through the network, the established point of contact in the IT security branch,” announces Steve Kovács: “If a company is looking for an expert in the field or if a government ministry wants to provide training for its employees, we hope that they will automatically turn to us.”

The issue of data security has already made its mark on the town of Balingen. “Once a person realises all the types of crime that are possible on the internet and how quickly they can become a victim,” says programme director Kovács, “they then change the way they use their computer automatically.” Many people from Balingen have, in the meantime, attended one of the public lectures on the subject. And even Kovács himself thinks twice about exactly what data he sends by email, which videos he watches online and which mail attachments he opens. Ending up one day as a victim of data theft himself and so becoming a case study in digital forensics – this is really the last thing he would want.

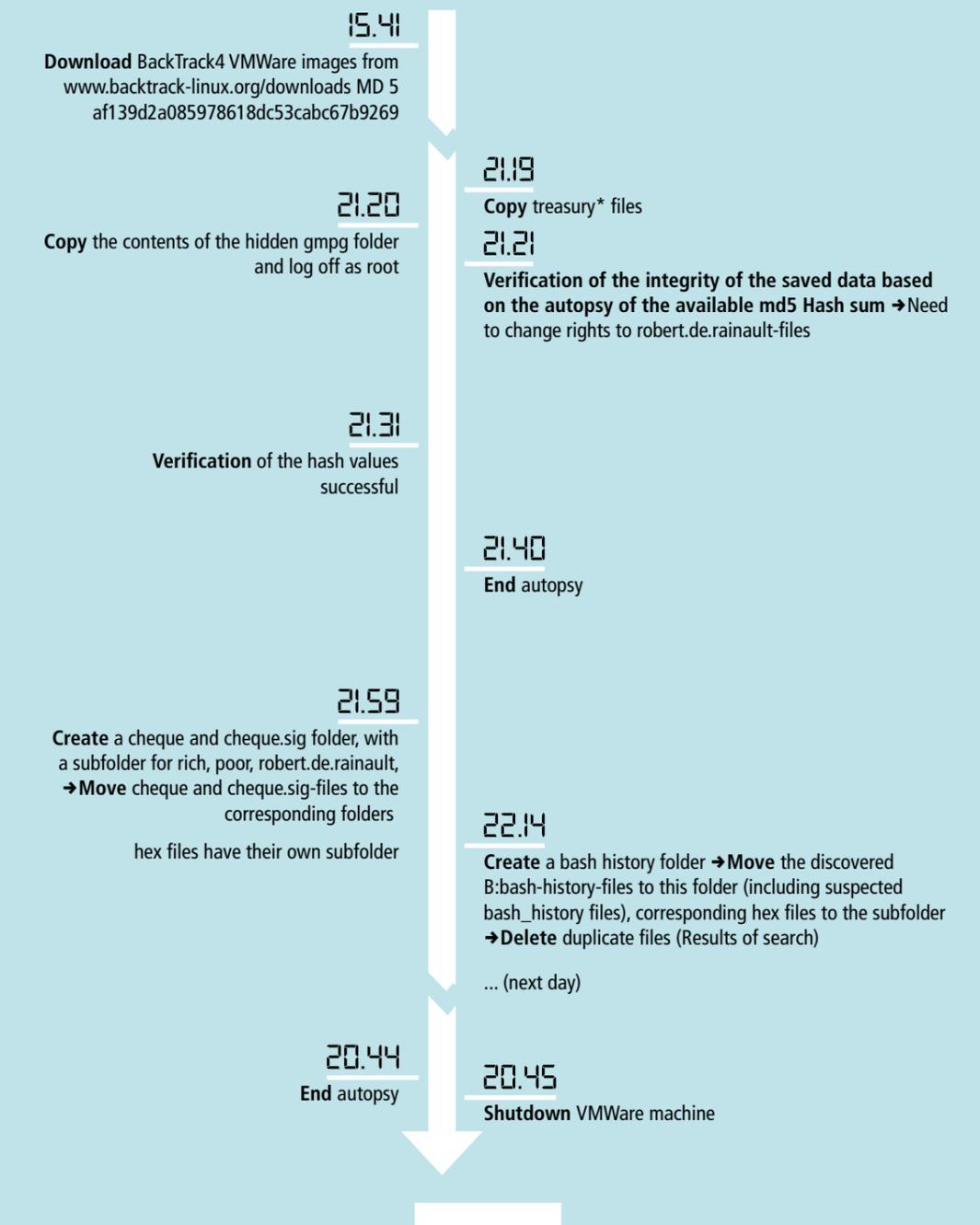
Key facts:

- **Number of credits:** 120
- **Standard duration:** 6 semesters
- **Qualification:** Master of Science
- **Type:** part-time, continuing education, distance learning with face-to-face seminars

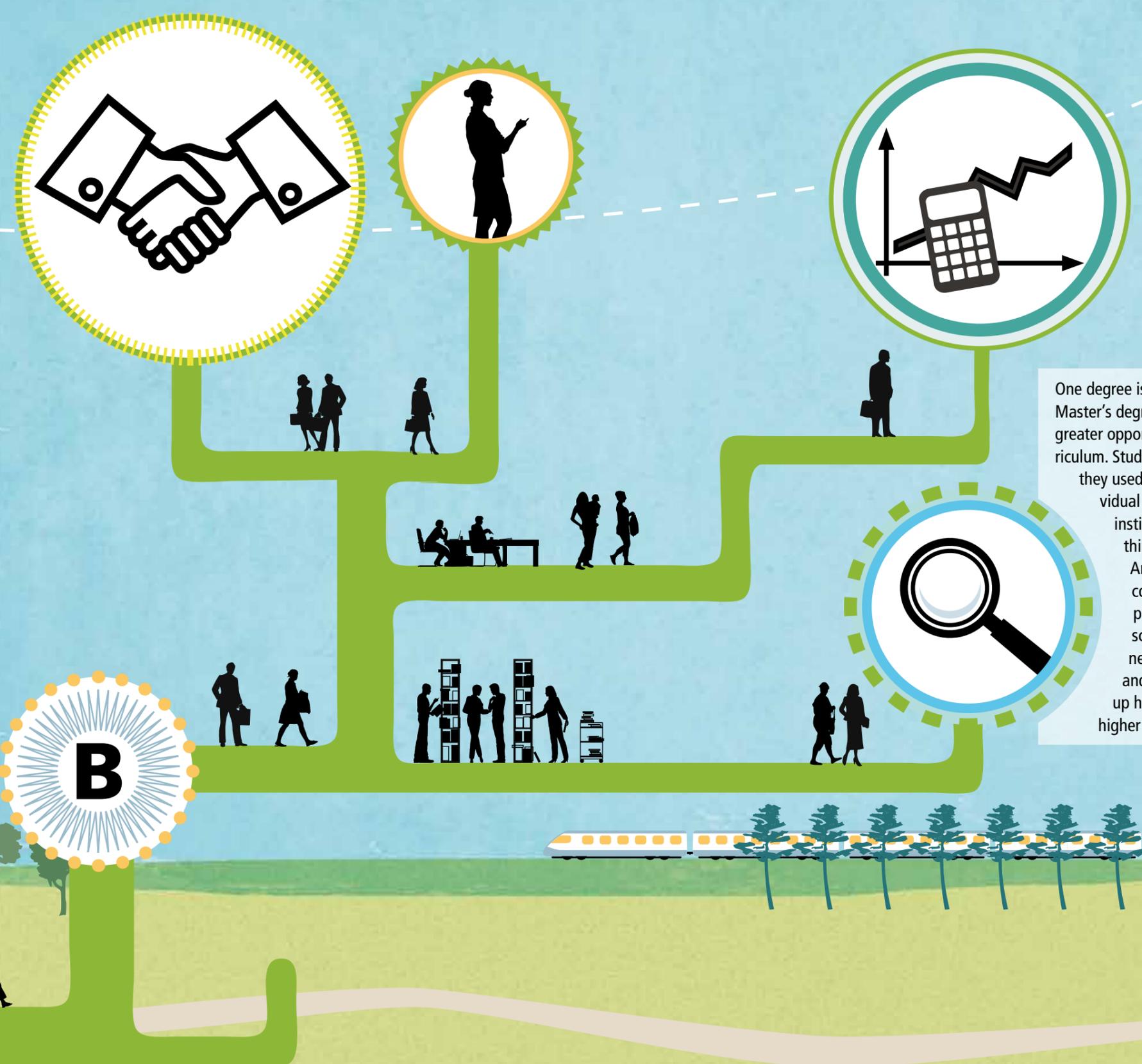
At a glance

Forensics at an internet crime scene

Preserving evidence following a crime in the virtual sphere – this is the most important task in digital forensics. When investigators are examining data storage devices for signs of hacking or espionage, they must be extremely cautious. Some mistakes could mean that evidence is destroyed, for example if the investigators open the file and overwrite the date and time of the last use. They have to compile a precise report so that results of their investigations can be used as evidence in court. In the sample case given below, which deals with suspected theft, the examination of the hard drive took almost two days; the individual steps with the exact time of each incident are documented in a handwritten report covering 17 pages. Concealed behind the entries, which are almost incomprehensible to non-experts, is the gradual solving of a criminal case.



Opportunities for Individualised Educational Biographies



One degree is not the same as another – common sense, really. Yet, the new Master's degree programmes offer higher education institutions an even greater opportunity than before to create a distinctive, indeed unique curriculum. Students appreciate the value of this: they spend more time than they used to do searching for the programme that best suits their individual needs and plans. They deliberately opt for higher education institutions which offer something different from the norm, something particularly innovative, particularly promising for the future. And: students who decide to take a Master's no longer necessarily continue on directly after finishing a Bachelor's degree. Many people want to gain some professional experience first and then scrutinise this in the light of theory. Or they recognize that they need more know-how or skills to meet a new career challenge, and so return to university at this point. This open approach opens up hitherto unimagined possibilities – both for students and for higher education institutions.

B

Individualised Study

A prerequisite for offering part-time degree programmes for professionals is a didactic approach that is tailored to their particular needs. The FernUniversität – University of Hagen – has thirty years of experience in this field

“As the academic and business worlds continue to converge, we must offer a suitable model that takes these changes into account”

P

rofessor Helmut Hoyer describes how his students tend to be professionally ambitious and from a variety of educational backgrounds. These two characteristics have influenced the comprehensive range of courses offered to students by the University of Hagen over the past 40 years: “Our approach to education provides a broad opening to prospective students from completely different educational backgrounds,” explains Professor Hoyer, Rector of the FernUniversität. Hagen combines its years of experience with a modern curriculum in the huge selection of innovative Master’s degree programmes.

Statistics show that the courses offered by the FernUniversität are filling a gap: the 80,000 students have an average age of 29, 80 per cent are in employment and 40 per cent have already completed a university degree. “The choice of degree programme depends on an individual’s educational history and personal goals,” Rector Helmut Hoyer continues: “this means that one degree programme can serve both to broaden subject knowledge as well as to allow for a change of direction professionally. Most importantly, our degrees can be combined with a job and are offered on a part-time model.” Personally tailored timetables and flexible course structures are important key parameters: “We want to lower the hurdles for potential students!”

The various ways of achieving this goal is the subject of research by Professor Theo Bastiaens. A specialist in Instructional Technology & Media, he is studying how students learn via new media and links his research closely to

teaching as you might imagine. He is the head of the Master’s degree programme in “Education and media: eEducation,” which also offers a testing ground for new methods. For this reason, Bastiaens has taken a completely different didactic approach to the standard model for distance learning. “Students would previously be given a course book, they might have one phone conversation with their teacher, and then they would take the exam,” he says. Bastiaens still uses course materials – either in paper form or as a podcast – however the primary aim is to motivate the students. In the first semester, for example, “the students have to create a list of educational blogs within the first three weeks and continue to read them,” says Bastiaens. Additional tasks of this kind over the course of the year are designed in such a clever way that they will then contribute to a piece of coursework. For example, after the first analyses, Bastiaens works together with the students to determine the criteria for a good blog. Each student then writes a 15-page concept for his or her own blog that must then be regularly updated for several weeks. Professor Bastiaens has observed that this method has twice the learning benefit: the students keep up-to-date with educational debates and at the same time, integrate this new knowledge. “When I read their blog entries, I gain a much better impression of their learning progress and whether they are following the content of the course than I would from a three-hour exam,” says Bastiaens. He refers to these assignments as “authentic learning tasks”; he studies what



Experts in complicated situations: the Master’s degree programme in Mediation is one of the flagship programmes at Hagen



these can achieve and how they can be applied in other academic disciplines as well as in his own.

Students on the continuing education Master's programme in Mediation also work with new methods. This is a training programme for professionals who help resolve conflicts outside of court: "mediation is playing an increasingly important role in family law and in disputes between companies," explains Dr. Stefan Kracht, who directs and manages the programme. In the public sector, too, conflicting parties will often enlist the help of a mediator: when an airport is to be expanded, for example, or if a new waste disposal site or bypass is planned. The range of different applications for the profession means that

the course entry requirements are equally broad: lawyers, psychologists and economists are all part of the target group.

The curriculum includes the legal framework for mediation as well as practical knowledge about the role of the mediator. "The students engage with the work in their own way," says Stefan Kracht: the lawyers often look to achieve a specific result in mediation processes, whereas psychologists tend to approach each party and fall back into the role of a moderator. "On this course, the lawyers are taught how to hold back when it comes to suggesting an outcome," according to Kracht. The content of the Master's programme is ideally suited for blended learning: "I don't need to explain

At a glance

Broad range allows for individuality: the 'infernum' degree programme

The FernUniversität in Hagen conceived its intentionally wide-ranging Environmental Sciences degree programme as a model project: students can choose from almost 30 modules according to their individual interests, and put together their own personalised curricula. A number of cooperation partners are involved, and an international component to the programme is also envisaged for the future. Programme Director Professor Helmut Breitmeier explains that "for many applicants, this variety is the main reason to study here."

'Infernum' is the name of this course at Hagen: a shortened version of the official name of the programme in German, translated as 'Interdisciplinary Distance Learning for Environmental Sciences'. The programme was established in 2000, and it runs in partnership with the Fraunhofer Institute for Environmental, Safety and Energy Technology ('UMSICHT') in Oberhausen. The programme aims to offer students a comprehensive view of environmental sciences through different perspectives. The modules available are divided into the three main 'pillars': social sciences, law and economics (which includes environmental law, sustainability management, environmental politics and related topics), and natural sciences and engineering (where a specialism can be chosen such as environmental process engineering or biotechnology, for example). Interdisciplinary subjects are also offered, for instance technology impact research, environmental risks, applied systems analysis and similar topics. The first pillar is offered by the FernUniversität in Hagen, and the Fraunhofer Institute UMSICHT coordinates the natural sciences and engineering subjects.

Additional cooperation partners such as the Wuppertal Institute for Climate, Environment and Energy or the Leuphana University in Lüneburg coordinate some of the specialised modules. The students must attend seminars from each of the three pillars, but can choose freely from a number of subjects within these disciplines. Students looking to gain a diploma or university certificate must demonstrate evidence of environmental knowledge, but they do not need to have completed a first degree. Applicants to the Master's programme, in contrast, must have completed a first degree in any subject. Six hundred and thirty students are currently registered on the course, and it continues to gain popularity: the number of students has doubled in the last three years alone.

Hagen is currently planning an international module to run alongside the already wide-ranging selection of courses. Nine universities are developing courses under the joint motto "the lived experience of climate change"; each of the participating universities will contribute information and resources relating to its particular main research focus. Students from different countries can then work together via a virtual learning platform. "Our approach shows how you can be innovative when designing a professional degree programme, and how many different partners can share their knowledge in this way," says the programme director Helmut Breitmeier.

Key facts:

- ◉ **Number of credits:** 60-120 (depending on previous qualifications)
- ◉ **Standard duration:** 4 semesters
- ◉ **Qualification:** Master of Science
- ◉ **Type:** continuing education, distance learning

the topic of mediator neutrality in the face-to-face seminars; the students can read about that themselves," says Kracht. "The face-to-face seminars are used to provide practical training for situations in which neutrality is required. This way, we don't waste time on things that the participants can learn individually." The entire course is built on this model, and at the end of the programme, students must then handle two cases of their own. They look for real clients in their hometowns and mediate a real conflict for them, with the support of experienced tutors from Hagen if necessary. The final exam then involves one of these two cases, whereby examiners pose questions about the theoretical content based on the practical example.

According to FernUniversität Rector Helmut Hoyer, the future lies in this kind of Master's degree programme for professional students. "As the academic and business worlds continue to converge, we must offer a suitable model that takes these changes into account," he says. Modern technology has facilitated this, yet the principle has remained the same: course materials covering the key topics lie at the core, and are accompanied by the key elements of learning: information and communication. "The internet is a valuable resource for finding information thanks to digitalised texts, better research options and so on. When it comes to communication between the students, technology has of course made many things possible," concludes Hoyer. He believes, however, that a narrow focus on the medium is too limiting when considering the future of degree programmes for professional students. Multimedia alone is not enough to provide a well-structured degree programme. The decisive factor is that students can integrate their studies into their everyday lives as far as possible, which is not necessarily dependent on high-tech methods: "I can also work well whilst sitting on my patio with a pile of paper!"

The student view

From the parliamentary chamber back to university

With the best will in the world, I would never have imagined when I finished school that I would one day be studying law. I took my secondary education exams at the *Realschule* and then first completed an apprenticeship to become an electrical engineer. Following this, I decided to go back to school and take my Fachabitur. My first job was working at a mine in the Ruhrgebiet in the north-west of Germany. Obviously this meant being underground and I quickly realised that I didn't want to stay there. This was motivation for studying electronic engineering on a traditional degree course at Gelsenkirchen University of Applied Sciences. After graduating, I found a good job in Munich as a software developer.

However, I had always dreamt of something else: ever since I was young, I had been a stenographer. At 14-years-old I was already a member of the local stenography association. I really wanted to turn my hobby into a job and so I applied to become a parliamentary stenographer for the Lower Saxony state parliament. One of the essential criteria was a university degree, which I already had at that time. I was actually given the position and then had three more years of training. Still, my thirst for knowledge had not yet been quenched. I always said to myself that I would study law in another life. But then I decided that was too long to wait: in 2004 – in the meantime I had moved from the state parliament in Lower Saxony to the North Rhine-Westphalia parliament – I signed up for the Bachelor of Law course at the FernUniversität in Hagen and was back at university studying again. I enjoyed law so much that I decided to carry straight on to the Master's once I had finished my Bachelor's course. And this is what I'm doing at the moment.



Photo: © FernUniversität in Hagen

Thilo Rörtgen (born in 1970) is a parliamentary stenographer. He is now taking a part-time law degree. Law is a subject that has always fascinated him, he explains.

Naturally it's a bit stressful sometimes doing a part-time degree by distance learning as well as my work as a parliamentary stenographer. My strategy is to make sure that I somehow pass all the assignments I have to submit over the year – however, I don't really manage to really get my teeth into the material until about two months before the exams. The next big step now is the Master's thesis, which I'm about to start in a few days' time. I don't want to switch to working in the legal field afterwards though; I enjoy my work too much to do that. But after I graduate, I'd really like to take on a management position in parliament.

Reinventing Histories

Soon after it was established, the Public History degree programme quickly became the most popular Master's course in history at Freie Universität Berlin. Applicants come from all over Germany and learn not only how to work in archives, but also how to mediate and represent the past. With this course, the Berliners illustrate how a traditional discipline can benefit from innovative methods

T

he study of history takes different forms: the students have to create an audio tour along the Kurfürstendamm street in West Berlin. Its subject is the Pogrom against the Jews in 1931, two years before the Nazis seized power. What actually happened, and what were the reactions to this first outbreak of violence? The students search historical newspapers for news and comments, they analyse court documents from the archive, and they speak to the last few surviving witnesses. They also collaborate with a playwright in compiling a kind of audio guide from their findings, which aims to transport listeners back to the historical setting.

In the Public History degree programme at Freie Universität Berlin, this kind of task is part of the curriculum. "We deliberately wanted to create an application-oriented degree programme," explains programme director, Professor Paul Nolte. He adds, "the practical part in history as a discipline degree is primarily related to museums, memorials and other historical sites. In the past few years, the social importance of such places has increased significantly." In addition to the academic content, the programme therefore addresses the presentation and mediation of history. The focus of the degree programme is on the 20th century, and Freie Universität has established a partnership with the prestigious Potsdam Centre for Research in Contemporary History (ZZF).

"I have observed myself how this kind of degree programme can help graduates," comments Dr. Irmgard Zündorf, co-director of the course at the ZZF. After completing her studies, she took on a post at the Haus der Geschichte ('House

of History'), a museum of recent national history in Bonn. Her very first task in her new job confronted her with questions that she had never considered before: "I had to select three images that had significance for the founding of the Federal Republic," she remembers. What does 'significant' mean here? "A portrait of Konrad Adenauer was the first thing that came to mind, but that was the wrong approach: I was not supposed to illustrate the topic, but rather choose images that spoke for themselves and which gave visitors a context." Her degree had taught Zündorf and her fellow students how to work with archives and historical sources, but they had not learned how to engage with photographs, films or witness accounts. Graduates of the Public History degree programme no longer encounter such difficulties: they are thoroughly prepared for working with different kinds of sources, and versed in their application for historical mediation.

In the German-speaking world, the Berliners were pioneers in launching the Public History degree programme in 2008. However, at Anglo-American institutions practical courses have been established for much longer, even in traditional disciplines such as history. Indeed, Paul Nolte first encountered this type of programme while researching at Harvard and Chapel Hill: "I could envisage something similar working in Germany. The idea finally began to take shape when we spoke to colleagues at the ZZF in Potsdam, especially Martin Sabrow. Together we worked out the concept for a joint degree programme," says Nolte. Before starting to plan the course, he organised a workshop with his colleagues in the department,



Breaking out of the dusty archives: Public History students are revisiting history with an audio guide about the first Jewish Pogrom on Berlin's Kurfürstendamm in 1931.

Motif © "Displaying History" Project Group

Young historians apply to this programme from all over Germany – 130 applicants compete for 20 places each year

and invited experts in public history from different countries to attend. The Berlin curriculum was then developed based on their collective experiences.

Students almost charged down the doors of Professor Nolte and his team: from the first year onwards, the number of applications was significantly higher than the number of places, and there are now around 130 applicants competing for the 20 places each year. "Three quarters of these are from other parts of the country," says Christine Gundermann, who coordinates the degree programme, and most of the candidates are highly motivated. "I can tell how well they have researched the course from the questions they ask. The applications are targeted specifically at this programme!"

Of all the history Master's degree programmes at FU Berlin, Public History is the most popular by far. The research-based Master's programme offers three times as many places, yet has fewer applicants. Professor Nolte puts this down to a subtle development that began around twenty years ago: more and more historians are working in museums, in the media or in politics, whereas the degree programmes have hardly changed over

this period. Instead, they have continued to feed the illusion that the main profession that awaits graduates besides school teaching is that of a university lecturer.

The Public History degree programme in Berlin is organised largely independent of the rest of the faculty. This means that even for the research modules, the students do not attend courses from other history Master's programmes but rather seminars that are designed especially for them. A number of contemporary history scholars from the ZZF teach on the programme. The small group numbers are characteristic of the degree programme, and the fact that the 20 students on the course each year attend almost all the same seminars makes a difference. "They all know each other's names and interact quite differently," says Paul Nolte. This is an "exciting experience" for him as a lecturer: "it creates a completely different learning atmosphere!"

One criticism of the programme at the beginning has since been put to rest by the positive experiences of students. A newspaper made a sarcastic remark about the "narrowly focused degree that trains students to become PowerPoint experts" when the Public History programme first

began. Comments like this have become less and less frequent as the degree programme becomes established. For a long time now, Professor Nolte has been giving the same answer to sceptical colleagues who question whether the graduates may be considered 'true' historians: "They are historians," he counters, "who simply interact with the research topic in a different way."

Key facts:

- ◉ **Number of credits:** 120
- ◉ **Standard duration:** 4 semesters
- ◉ **Qualification:** Master of Arts
- ◉ **Type:** consecutive, face-to-face

The Insurance Theorist

The degree programme was to have a distinct academic profile – this was a key point on which both Munich’s Ludwig-Maximilians-Universität (LMU Munich) and the insurance companies agreed from the outset when jointly planning the “Executive Master of Insurance”. The result is a degree programme for professional students with theory at its heart



Mathematics combined with Law and with Business Administration: the Munich degree programme examines the intricacies of the insurance industry

T

he location is perfectly chosen: Bad Kohlgrub is around an hour away from Munich by car, and the idyllic stretch skirts around the Staffelsee lake against the backdrop of the first mountains in the Alps beginning to climb in the distance. Students on the “Executive Master of Insurance” (EMI) programme regularly return to the small town. “It is ideally situated,” says Professor Andreas Richter, “far enough from everyday life, but close enough for our students to reach.”

This distance from everyday life is a key element of the degree programme. For

LMU Munich, the course is a flagship Master’s degree programme for professional students. “We target young professionals in the insurance sector and offer them a course that is tailored to managerial positions,” says Andreas Richter. Some of the seminars take place at LMU Munich and some also in remote congress hotels in Bad Kohlgrub, for example. Students registered on the course are deliberately encouraged to look beyond Munich, the largest insurance city in Germany and one of the leading locations for the sector worldwide.

Munich’s renowned School of Man-

agement follows the principles that it developed well before the introduction of the Bachelor’s and Master’s degree programmes: it offers a number of specialist areas within the discipline from which the students can choose, an approach that has also been carried over to the field of lifelong learning through the Executive Master of Insurance.

“The insurance industry recognised the effects of the university reforms at an early stage,” says Professor Andreas Richter. The business economist is director of the degree programme that LMU Munich has established in cooperation with the *Berufsbildungswerk* (professional training centre) for the Insurance Industry and around a dozen of the largest companies in the sector. The objective is clear: graduates of different disciplines – from Business Administration, Mathematics, and Law – are to gain in-depth knowledge of the intricacies of the insurance industry.

What sets the Munich degree programme apart is its close partnership with industry. Insurance companies supported the development of the curriculum by providing start-up funding. Each semester, experts from the field share their perspectives in their own seminars which enhances the teaching by the university professors. “It is important to us all that we offer a degree programme that is content-driven and academic,” says Andreas Richter. He emphasises that the programme is not intended as out-of-house professional development for the companies involved: “We have developed a genuine product at our School in which a large number of our fellow professors are involved.” Less importance is placed on key skills on this programme than is the case for a number of other MBA degree programmes:

“We discussed this intensively in the working group, but decided that it in no way compromises the academic quality

of the degree,” explains Andreas Richter: “Naturally, as a university, we have to have the final say in these discussions, however it never came anywhere close to becoming a point of controversy.”

The course is intentionally designed for a small group. Between 14 and 18 students are accepted each year, although there were only nine at times during the financial crisis. Some of the students are in their late-twenties and have only been working for a few years; others are in their late-forties and are already on their way up the career ladder. Since all the seminars are tailored to the specific demands of the insurance industry, participants each benefit from the programme equally, regardless of their first degrees. Business graduates gain insurance-related knowledge in courses on general business and economics, lawyers learn about law and the regulation of the insurance market, while mathematicians are introduced to new aspects of quantitative methods. “We can of course exempt students with existing knowledge in a particular subject area from certain exams,” says Professor Andreas Richter, “however, experience has shown that the students attend all the seminars regardless.”

The strong academic orientation also means that the experienced insurance professionals sometimes sit more than one examination on certain seminar weekends. This is only the case for a few of the **executive degree programmes**, “but the same requirements apply to this programme as they do to other degree programmes offered at the Munich School.” The participation of the insurance companies is not only for practical reasons: many of them cover the costs of the course - at 25,000 euro not

an insignificant sum – for their employees, and allow them to take time off for the intensive seminar periods.

The degree programme lasts four semesters. During this time, the students must successfully complete around 500 study units. Four or five entire weeks of seminars and around a dozen weekend-long seminars are distributed over the course of the two years. In such a tightly packed programme, some distance from Munich – for example, at seminars in Bad Kohlgrub – can come as a welcome relief.

Key facts:

- **Number of credits:** 90
- **Standard duration:** 4 semesters
- **Qualification:** Executive Master of Insurance
- **Type:** part-time for professionals, continuing education, face-to-face

Continuing education degree programmes aimed at managers working in industry and tailored to meet their specific needs.

Leadership for Schools

With a specialist Master's degree programme, the University of Kaiserslautern trains students to become head teachers. The programme covers management skills and legal aspects relevant to schools. The main focus is on the ability to help shape the transformation in the field of education

T

he diagnosis is unmistakable: almost all federal states fear that in the coming years they will have far reaching problems in filling the head teacher posts which will soon become available. "We are then working actively in an area which has future relevance," says Professor Rolf Arnold of the University of Kaiserslautern. School Management is the title of the degree programme through which he has done pioneering work throughout Germany: since 2000 he has been preparing teachers for the management of educational institutions, and since 2004 School Management has been accredited as a postgraduate Master's degree programme.

"Our objective is to impart a modern view of school development," notes Rolf Arnold, "and not, I'd like to emphasise, of school administration." The background is the constant flow of changes that are already sweeping through the school system: individual institutions are being given ever greater freedoms, both in terms of organisation and educational concepts. This demands skills of the head teachers that go far beyond those included in traditional teacher training. The degree programme in Kaiserslautern, which is designed as a part-time, distance learning programme for professionals, aims to prepare its students to meet the new demands placed on them. The sheer number of applicants shows that what the university is offering has struck a chord: the university has up to 180 new registrations each year – some of the participants are aspiring to a post as a head teacher, but often serving head teachers also take the Master's degree in order to increase their level of qualifications.

The modules on the Kaiserslautern distance learning degree programme cover

the whole spectrum of a head teacher's tasks: from changes in the learning culture through organisational development and school laws, to measuring the quality of classroom teaching and trends in school policy. "Our core aim is to put our graduates in a position to be able to shape the changes in the learning culture," says Rolf Arnold, and offers an example: "What must a head teacher offer to achieve the desired change in a school? What is the most helpful way to conduct performance reviews? How do you actually lead a team? There is also the question of involving parents, school supervisory bodies and local authorities." On these issues, the teachers on the programme very deliberately place theory and research at the centre of discussions: "Our participants are practising school teachers and are therefore looking above all for theoretical propositions which they can then implement themselves," says Arnold: "They have enough practice in their everyday working lives!"

Kaiserslautern has adjusted well to the particular demands of teaching professionals – "experienced graduates naturally have different needs to those of students on undergraduate degree programmes." Learning from each other also plays a part: after all, each of them has experience of working in schools, and their fellow students can benefit from this. Over the years, the didactic concept behind the degree programme has kept developing and one of the changes has been the increased importance placed on networking among the students themselves. Many participants in the distance learning programme set up regional groups for this very purpose, and the groups meet regularly to share their



Maintaining an overview: "Highly committed teachers who are striving to find a new perspective on schools come to us to study"

"Our participants are practising school teachers and are therefore looking above all for theoretical propositions. They have enough practice in their everyday working lives!"

experiences. These groups offer much more than simple exchanges regarding course materials. They often serve as a platform for regular meetings and discussions even after the completion of the degree programme. "It is not to open up new career opportunities that many participants come to us," Rolf Arnold admits: "These are highly committed teachers who are striving to find a new perspective on schools and who want to improve something in their everyday lives."

In terms of its objectives, the degree programme is comparable to similar courses offered by many teacher training institutes in every federal state: students are not only given the classic continuing education, but often also specialist courses for prospective head teachers. These, however, simply for reasons of time go less into depth: in Kaiserslautern the standard duration of a programme is four semesters and the time commitment each week is around 15 hours. "We therefore offer the broadest school development programme in the German-speaking world," says Professor Arnold, who is joint academic director of the degree programme, along with his colleague from Dortmund, Professor Hans-Günter Roff.

Despite the federal structure of the school system, interested parties from all over Germany come to Kaiserslautern. Occasionally, federal states send aspiring head teachers specifically to Kaiserslautern and even cover the costs, which amount to just over 700 euro per semester. Recently, for example, a whole group was sent from Mecklenburg-Western Pomerania.

As regards teaching, the University of Kaiserslautern relies on the participation of lecturers from a variety of different universities. "Our model for success is networking," explains Professor Arnold. He estimates that only around five per cent of the know-how imparted in the programme comes from his own university. All the rest comes from professors from other higher education institutions who have specialised in, for example, management, cost accounting or school law. "It is important that the academic director is someone who has a firm grounding in the subject. But, in addition to this, it makes sense to call upon a wide network of colleagues. That is, after all, exactly how a university should function: connecting different kinds of specialist knowledge," as Rolf Arnold puts it.

Key facts:

- **Number of credits:** 60
- **Standard duration:** 4 semesters
- **Qualification:** Master of Arts
- **Type:** part-time for professionals, continuing education, blended learning with a high proportion of distance learning

Two Different Perspectives on Art

A high-profile collaboration between Heidelberg University and the École du Louvre in Paris combines two approaches to art history. Participating students have access to excellently equipped research facilities and museums, including the entire Louvre



Photo: © Eichberger
First-hand study: Art History students on a study trip to the Verdun Altar at Klosterneuburg Monastery in Austria

T

heir trip led them to Strasbourg museums and to Colmar, along the Upper Rhine and finally to the gaze at the monumental domed church of St. Blaise in the Black Forest town of St. Blasien. Such trips are known among art historians as “first-hand study” and it is no coincidence that Professor Michael Hesse of Heidelberg University frequently chooses the Franco-German border region as their destination. His students are taking part in a Master’s programme in Art History and Museology which is delivered jointly by Heidelberg University and the most renowned French

institution, the École du Louvre in Paris.

As Art History programmes go, this border-straddling version is among the most prestigious. This is reflected not least in its popularity: every year sees about 30 applications, with each institution accepting seven or eight students. The criteria for admission are comparatively strict. Essential requirements include a strong command of both German and French as well as a degree in Art History. Applications can be submitted to either Paris or Heidelberg, where candidates are interviewed by a distinguished selection panel. “We’ve always

found that our applicants come from a wide range of backgrounds,” says Michael Hesse, who directs the programme. “Many of them come from countries ranging from the Baltic states to Lebanon,” he adds. Funded with support from the Franco-German University at Saarbrücken, the programme is the world’s first integrated international Master’s programme in Art History.

Irrespective of their country of origin, all students spend their first year in Paris and then come to Heidelberg for the remainder of the programme. The content taught over this period marries the two institutions’ different approaches. While the French portion of the programme largely follows a hands-on approach, focusing on imparting wide-ranging knowledge of original works of art as well as on historic preservation and museology, the German syllabus centres on theoretical background knowledge and students’ analytical-critical abilities. In addition, students are given the opportunity to choose their own specialisms. Participants benefit especially from the international make-up of the group, which informs their discussions, and obviously from the excellent conditions found at both institutions: the Parisian institution is housed in the Louvre, to which the students have daily access, and Heidelberg University’s library is unrivalled by any other in Germany as far as Art History is concerned.

During semester students attend mainly standard lectures and seminars offered by the respective institutions; only a few events are hosted specifically for the programme. “We recommend those events that are most relevant to our programme,” says Professor Hesse, adding that it is this particular combination of existing resources and events, rather than dedicated series of seminars, that makes the programme unique – and of course the study trips that are organised for this small international group: students explore a whole series of monuments and works of art in just under a week accompanied by professors from Germany and France. The trip to the Upper Rhine is a typical example: participants visited museums in Strasbourg and Basel, talked to their directors and curators about the respective exhibition concepts and then later gazed up in awe at the neo-classical domed church of St. Blaise in the town of St. Blasien. “In Art History, such study trips are learning events in their own right and

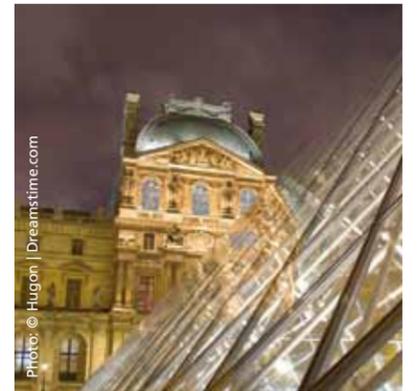
just as valuable as lectures and seminars,” says Michael Hesse. Part of the success story of this international programme is the fact that the trips are tailored to his small group of students and to the content taught. Equally important is the presence of lecturers from both countries, who each bring their own viewpoints to the table.

The programme is run jointly by Paris and Heidelberg. For instance, student achievements are assessed in accordance with the École du Louvre’s examination regulations during the first couple of semesters, whereas Heidelberg University’s regulations apply to students’ work in the third semester and the Master’s thesis. Both institutions provide a tutor, and Heidelberg is in charge of overall coordination. The programme leads to the award of a Master’s degree and separate diplomas from the École du Louvre.

Experience has shown that graduates have no difficulty in finding employment. French participants tend to go on to enter the concours recruitment competition for the sought-after positions at state-run institutions, whereas their German fellow graduates are often able to build on their work experience in historic preservation. “But what’s best about the programme,” concludes Professor Hesse, “is that thanks to its international nature, borders between countries are almost immaterial to the majority of our graduates. They’re equipped to succeed anywhere.”

Key facts:

- **Number of credits:** 120
- **Standard duration:** 4 semesters
- **Degree:** diplôme de muséologie, diplôme de second cycle, Master of Arts,
- **Languages of instruction:** German and French
- **Type:** consecutive, face-to-face, multiple degree



Magnificent study locations: students on the Art History programme enjoy year-round access to the Louvre (upper). A study trip has taken them to this domed church in St. Blasien (lower)

German higher education institutions on the way towards individualised study pathways

Innovative Master's degree programmes bring valuable variety to German higher education institutions. Enrichment comes not only from the new type of student which they attract, but also from a fresh perspective on traditional disciplines and subject matter. By Dr. Peter A. Zervakis



The prejudice remains: a Master's degree, so it is said, is nothing more than the missing component following a Bachelor's degree, a component which is necessary to reach the level of the previous German Diplom or Magister qualifications. After reading this magazine, it should be clear just how far removed from reality this idea is. A wide variety of very different Master's degree programmes have been developed at German higher education institutions, programmes which truly enrich the field of higher education. It is also clear that students benefit from the rich abundance of courses on offer – more than ever before, students themselves decide which direction they wish to specialise in, at what stage of their lives they wish to study and which higher education institution best meets their needs.

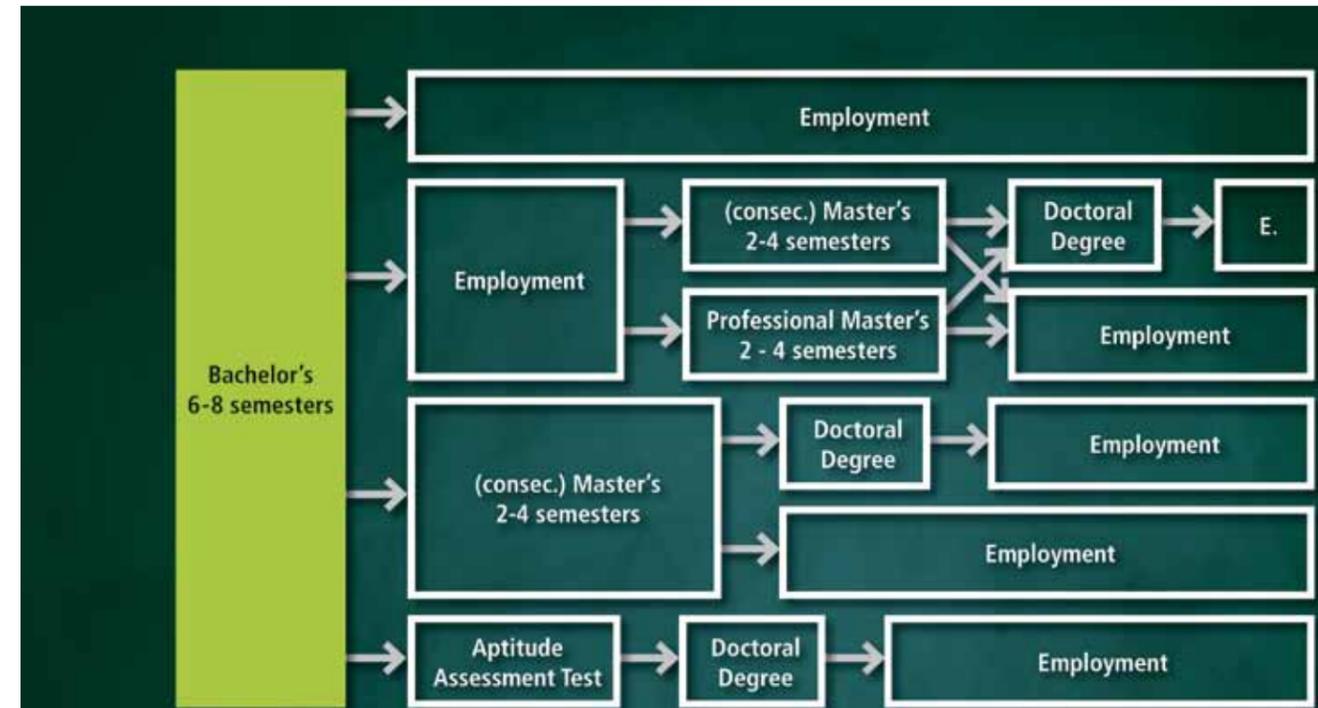
The greatest strength of the Master's degree programmes lies in this consistent concentration on what they can offer. They provide a response to the recent changes in our society: the characteristic students at our higher education institutions are no longer 20-year-olds from professional families. Many of our students are the first in their families to go to university. Others decide to go straight into employment after school and only later realise that there is more they want to achieve. Some students have already graduated and have successfully begun a career and now want to gain further qualifications to take on more challenging tasks in their job.

In policy debates all these scenarios are described by the general term "individualised educational biographies." However, if we look beyond the somewhat

technocratic description we see people hungry for knowledge. Meeting their needs and enabling their access to the education they desire is now one of the most important social responsibilities for our higher education institutions. Moreover, taking on these responsibilities is a challenge that higher education institutions themselves can certainly benefit from.

It is quite clear what dynamic forces can be generated when academics manage to look beyond the narrow confines of their own subject areas and consider neighbouring disciplines. Why not bring together forestry and information technology (page 58)? Why not combine business and economics with area studies (page 46) or as an art historian engage with the academic traditions of a foreign country (page 80)? Many more examples show that it pays to be courageous and to free oneself completely from the chains of restrictive discipline boundaries: on the Global Change Ecology degree programme psychologists are accepted as readily as natural scientists and sociologists (page 54), and the Master's in Humanitarian Action is open to medical students as well as to communication scientists (page 50).

The major strengths of the Bachelor's and Master's system lie both in this type of cooperation across state boundaries, which has traditionally only been found in research, and also in approaches such as these that combine different subject areas to provide solutions to the pressing problems of today's society. And these innovations are some of the most important factors that actually do ensure that the new degree programmes are much more



Opportunities of tiered degree programmes: creating a multitude of paths to education and employment

than simply restructured versions of the *Diplom* or *Magister*.

An entirely new field is opening up to higher education institutions in the provision of continuing education for students with a Bachelor's degree and with at least one year's professional experience. Technological and scientific progress has grown to such an enormous extent that the "half-life of knowledge" in certain branches and disciplines is growing ever shorter. And our higher education institutions are feeling the direct impact of these effects: in recent years interest in continuing education Master's degree programmes has increased significantly. Growing expectations with regard to the qualifications that employees should have are fuelling the demand for continuing education at university level.

A look abroad (beyond Germany) reveals the extent of the potential behind this current development. Continuing education has long been established at English-speaking universities. Even a glance over the border at our neighbours reveals a wealth of examples: over the past few years Switzerland has created an intricate system of academic continuing education courses which has met with

the popular approval of both students and employers. All higher education institutions in Switzerland offer their own degree programmes for new target groups – measured against the total number of students registered, the proportion of students on continuing education degree programmes continues to increase.

In Germany, the trend is similar. Looking at the figures, we can see just how important these educational paths – which were previously characterised as "atypical" – have become today. On the Higher Education Compass website run by the German Rectors' Conference (HRK) there are more than 6,400 Master's degree programmes listed for summer semester 2012. Around 12 per cent of these are defined as continuing education programmes.

The demand for these types of professional continuing education at higher education institutions is quite clear. Employers want to support further education for their highly qualified employees, and the experience of institutions where continuing education is particularly far advanced shows that the desire for further qualifications in most cases comes from the employees themselves – often these

are academics – who are looking for new challenges, greater knowledge and broader horizons.

Integrating this new group of students who already have professional experience is a key challenge for higher education institutions. At the same time, there is untapped potential in the tiered degree programmes to create a variety of educational and career pathways to equip more graduates for an international world of work through lifelong access to academic qualifications.

Dr. Peter A. Zervakis is head of the HRK Project nexus

An overview of key terms

◦ Blended Learning

Combines the advantages of face-to-face communication during the sessions held at the higher education institution with the flexibility and effectiveness of autonomous learning. Also known as integrated or hybrid learning.

◦ Certificate Courses

Seminars given in related subject areas each of which covers one particular topic. A university certificate is issued on completion of the course and may sometimes also be awarded for successful completion of individual seminars.

◦ Consecutive Master's Degree

Follows on directly from the first (usually Bachelor's) degree, in contrast to a continuing education Master's degree. In terms of content and subject expertise, the course builds on the previous degree. No professional experience is required.

◦ Continuing Education Master's Degree

Master's programme for professional students who wish to return to university education after several years of professional experience.

◦ Credits

On Bachelor's and Master's degree programmes students receive a specific number of credits for courses or work completed, depending on the workload involved. All European higher education institutions follow the same system, so that achievements can be compared across institutions using the European Credit Transfer and Accumulation System (ECTS).

◦ Doctoral School ('Doktorandenkolleg')

Programme of study and research leading to a doctoral degree. In contrast to the traditional doctoral thesis, several students work together on a common research project within a structured framework. Also referred to as a Graduate School ('Graduierertenkolleg').

◦ Double Degree / Dual Degree

On a double or dual degree programme, two participating higher education institutions each award the graduate with a degree in accordance with their respective national laws / regulations – this differs from a Joint Degree.

◦ Dual System

Combines practical training with a company with the theoretical grounding of a university education. Students undertake both components in parallel and will usually complete the training component by taking a chamber of industry and commerce (IHK) apprenticeship exam and finish their university studies with a Bachelor's degree.

◦ E-learning

Learning, communication and interaction supported by electronic and digital media. This includes, amongst others, online study materials, videos of lectures and online interaction between students and lecturers.

◦ Erasmus Mundus Programme

Joint degree programmes available at several European universities and funded by the European Union. The target group is not just European students, but also participants from throughout the world

◦ European Union Structural Funds

EU Structural Funds are an instrument of EU funding policy to support regional economic development in structurally weak regions. A subsidiary aim is to enable the modification and modernisation of systems of education, training and employment.

◦ Executive Degree Programme

Continuing education degree programme aimed at managers working in industry and tailored to meet their specific needs.

◦ Face-to-face Attendance

Distance learning programmes are usually divided into study materials which the students work through independently and block attendance sessions at the higher education institution. These attendance sessions are described as 'face-to-face' sessions.

◦ Fast Track

Allows students to begin work during the Master's degree stage on a doctoral degree, which can then be completed in a shorter time.

◦ Graduate School

→ Doctoral School

◦ Joint Degree

Several higher education institutions involved in a degree programme issue a joint degree certificate to graduates

◦ MBA Programme

Shortened form of 'Master of Business Administration'. A postgraduate management degree designed to equip graduates from other disciplines with methods and approaches used in the field of Business Administration.

◦ MINT

Acronym used to describe the subject areas 'Mathematics, Information technology, Natural Sciences and Technology'.

◦ Modules

On both Bachelor's and Master's degree programmes the subject matter is divided into various subsections known as 'modules'. Each module may consist of several lectures and seminars and is normally concluded with a module-specific final examination.

◦ Multiple Degree

Several higher education institutions involved in a degree programme issue one or more degrees in accordance with their respective national laws / regulations.

◦ Postgraduate Degree Programme

A Master's degree programme that is not → consecutive. These programmes are often aimed at students with professional experience who want to gain further university qualifications after several years in employment.

◦ Public Understanding of Science

Public Understanding of Science events provide an opportunity for researchers to present their work to a wider audience, who would not usually come into contact with higher education institutions and academia.

◦ Teaching Load

Number of teaching hours specified in the employment contract of a lecturer at a higher education institution.

Master's Programmes – Models of Success

Open to international cooperation and individual educational biographies

Project nexus – Concepts and good practice for studying and teaching

Published by the German Rectors' Conference (HRK)

Ahrstraße 39, 53175 Bonn, GERMANY

Tel.: +49 (0) 228/ 887-0

Fax: +49 (0) 0228/ 887-110

nexus@hrk.de

www.hrk-nexus.de

Editor-in-Chief

Dr. Peter A. Zervakis, Head of HRK Project nexus

Author

Kilian Kirchgeßner

Editorial Staff

Florian Gröblichhoff, Barbara Kleinheidt, Monika Schröder, Jochen U. Schwarz

Research, Fact-checking and Copy-editing

HRK project nexus team

Translation

Sheila Regan, UNIWORKS team, www.uni-works.org

Layout, Graphic Design, Illustration, Photo Editing

Völker + Eicke, www.ve7.de

Bonn, February 2013, First Edition

ISBN 978-3-942600-11-8

Reprinting and use in electronic systems of this document or extracts from it are subject to the prior written approval of the German Rectors' Conference. The German Rectors' Conference does not guarantee the topicality, accuracy and completeness of the printed documents.



* lifelong learning

With support from the German



Federal Ministry
of Education
and Research

