Print Media Technologies (B.Eng.)

NEW: and Packaging

CATEGORY Award 2023

FACTS
What is this programme about?

NEWS
Exclusive interviews with our students.

ALUMNI
Hear from our graduates.

PROJECTS
Discover the world of print and packaging.

INSIGHTS
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The *Hochschule der Medien* in Stuttgart, Germany, a university of applied sciences, offers a unique and exciting international bachelor's programme (B.Eng.) in *Print Media and Packaging Technologies*.

This English-language degree programme covers media production, media technology and technical management. The Ministry of Science, Culture and the Arts (Baden-Württemberg) has approved the programme, recognising the university's commitment to providing an education directly aligned with the growth of the international media industry.

Currently, students from 55 different countries study Print Media and Packaging Technologies. The degree programme aims to ensure the training of highly qualified specialists for the media industry. According to leading European research institutes, the media industry worldwide is growing at double-digit rates every year, especially in the areas of packaging, variable data and 3D printing.

Our graduates have excellent career opportunities in the industry, which include technical, management, marketing and leadership positions around the world.

Study in
modern buildings!

Our University

> The campus itself boasts remarkable award-winning architecture and provides well-equipped facilities for students to make the most of their education.

HdM houses renowned research institutes, boasts award-winning architecture, and offers well-equipped facilities. Students can enjoy a wide range of sports opportunities, access well-maintained libraries, and partake in engaging events. HdM's prime location is advantageous, being a short three S-Bahn stations away from the city centre while also being graced with the picturesque Rotwildpark. Stuttgart itself is a cultural haven, with attractions like the State Gallery, State Theatre, and various cinemas.

The city's iconic landmarks, including the TV tower, Wilhelma Zoo, Mercedes-Benz Museum, Weissenhofsiedlung, and Cannstatter Wasen, are must-visit destinations. Additionally, Stuttgart offers an exciting nightlife scene with a variety of nightclubs and numerous cozy pubs and bars in the city centre, all popular among students. HdM plays a pivotal role in securing and strengthening Baden-Wuerttemberg's media industry.

Our Programme

»Print communication is a massive and fascinating industry. To become a qualified specialist in the field means to become a technical engineer, a creative designer, and a capable business executive all at the same time.«

Hunter Bliss, Student, 2017

Print Media and Packaging Technologies, a Bachelor of Engineering programme at Hochschule der Medien in Stuttgart, Germany, is a unique study course which combines creativity, science, technology, economics, intercultural studies, corporate management, and languages. It's aimed at students, who are interested in working within an international environment. All lectures are held in English, and each student studies a foreign language as part of the curriculum. Therefore, most graduates speak three languages, which strongly supports worldwide employment.

There is a high demand for graduates across the industry, and the Bachelor of Engineering degree in Print Media and Packaging Technologies – or PMT for short – will help you develop fundamental skills to flourish in whatever area interests you most. Marketing, management, production, research, and design are the main parts you could focus on. The six-month work placement in the 5th semester is an excellent opportunity to gain industry experience and to explore future employment possibilities.

The duration of this Bachelor of Engineering is a minimum of seven semesters (3.5 years). It opens the door to personal growth and discovery. As you learn to say ›Hello‹ in German, make friends and eat exciting new food, it is bound to take your self-confidence to the next level. In the new environment at the Hochschule der Medien, you are able to enter a new world in media and in exciting technologies.

Graduates of PMT have a wide range of careers to choose from. Your employer may be a global business involved in media production, packaging and engineering, or even a creative technologist. You will be prepared to work in marketing, management, production, research, and design.

Have a look at the next pages for insights from our students, and visit our webpage for more details about the structure of the degree programme, including details of all the courses you will attend.

Our Field

> Commercial Printing

Commercial printing is an application for printing marketing collaterals, books, newspapers, flyers, booklets, magazines, posters, and single sheets. This involves non-impact and impact printing. Non-impact printing involves anything that uses digital data for direct printing. Digital printing presses use variable data for the individualization and personalization of printed images. It is widely used in advertising. Impact printing involves any printing technologies using printing plates. Lithography or offset is a process widely used for commercial printing. This technology is employed for printing magazines, newsletters, tabloids, and books. The technology involves large web- or sheet-fed offset presses, which run at high speed.

> Packaging

Packaging is a growing market. From corrugated boxes to self-adhesive labels, from shrink films to deep-freeze packaging, from potato crisp bags to milk containers, and from poly-tubes to snack food wrappers. Flexography is the major technology used in packaging printing.

It is a process that utilises a flexible relief printing plate referred to as a photopolymer plate. It is essentially a modern version of letterpress which is largely employed for printing on all types of flexible substrates, including plastic, metallic films, cellophane, and paper. New trends in packaging printing concern wellness, lifestyle, health, intelligent packaging and individualisation. These trends deliver a growing demand and a greater diversity for printed flexible packaging, paper and board.

> Decor Printing

Decor Printing is an application which involves the printing of wrapping paper, furniture design, carpet design, tiles, toys, and many more creative products that require bespoke printing technologies. The technologies are primarily for creating multiple forms of seamless interior design, such as wood or floor patterns. The technologies used are roto-gravure, screen-printing, and ink-jet printing. Rotogravure, for instance, is an intaglio printing process that uses rotary printing capable of producing continuous tone images.

Callum from the United Kingdom
Lara from Germany

Our Field

> Textile Printing

Textile printing is an application used in the production of garmets, curtains, bags, and industrial textiles. Screen printing is a typical technology used for printing on textiles. This printing method is similar to a stencil in that once a background is applied with printing paste, the coloured dye is then printed on the part of the fabric that is exposed. The subject covers general concepts in exposure, coating, metallic inks, speciality, and textile materials.

> Functional Printing

Functional printing is a segment of industrial printing. Functional printing is the ability of a printed substance to actually perform a function, such as ink that illuminates or conducts electrical current. This includes printed batteries and even printed antennae. Functional printing is opening new doors for industrial manufacturers and process engineers charged with ever changing market demands. Printed electronics is expected to be a major market in the future. Examples are OLEDs and smart devices.

> Security Printing

Security printing is an application which involves many different technologies that deal with the printing of items such as banknotes, passports, tamper-proof labels, product authentication tools, stock certificates, postage stamps, and identity cards. The main goal of security printing is to prevent forgery, tampering, or counterfeiting.

> 3D Printing

3D Printing is a new application which is still in its infancy. It involves a large number of different technologies used for additive manufacturing. This technology refers to many processes that are employed to synthesize a three-dimensional object. Top computer graphics software will integrate to 3D printing, resulting in friendly modelling tools. It is said to revolutionise many parts of the industry. This subject requires a detailed understanding of the principles, the science and mathematical theory, and the ability to apply this to your individual project.

Our Curriculum

1

Introduction to Media Technology	**5**	Material Science [1]	**3**	Fundamentals of Engineering [1]	**5**
				Mech. Engineering, Technical Design	

2

Physics for Engineers	**7**	Material Science [2]	**5**	Pre-Media Techn. and Color	**8**
Physics for Engineers, Exercises in Physics				**Pre-Media Techn., Exercises**	

3

Digital Printing	**5**	3D Printing	**5**	Post Press Technologies	**5**
		3D-Printing/Additive Manufacturing 3D-CAD			

4

Industrial Printing	**5**	Sustainability and Environment	**3**	Metrology	**6**
				Metrology, Traineeship in Metrology	

5

Internship

6

Elective Courses or Mobility Window

7

Bachelor Thesis **12**

■ PRACTICAL SKILLS ■ TECHNOLOGY ■ LANGUAGE SKILLS ■ SCIENCE

Information Techn. 6 Information Technology, Exercises in Programming	**Mathematics** 7 Mathematics for Engineers, Excersises	Language Course [1] 4
Traineeship in Printing 6		Language Course [2] 4
Fundamentals of Engineering [2] 7 Mech. Engineering, Technical Design	Product Development [1] 4	Language Course [3] 4
Commercial and Packaging Printing 8 Lithographic, Flexographic, Gravure	Product Development [2] 4	Language Course [4] 4
30		
22	Academic Work 4	Language Course [5] 4
Advanced Research Projekts 8		Elective Courses 10

7 SEMESTER / 3,5 YEARS   210 ECTS / 30 p.s.   25 Elective Courses

Our Students – Our Technical Equipement

Babar from Pakistan

Hands-on science!

Anna from Russia

Núbia
from Brazil

A process to produce, adapt and deliver multi-channel, multi-market communications that maximise brand engagement. Pre-Media is anything that happens to a piece of artwork to take it from its original state, when completed by the creator, to a form that is ready for public consumption. This can range from colour correcting a photograph to post production, and colour management to preparing a PDF for printing.

The Pre-Media process involves graphic communications manufacturing processes with emphasis on the variety of pre-media technologies available, and their application. It includes design, layout, typography, fotography, retouching, computer graphic imaging (CGI), impositioning, proofing, raster image processing (RIP), computer to plate (CTP) or computer to press or web-to-print, material selection, colorimetric science, colour management, and finally finger printing.

Hi, my name is Núbia, I was born and raised in Brazil in a city called Belo Horizonte. I graduated in Biology and moved to Germany at first to do a Master in Genetics. When I arrived here, I decided to change my plans and do a new degree in engineering in the course Print Media and Packaging Technologies at HdM. I made this decision, because I wanted to learn new things in different areas, and the challenge that studying engineering in Germany presents.

Throughout the course I was able to expand my knowledge in different topics and to find my passion in sustainability, putting together what I have learned previously in Brazil and in this programme. Studying in Germany was the most amazing and challenging experience I have ever had. Challenging, because I had to study in another language, for a difficult course, and in a country with a very different culture from mine.

ORDEM E PROGRESSO

Pre - Media Lab

Brittany from the United States

Aya from Egypt

Sam from Czechia

Lithography is a method of printing, originally based on the immiscibility of oil and water. In modern lithography, the image is made of a polymer coating applied to a flexible plastic or metal plate. The image is printed offset, by transferring the image onto a flexible sheet or rubber blanket, which is then printed to the substrate.
The image on the plate emulsion is created by direct laser imaging in a CTP device known as a platesetter.

The offset printing process is commonly used for cardboard packaging like cereal boxes. It's also used for magazines and other high volume printing products.

This flyer was printed with our Speedmaster CD 74 of Heidelberg. The used printing plates were also produced on-site.

Aya I have a bachelor's degree in Electrical Engineering. After graduation I got the chance to work in advertising for three years. That was when I discovered my passion for offset printing. HdM was the best choice for several reasons. I was mesmerized by the labs and how the university accommodates international students. Germany was my first choice as it is one of the most developed countries in education.

Sam I've been fascinated by the world of print media for as long as I can remember. And as a print nerd, clearly it is always delightful to be able to connect with fellow print nerds. You'll hardly find a better place to do that than Hochschule der Medien. My favorite aspect of our programme covers all the major fields within the industry. So no matter what you're passionate about, PMT has got you covered.

Offset-Printing Lab

William from Taiwan

Tuna from Turkey

Rotogravure is used for large volume printing applications. It is used in packaging and decor printing, anything which needs a continuous design. A typical application is packaging of gummy bears. Apart from that, high quality packages and decor are produced in gravure printing. Large steel cylinders are engraved with a given design. As the cylinder rotates, it draws excess ink onto its surface and into the cells.

Next, the substrate gets sandwiched between the impression roller and the gravure cylinder – this is where the ink gets transferred from the recessed cells to the web. Our rotogravure machine is the Rotomec MW 60 from Bobst, Enulec and Bsteltromat. At our university, we prepare the printing cylinders with diamond and laser engraving.

My name is Tuna and I am from Turkey. I previously studied Computer Programming at the Marmara University in Istanbul. I was initially drawn to the Hochschule der Medien due to its smaller size, which I believe creates a better learning environment, and the fact that the course is taught in English with a lot of practical teaching. I was lacking the practical aspect in my studies at my last university, and that's why the HdM was very attractive.

Moreover, Germany is a very interesting country to me, as I have been doing volunteer work with a German-Turkish Youth Organization. Being located in Germany has provided me with many opportunities that I did not have before. Furthermore, I love the language and the culture. The programme of PMT caught my attention, because it combines science and engineering with social and practical skills.

**Gravure-Printing Lab**

Baqer from Iraq

Digital Printing is used to print variable data. This includes commercial print products, advertising, labels, film or flexible packaging. It involves sending an image directly to the printer using digital files such as PDFs. Digital printing allows on-demand printing, and variable data printing for individualized and personalized products. This is a form of digital printing, in which elements such as text, graphics, and images are changed from one printed piece to the next, without stopping or slowing down the printing process. Variable Data Printing goes hand in hand with the Internet. Images may be modified or exchanged by using a server-based Internet platform. The global commercial printing market is poised for substantial growth over the next seven years. Individualised printing in advertising, packaging, and commercials, will respond to new product needs of business customers.

How it happened? Prior to my start of the Bachelor´s degree in Print Media and Packaging Technologies, I completed my International Baccalaureate Diploma Programme (IBDP) in the Beaconhouse School System in Karachi, Pakistan. After the completion of my school, the business knowledge helped me to get along and have hands-on experience with the side business of my uncle's in decorative printing.

Why PMT? The knowledge and skills a student can learn here are beyond limits. State of the art printing technology with respected professors and great supporting faculty. All essential printing technologies can be found under the roof of HdM. Students not only learn in the lectures, but can also have hands-on practice when processing and printing with the machines. PMT is a unique course not only in Germany, but worldwide.
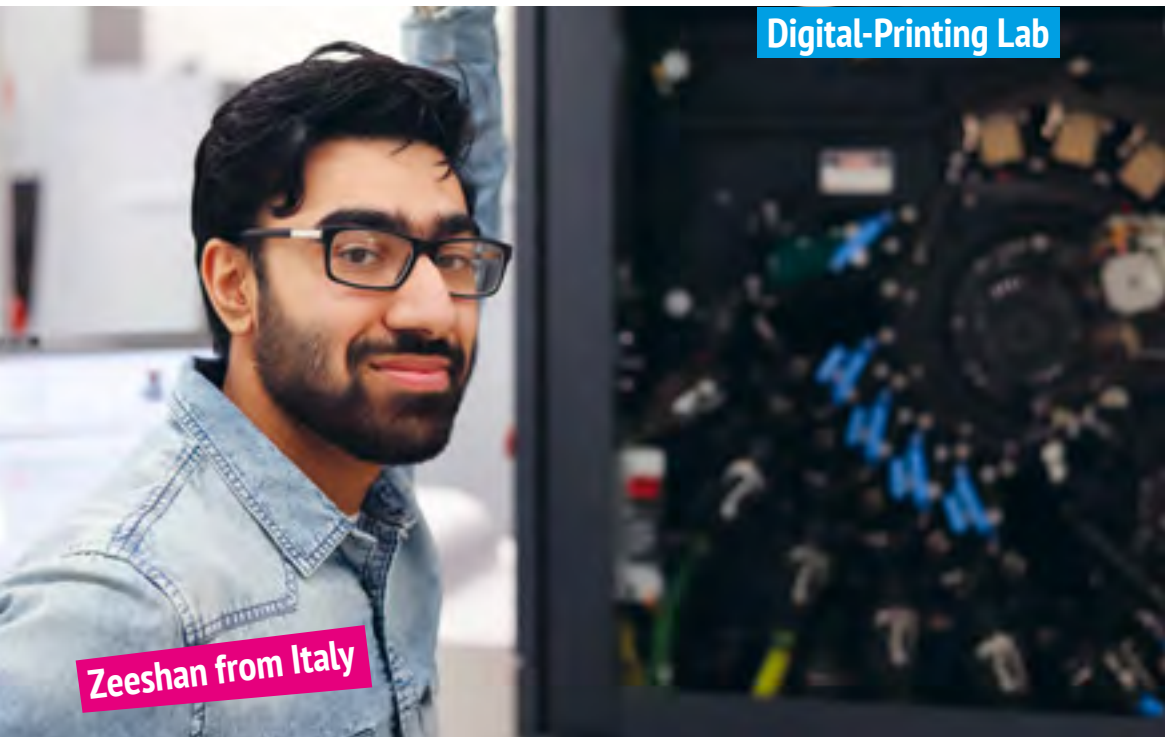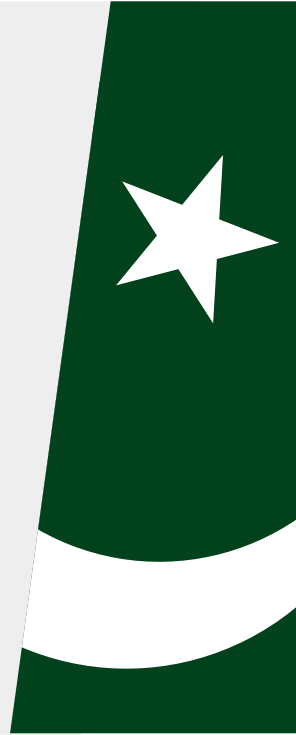
Digital-Printing Lab

Zeeshan from Italy

Fionn
from the United States

Screen Printing was largely introduced to Western Europe from Asia sometime in the late 18th century. It is a printing technique, whereby a mesh is used to transfer ink onto a substrate, except in areas made impermeable to the ink by a blocking stencil. A blade or squeegee is moved across the screen to fill the open mesh apertures with ink. This causes the ink to wet the substrate and be pulled out of the mesh apertures as the screen springs back after the blade has passed.

The technique has even been adapted for more advanced uses, such as laying down conductors and resistors in multi-layer circuits using thin ceramic layers as the substrate. It also applies to smartphones, in which the circuitry is printed in screen to save space, batteries, and many more functional features. Our university features two flatbed screen printing machines, both manual and automatic, as well as a round surface machine.

My name is Fionn Heron and I come from San Francisco, California. When I learned how to screen print in my senior year of highschool, I knew that I had found my passion. Before coming to HdM, I studied one year at a Canadian college towards a Bachelor in Fine Art. It was then that I found PMT at HdM, which is a perfect fit since it combines my two favorite things: printing and science. Once I got here, I couldn't believe the possibilities and innovations of screenprinting especially in the field of printed electronics. I got a student job in the department and began learning and doing as much as possible. PMT is a great course for anyone interested in the technical side of graphic art applications and it provides a fantastic overview of the print industry. Since the course is in English, it also allows you to make connections with fellow students from all around the world.

Screen-Printing Lab

Flexography is a printing process which utilises a flexible relief plate. This may be a photopolymer or rubber plate. The technology is used for printing non-porous, flexible substrates, which are required for various types of food packaging. An example is the household sugar package. A flexographic print is made by creating a positively mirrored master of the required image asa 3D relief in a polymer material.

The image areas are raised above the non-image areas. The ink is transferred from the ink roll, which is partially immersed in the ink tank. The substrate, usually a web, is finally sandwiched between the plate and the impression cylinder to transfer the image. The web is fed through a dryer, which allows the inks to dry. The Flexopress 6S-8 from BOBST belongs to the DFTA (German Flexographic Technical Association).

Hi, I am Philipp from Germany. I chose Print Media and Packaging Technologies because of my background in printing. After graduating from highschool I passed a training in offset printing. But there is so much more to discover in this business, which is why I wanted to learn more about the industry and other printing technologies. The best place for this is the HdM located in Stuttgart.

The university offers a broad array of machinery used in the industry, and experience in print and media. Another thing I love about studying PMT at HdM is the international environment. It is fascinating to study with students from abroad and to become familiar with their cultures. Originally, I am from Bavaria, a region called Allgäu. However, I really enjoy Stuttgart and the region, especially the urban green spaces and the offer of activities.

Flexo-Printing Lab

Bhargav from India

Dorcas
from Ghana

Polina
from Russia

Post-Press technologies include anything which is applied after printing, for example binding and finishing. Binding involves folding and fastening of individual sheets together, while finishing involves additional decorative actions, such as die-stamping, embossing or laser cutting. Although binding is a post-press function, binding considerations need to be dealt within the pre-press phase of any print job.

Post-press technologies involve a combination of different processes. These include guillotine and rotary cutting, specialty folding, magazine and paperback production, case binding, stationery and loose-leaf binding, saddle stitching, thread binding and thread sealing, embossing and debossing, hot foil stamping, make-up and securing, laser die cutting and engraving, and many more processes.

Dorcas My name is Dorcas Maamu. I was born and raised in Ejisu, a famous city found in the Southern part of Ghana. Studying in Germany comes with many benefits. Just to say a few, you can either pay less or no tuition as an international student, students can work while studying. Gaining a bacherlor's degree in Germany will be recognized across the world.

Polina I made my decision depending on the study course I was interested in, its location, and the ranking amongst schools in Germany. I had been to Germany couple of times before, and it always felt like home to me. I am fond of the variety of nationalities and cultures here. This mixture creates the perfect infrastructure. I was always eager to study printing due to its uniqueness.

Post-Press Lab

Sidharth from India

Maisam from Afghanistan

Mengtong from China

3D printing, also known as additive manufacturing (AM), refers to processes used to synthesise a three-dimensional object. More computer graphics and CAD software will support direct printing from within the software, consequently making printing easier for the end user. Top computer graphics software will integrate to 3D printing. 3D printing is said to revolutionise many parts of the industry.

3D printers are melting filament, most commonly PLA, in their print heads. Then the liquid material is pushed through a nozzle onto the printing bed. The HdM has its own initiative for 3D print. Any student can use the 3D printers at the university and print their own models. In the industry, additive manufacturing is used in many different fields, ranging from printing car parts or decorative articles, to printing backup devices for rockets.

Hi, I am Mengtong from China. I came to study at HdM in Stuttgart with a curiosity about printing. In the third semester we were introduced to 3D printing, also known as additive manufacturing, which has a wide range of applications and a bright future. This course also introduced us to CAD (Computer Aided Design). We use software to design and model, and then print the model with a 3D printer.

3D design and printing can be both fun and challenging. How to adjust settings to improve print quality, reduce printing time and materials, and design for easier printing are all answered through step-by-step practice.
At HdM we have several types of 3D printers and students can explore 3D printing technology under the guidance of professors.

3D Print Lab

Arne from Germany

Zeeshan from Italy

LINK TO WEBSITE
Learn more about the
excursion to Northern Italy!

The Voice of a Graduate

»I believe that the PMT curriculum provides you with a strong foundation of skills and knowhow which will allow you to be a step ahead when working within the printing industry.« Mohammad Zeeshan Mehmood

My name is Mohammad Zeeshan Mehmood. I was born in Brescia, Italy, but my family is originally from Pakistan. After graduating in the summer semester 2022, I started working for Meccanotecnica Group – Book Finishing Solutions.

Meccanotecnica Group is the world's leading manufacturer of automatic book-sewing machines and lines both for offset and digital printing for the industrial production of books. Currently I work as an after sales technical service engineer.

What I find mostly captivating about my work is being able to gain international exposure by conversing with different customers in different languages. This helps me to acquire both sales and technical experience in this niche field. Additionally, Meccanotecnica provides an opportunity for young students like me to learn the latest state of art technology that is being developed in this market.

My internship at Meccanotecnica was fundamental for me to find out about the company's aims and objectives for the future. I learned a lot about the mechatronics involved in the machines through working in the production department.

The colleagues with whom I worked with were very friendly and helpful, which helped contributing to a joyful learning experience.

If I had any advice for PMT students who are preparing for their internship semester, I would tell them to try to find an internship in a field that you find most interesting. Once you have started working as an intern, try to ask your colleagues as many questions as possible so that you can learn as much as possible.

According to my experience so far in my field, I believe that knowledge of automation and mechatronics will become increasingly important, since the market is constantly changing. Post-press manufacturers are having to integrate and enhance state-of-art technology in order to meet the latest trends in the market. This includes automation and mechatronics, which are just part of the latest evolution of industry 4.0. Therefore, having a solid foundation in the above mentioned topics will help you prepare better for entering the post-press industry.

Lastly… Be happy. Work hard.

Laura from Finland

Our Admissions Officer

My name is Laura Ryhänen, and I coordinate the application process for the Print Media and Packaging Technologies Programme. I originally come from Finland and work in the HdM International Office supporting international students before, during, and after their time at HdM.

PMT is the most wonderful international programme providing a strong course offer and an unforgettable international experience. You will love your time at HdM and build a life-long network of friends and future colleagues!

Comfort from Uganda

Our Student Advisor

I am Comfort Aleni, currently serving as an International Student Advisor for the English-taught Bachelor's Programme. In this role, I act as the primary contact point for the students, effectively bridging the gap between students and administrative units. I provide individual consultations to address their academic performance and progress, actively seeking solutions to overcome any challenges hindering them from excelling in their studies. In addition, I also organize social events that foster a sense of community and provide our students with opportunities for social engagement and connection with professors, academic staff, and fellow students.

Our Academic Staff
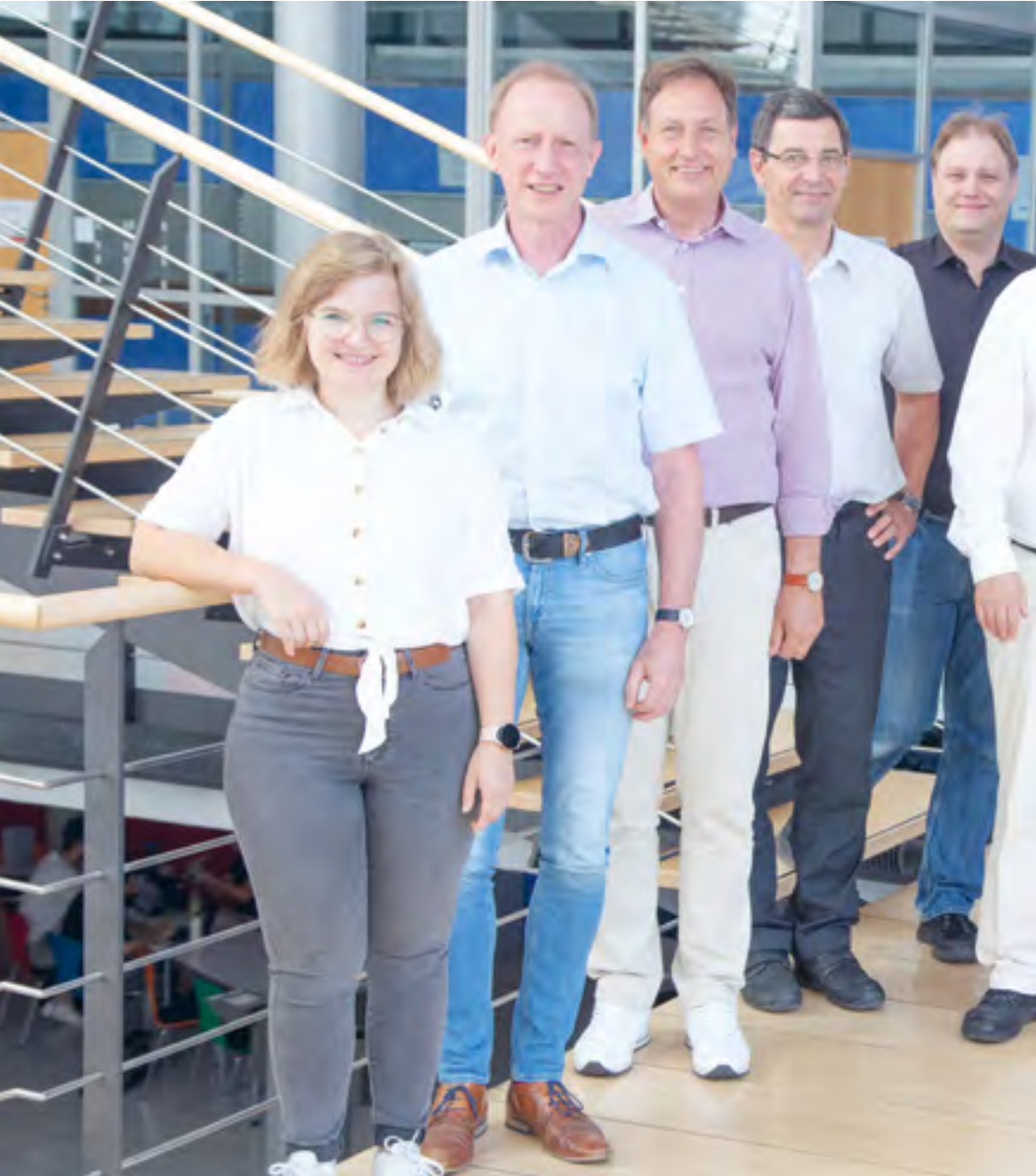
From left to right: Antonia Götz, Professor Karl Schaschek, Professor Volker Jansen, Professor Armin Weichmann, Matthias Galus, Professor Gunter Hübner, Thomas Sprinzing, Professor Stefan Güttler, Sebastian Paul, Bernhard Michl, Comfort Aleni

Ready to enrol?

We look forward to welcoming you next October!

All of the courses offered at Hochschule der Medien (University of Applied Sciences in Media) are credit-rated.

The programme runs over seven semesters (3 ½ years), and each semester is worth 30 ECTS, which are obtained by successfully passing examinations.

To be awarded the B.Eng. qualification, you must accumulate a total of 210 credits.

Are you interested in studying with us? We are here to help throughout your application process!

Our Admissions Team will support you from your first enquiry until your first day of study. Visit our website www.hdm-stuttgart.de/pmt and learn more about the application steps.

Admissions Officer
Laura Ryhänen
admissions@hdm-stuttgart.de

Head of the Programme
Professor Volker Jansen Ph.D.
jansen@hdm-stuttgart.de

AWARD

Laura Cirstea from Italy graduated in 2023. In July, she was awarded the sponsorship prize for the best study performance at our university. She completed her studies with the best possible grade of 1.0. Congratulations!