

2022 Report on Progress

UN Principles for Responsible Management Education



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PRME

This is our **Sharing Information on Progress (SIP)** Report on the Implementation of the **Principles for Responsible Management Education**

Our Profile

Reutlingen University is one of Germany’s leading universities, offering international academic programs with close ties to industry and commerce. On our campus we have around 5200 students spread across five different schools: Applied Chemistry, Engineering, ESB Business School, Informatics, and Textiles & Design.



Titel der Präsentation – Name, Funktion – Stand 08/2018 6

Professors, visiting lecturers and administrative and technical staff guide these talented young people along their academic path.

We offer 46 degree programs at Bachelor’s and Master’s level, in which we train the top executives of the future. At the same time, it is very important to us to support our



students' personal development and to ensure that they become specialists and managers for whom social responsibility is second nature.

High Quality Teaching

For many years, we have regularly been positioned at or near the top of numerous university league tables, reflecting the high standards of our programs and the top-class academic education they provide. All our degree programs are accredited with internationally respected agencies.

Cooperation with the business world, close contacts to industry, and joint teaching and research networks all ensure that we offer the best possible combination of theory and practice.

What is more, Reutlingen University wishes to promote the principle of life-long learning. The "Knowledge Foundation" offers professional people the chance to attend high-caliber continuing education courses.

Mission

Our mission includes five fields of activity:

- Students at Reutlingen University acquire relevant professional, methodological and social skills, thanks to forward-looking, innovative teaching and application-orientated research. These skills are complemented by qualifications in the areas of digitalisation, diversity, entrepreneurship, internationality and sustainability.
- Graduates behave responsibly as specialists, managers or founders of new businesses, and counter obstacles with innovative and sustainable solutions. Thus, we as a university make an economic and societal contribution towards actively addressing global challenges.
- Regional and global companies and society also benefit from applied research, knowledge and technology transfer, start-up incentives and continuing education.
- For members of the university actively lived diversity is the norm – in their daily interactions with each other as well as in interdisciplinary teaching and research.
- The university itself is continuously developing and evolving as an attractive place to work.

Source: <https://www.reutlingen-university.de/en/our-profile/our-profile/>



Our Vision

As a university, we use our competencies, together with the power of diversity, in order to act as a motor for innovation to sustainably shape the future - both regionally and internationally.

Source: <https://www.reutlingen-university.de/en/our-profile/our-profile/>

Reutlingen University is evolving from a knowledge transfer player to an innovation platform that not only transfers knowledge, but also brings together the necessary players. In doing so, Reutlingen University acts regionally and supraregionally and uses the power of diversity.

We are convinced that we achieve innovation by using our competencies and combining them with the diversity of people as well as the diversity of the five faculties. We are aware that we have not currently achieved this vision, but we are well on our way to doing so.

As a university, we have to act sustainably. We know: Without sustainable action, the next generations will have no chance. We build our sustainable actions on the three pillars of sustainability: ecology, economy and social issues. These three components are of equal importance and are mutually dependent. Our own behavior plays an important role in this, as does the development of technologies.

The vision of Reutlingen University can be summed up as follows: "Innovation through competence and diversity".

Renewal of our Commitment

As a leading university of applied sciences, I consider the research-based development of creative solutions for our global challenges as top priority. We work constantly on realizing new concepts of energy production, sustainable mobility concepts, the responsible development of artificial intelligence techniques, good working conditions or innovative work-life-models to name only some of our research projects.

Individual professors and deans have integrated aspects of sustainable development and ethical questions in the curricula of students' programs and lectures. Both students and companies as future employers expect the integration of those topics.

In 2020 the board initiated two sustainable projects to fulfil our global responsibility, these projects are currently being pursued: We are in the process of generating a mobility concept that motivates students, professors and staff to use eco-friendly mobility. The aim is to reduce the number of cars on the campus. In the 2020/21 winter semester, the university launched a campaign for bicycling. Students as well as professors and staff could be motivated to cycle to the university. The second project addresses the CO₂-reduction in internal procedures and buildings. Since April 2022, a climate protection manager has enriched our team with her expertise. She is developing



a climate protection concept for the whole university. The vision is a climate neutral campus.

In order to realize our goals, the UN Principles of Responsible Management Education (PRiME) is a reliable partner. We, therefore, renew our commitment to proceed on this path to educate responsible future managers and workers in cooperation with our stakeholders and to exchange effective practices related to these principles with other academic institutions.

We see PRiME as continuous process for reflection and improvement. This is our sixth report on progress in which we document the major achievements since 2020 and our future objectives. The most important effect of this regular reporting procedure is the constant exchange of individual activities that serve to implement the six principles for responsible management education in our organization.



A handwritten signature in blue ink, consisting of several fluid, connected strokes that form the name 'Hendrik Brumme'.

Prof. Dr. Hendrik Brumme
President of Reutlingen University



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Imprint

Issued by Reutlingen University, Team for ethics and sustainable development
Reutlingen, September 2022

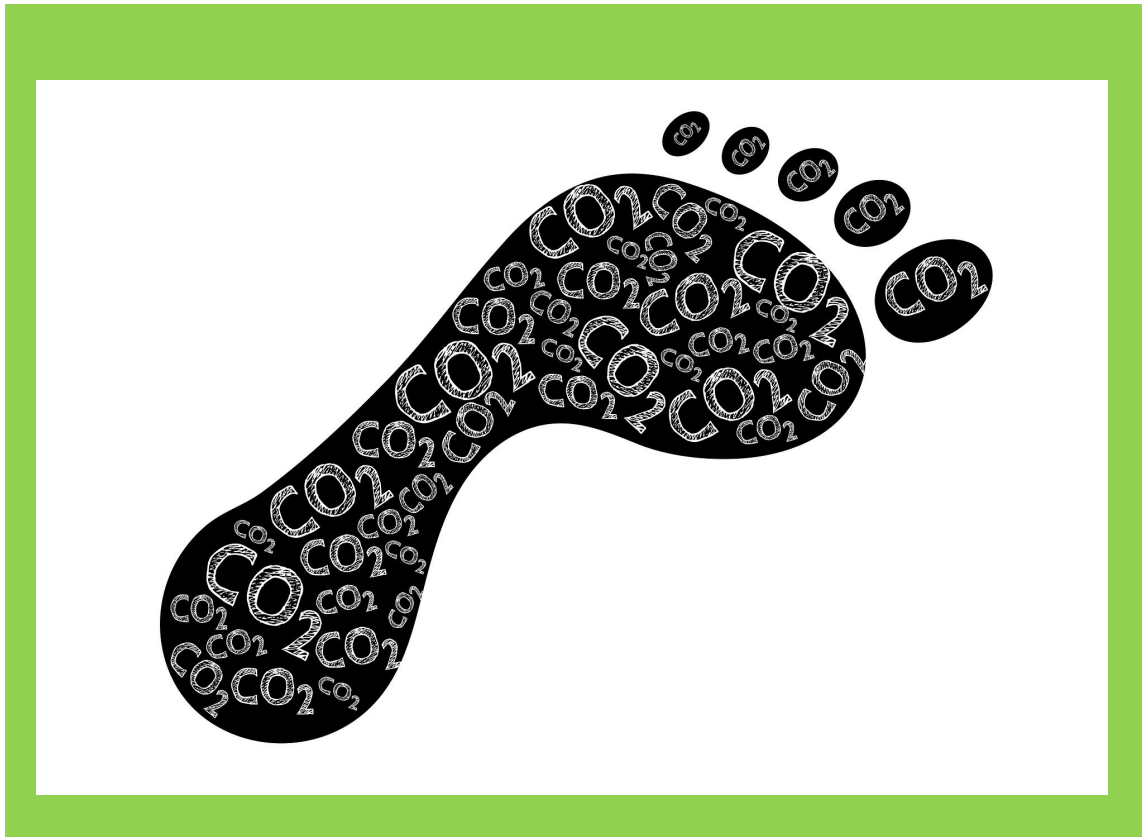
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Quelle: Pixabay

Principle 1 | Purpose

We will develop the capabilities of students to be future generators of sustainable value for business and society at large and to work for an inclusive and sustainable global economy.



Overview

Since 2020, ethics, sustainability and climate protection have been decisively advanced at Reutlingen University. In the current structure and development plan of the university, goals were anchored for the first time, for teaching, research and campus operations. With the implementation of a steering committee, sustainability officers in the faculties and various working groups, many people at different levels are now working responsibly to ensure that these goals are realized. The teaching program continues to operate at a high level.

Human Resources

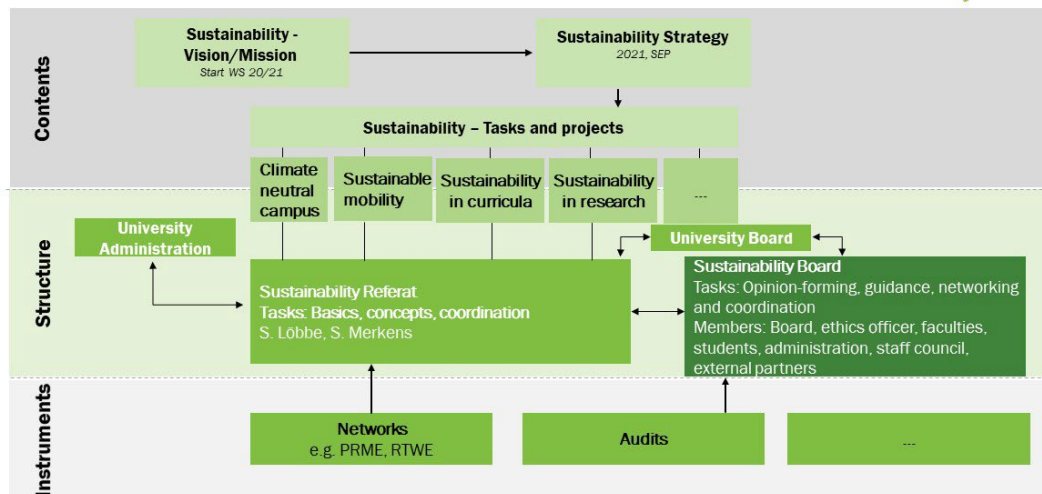
In our last report, we announced the nomination of Prof. Dr. Löbbe as Sustainability Officer of the enlarged board (“erweitertes Präsidium”), in order to manifest and demonstrate the rising importance of the issue.

Meanwhile, structures have been established and personnel resources created to promote sustainability and climate protection:

- Prof. Dr. Sabine Löbbe has been the Sustainability Officer since May 2020,
- the Sustainability Adviser, Dr. Sabine Merkens (since March 2021), and the Climate Protection Manager, Ing. Elena Bühler-Marx (since April 2022), also belong to the "Sustainability Referat",
- the "Sustainability Board", a steering committee under the auspices of the Sustainability Referat, is made up of representatives from all relevant university sections - including the board, the ethics officer, the faculties, the students, the administration, the staff council and others. The sustainability board is used for opinion-forming, guidance, networking and coordination,
- in each faculty, one professor has been appointed as the faculty's sustainability officer; in ESB, the largest faculty, two professors have taken on this role,
- contacts with the municipal administration of Reutlingen are maintained at various levels.

Dr. Baumgärtner, the former consultant for ethics and sustainable development, has left Reutlingen University in autumn 2020. The Ethics Officer, Prof. Dr. Bernd Banke, is assisted in the organization of the ethics and sustainability teaching program by a central administration staff member. Dr. Merkens organizes lectures on sustainability and climate protection.





1

Sustainability strategy for Reutlingen University

In 2021, the focus of activities was on the development of a sustainability strategy for Reutlingen University. For the new structure and development plan (“Struktur- und Entwicklungsplan”, SEP), a chapter on "Sustainability and Climate Protection" had to be created for the first time. The Sustainability Referat initiated an extensive participation process and developed goals, tasks and milestones for the next four years (2022-2026) together with professors, employees and students. Sustainability and climate protection were given targets in three sections: teaching, research and campus operations.

The following text is an excerpt from the SEP; defined here are the goals for teaching:

“With its teaching, Reutlingen University addresses the current global challenges with regard to sustainability and strengthens those competencies among students that are necessary for a comprehensive social transformation. The students learn to think and act in a future-oriented way - with the well-being of the next generations in mind. For this purpose, the following sub-goals are targeted:

Sensitization: The students

- acquire and sharpen an awareness of sustainability in their respective professional field,
- learn to reflect on their own values and actions and to develop empathy.

Analysis: The students

- know the basic global sustainability concepts and criteria,

- are enabled to identify and classify sustainability factors e.g. in consumer behavior, process chains, business models and economic systems,
- know current methods for measuring and evaluating the impact of actions and are able to evaluate the impact of their own actions.

Implementation: The students

- are enabled to implement solutions in practice,
- learn to apply sustainability both within their field and across fields (interdisciplinary) in problem solving,
- are able to apply methods to concrete cases and develop solutions.”

In order to achieve these goals, Reutlingen University has set itself the aim of working on the following tasks by 2026:

1. The university will create structures to support teachers; these include:

- Professional development opportunities for faculty (in collaboration with Reutlingen Didactics Institute),
- Creation of formats for input, exchange and networking among teachers,
- Promoting and rewarding innovative ideas: Possible measures include thematic teaching awards, incentives (for example, deputy discount for the development of innovative teaching formats), awards for sustainable theses.

2. The university will promote and anchor sustainability issues in the development of degree programs and modules:

- Sustainability issues will be integrated holistically into curricula, this will be visible in the module manuals,
- The "Reutlingen Competence Tool" will be further developed with regard to sustainability in teaching; its use in future course and module development will be actively supported. (The “Reutlingen Competence Tool” is a digital tool used in degree program and module development. The tool enables a target/performance comparison for the teaching of generic competencies in the curriculum.),
- When appointing new professors, competencies in the area of sustainability will be taken into account as far as possible,
- The “studieren^{plus} program” will be further developed for the area of sustainability in cooperation with the faculties, also through interdisciplinary offerings (lecture series, etc.); participation is to enable students to acquire ECTS credits. (The “studieren^{plus} program” at Reutlingen University offers all students the opportunity to acquire generic skills in numerous courses, workshops and seminars.),



- The university will develop offers for all students at the beginning of their studies, which are suitable to sensitize them for aspects and goals of sustainability.

The goals regarding sustainability in research were formulated in the SEP as follows:

“In research, Reutlingen University strives for growth in the areas of sustainability and climate protection in order to make a strong contribution to a comprehensive societal transformation by developing innovative solutions for business, administration, society and education. Specifically, this means:

- Increasing the internal and external visibility of research in the field of sustainability,
- Improving the exchange between researchers, central institutions and all other interested parties,
- Increasing the volume of applications in the field of sustainability, also by expanding inter- and transdisciplinary research competencies.”

Interdisciplinary means the joint research of different disciplines, transdisciplinary refers to the transfer of research into society through collaborative action of researchers and practice partners.

The following goals have been formulated for campus operations:

“The HSRT campus should be visibly and transparently sustainable as a place of learning and research for its employees, students and partners. Sustainable means minimizing negative impacts on the environment, economy, society and health and being climate neutral by 2030.

The key fields of action here are real estate, mobility, procurement, IT infrastructures, space management, heat and cold utilization, adaptation to climate change, and renewable energies. In this context, technical solutions are just as important as climate-friendly behavior on the part of employees and students.”

To achieve these goals, Reutlingen University has set itself the following specific measures:

1. A climate protection concept is to be available in 2024 and the first measures for its implementation have been realized.
2. In 2026, the HSRT campus will be visibly and transparently sustainable; the measures focus on the following aspects:
 - Support behavior of all people working on campus towards sustainability, reduction of electricity and heat waste,



- Mobility: behavior and better infrastructure for cyclists and pedestrians (bike racks, signage, barrier-free sidewalks ...),
- Biodiversity, nature conservation: promotion of plant and animal biodiversity on campus through appropriate design, planting and maintenance of outdoor areas, including preservation of ecologically valuable stock,
- Strengthening waste avoidance and separation,
- Sustainability in procurement and (re)use, e.g. of consumables, infrastructure (e.g. furniture, IT equipment, etc.),
- Supporting communication internally and externally.

Objectives

A number of very committed individuals participated in the development of the sustainability strategy for Reutlingen University. Professors, administrative staff and students have contributed their respective perspectives and developed the very ambitious strategy outlined above together in constructive discussions. Both the lively participation and the outcome of the joint work are very encouraging.

Now the most important goal is to put this strategy into action with concrete measures in the coming years, to fill the program with life.

We have started implementation immediately (the details are presented in more detail in the following chapters). But much remains to be done. The "Sustainability Referat" sees itself here in the role of initiating and driving things forward, coordinating, bringing all stakeholders together at one table, leading the discussions to a good result.

Nevertheless, we have to be patient. Implementing the sustainability strategy requires change. This often means additional work and a change of habits. Continuous motivating communication is crucial here. The "Sustainability Referat" is determined to lead this, internally and externally.





Quelle: Pixabay

Principle 2 | Values

We will incorporate into our academic activities and curricula the values of global social responsibility as portrayed in international initiatives such as the United Nations Global Compact.



Overview

The Ethics and Sustainability Team pursues the goal of setting new standards and integrating sustainability topics into all curricula. One instrument is the regular consideration of the topic in the development of degree programs and modules. The sustainability advisor cooperates with the Reutlingen Didactics Institute on offers for further education and networking of interested teachers.

The chapter also provides an overview of those degree programs and courses that already focus on sustainability topics.

Sustainability issues in the development of degree programs

In the sustainability strategy of Reutlingen University, it is anchored that in the future, the teaching of sustainability competencies must be included in new degree programs and modules. For this purpose, the competence field "Ethics and Sustainability" is to be further developed in the "Reutlingen Competence Tool". (The "Reutlingen Competence Tool" is a digital tool used in degree program and module development. See above).

The Sustainability Referat has set up a working group for this purpose. Here, both committed professors and students are working on the following key question: What competencies should students have at the end of their studies in order to be able to think and act in a sustainable manner?

The first workshop focused on brainstorming. Participants named and discussed overarching competencies important to them that should be taught and strengthened in teaching.

They also named various teaching topics that students should have heard something about in their studies. Examples include: the consequences of different economic systems in terms of sustainability, alternative economies, product life cycle analysis, sector coupling, ESG criteria, profound knowledge of technical-scientific relationships, basic GHG accounting and emission reduction, modern technologies and sustainable concepts.

In the second workshop, we incorporated external scientific expertise into our work. Leonie Bellina from Tübingen University, research associate in the joint project HochN and co-author of the guideline "Education for Sustainable Development (ESD) in University Teaching", could be won as a speaker for a presentation. She presented us several competence models for ESD, which have already been developed by different authors, as well as discussed the questions why we need our own core competences for sustainable development and how to justify and derive them. Inspired by this presentation, the desire arose to ground our work with a didactic model. The basis for further work could and should be the above mentioned guideline.

Here we would like to outline a few basic ideas from the guideline:



- What is education for sustainable development (ESD) about?

ESD is about empowerment as a change agent towards more socially just and ecologically inclusive societies. Students should be empowered to actively shape the transformation of society in their future roles as professionals and leaders.

- How can teachers prepare and empower students for their role as change agents?

ESD is not "educating" students to behave in a certain way, but empowering them and developing their competencies to act independently. Cognitive, action-based and reflective, social-emotional learning goals need to be developed (learning with head, heart and hand).

- Change agents need a set of core competencies for sustainable development:
 - Competence to think systemically,
 - Competence in foresight,
 - Normative competence,
 - Strategic competence,
 - Collaborative competence,
 - Critical thinking competence,
 - Self-awareness competence,
 - Integrated problem-solving competence.

Bellina, L.; Tegeler, M.K.; Müller-Christ, G.; Potthast, T. (2020): Bildung für Nachhaltige Entwicklung (BNE) in der Hochschullehre. BMBF-Projekt „Nachhaltigkeit an Hochschulen: entwickeln – vernetzen – berichten (HOCHN)“, Bremen und Tübingen.

In our next workshops we will decide which of the competencies should be included in the "Reutlingen Competence Tool". Furthermore, we will think about the implementation: How can the integration of the competencies into the study program development succeed?

Creating structures to support teachers

Anchored in the sustainability strategy of Reutlingen University is the goal of creating structures to support teachers. These might be:

- Creation of formats for input, exchange and networking among teachers
- Promoting and rewarding innovative ideas: Possible measures include thematic teaching awards [...].



We have started planning for both points. The Sustainability Referat has made contact with the Reutlingen Didactics Institute (RDI). In the meantime, there is a close cooperation between the colleagues from the RDI and Dr. Sabine Merkens.

In cooperation with the RDI, the next edition of the "Interactive Teaching and Learning Breakfast" is planned to be held on the topic of "Generic Competencies in the Context of Sustainability". (The "Interactive Breakfast" is a proven format for collegial exchange among teachers across faculty boundaries. Once a semester, lecturers and staff meet in a relaxed atmosphere to present and discuss their interactive teaching-learning concepts). We would like to equip lecturers with best practice examples of how ESD competencies can be addressed in teaching, and provide a space for input, exchange and networking.

Furthermore, a thematic teaching award "Sustainability" is planned. The concept for this is being developed in collaboration with the RDI and the Equal Opportunity Office. The Equal Opportunity Office is also aiming for a thematic teaching award "Diversity-Fair Teaching". We use synergies for the process of the call for proposals and for the selection of the award winners. The teaching awards are to be presented for the first time in 2023.

Teaching program

Traditionally, the team for ethics and sustainable development organizes extracurricular courses, workshops and public lectures ("*Studium Generale*"). These seminars are still the heart of our teaching program.

Each semester, between 68 and 87 students participated in the extracurricular courses and workshops.

Prof. Banke started as ethics officer in 2010. Since then, he taught several lectures in the program. Herewith, he invites students to critical reflections on current debates and learn academic topics beyond their personal studies.

In cooperation with the theological university and several partners of civil society the ethics officer has organized public lectures. For further information see Principle 6: Dialogue.

Participation at the "Ethikum" Certificate

The "*Ethikum*"-certificate is a well-established award system at Reutlingen University (for further details see our last reports). The total number of students that fulfill all criteria for the certificate remains with five students per year on average relatively low.

In the last two years, presumably due to the Corona pandemic, but also due to the leaving of the main organizer, Dr. Baumgärtner, the number of students earning the



certificate has been significantly lower. In 2021, 2 students earned the “Ethikum”, and in 2022 there were 3 students. Now that classes are finally back in attendance, it is an important task to promote the “Ethikum”-certificate to students.

The requirements, however, encompass substantive academic studies beyond the regular curricula (100 ethic credit points and 3 graded courses). For this reason, the number of students that take only one or two seminars of the ethics and sustainability program (“*Ethik und nachhaltige Entwicklung*”/ ENE) is much higher.

Ethical Questions and Sustainability Issues in Regular Courses

The experiences of the last years have shown that it was quite laborious to get information from the professors about the intensity with which they address ethical questions and sustainability issues in their classes. Many professors had not participated in the email survey, and no complete picture emerged.

For this reason, we decided to change our approach: In this report, we do not have the ambition of a comprehensive, statistical representation of the courses offered, but we would like to present the lighthouses that shine the brightest. In addition, this time we have asked the newly appointed sustainability officers of the faculties to conduct a corresponding survey and collect the information for us. Faculty sustainability officers have closer contact with their colleagues and a better overview of the courses offered in their faculty.

In the survey, the professors were not asked about the intensity with which they deal with ethical issues and sustainability topics, but about concrete content and didactic methods that are suitable for strengthening the students' competencies with regard to sustainable thinking and action.

The results of the survey are presented below as exemplary. We ordered the schools along to their size.

ESB Business School

In the ESB Business School the group of professors and lectures encompass 239 persons.

In the European Business School (ESB), 22 professors responded to the survey, covering all activities in teaching, research, administration and outreach. In terms of teaching, the following highlights are worth mentioning:

Since Spring 2020, a new project based Industrial Engineering BSc-study program called “Sustainable Production Business” is offered at the ESB Business School. The students are taught in basic concepts and methods concerning sustainable production and company organisation. Based on the acquired knowledge, the students design in



small students groups the entire product development and product realisation process, taking into account sustainability aspects.

They start in the 1st semester with the creation of the product idea, develop in the further course the production environment and finally develop at the end of the study program the marketing of the product or even start a new business as spin-off. The students have to analyse and shape the company's activities, weigh up risks and plans for the future. They assume responsibility and act responsibly. This new BSc.-programme is related to all SDGs.

Sustainability is also an important topic in other ESB courses. The following table highlights some of the courses mentioned:

Who	What	SDG
Anja Braun	Lecture with project work in the course of study PM - Sustainable Product Development	12
Anna Goedecke	In her foundation course Microeconomics in the second semester, the SDGs 1/2/3/9/10/13 are part of the lecture. In particular, topics that fall under Climate Action (externalities, certificate trading, piggybacking) have been expanded in recent semesters.	4
Anna Goedecke	At International Business, we have an honours program where the high-performing and motivated students have special events in addition to their normal curriculum. She has discussed with them in the Honours Seminar in the last two semesters, the topic "Poor Economics". One semester they read and discussed the book of the same name, this semester the book "Open Borders". Topics from SDGs 1,2,3,4,5,6, and 10 were discussed within this context.	1
Bernd Banke	Each semester Business Ethics – BA level	16
Bernd Banke	Each semester Business Ethics – Master level	16
Bernd Banke	Each semester CSR BA level	12
Carmen Finckh	She integrates sustainability into her company projects, 2nd semester IACT, in the Controlling course. For example, students design management cockpits for sustainability or analyze sustainability reports. This semester, 4 out of 5 company projects focus on sustainability in controlling.	8
Carmen Finckh	The implementation of sustainability strategies has been the subject of her course Strategy Implementation (in the future Transformation Management) for 5 years now. For this, she uses a Harvard Business Simulation as a didactic tool.	4
Florian Kapmeier	In his foundation course Strategic Management Essentials, Florian uses examples of companies that aim for ecological	8



	and social goals as well as for economic goals to embeds the concepts of strategic management.	
Florian Kapmeier	In his course Business Simulation/System Dynamics, Florian teaches systems thinking using the system dynamics method. For teaching the method, students discuss many examples of global sustainability, such as climate change and co-benefits of climate action, happiness and responsible consumption, inequalities. The course will be renamed to Sustainability Dynamics.	13
Florian Kapmeier	Strategic Management: Over a time of one semester, students developed “Strategies for a sustainable world”, using the scenario-development method for companies in the transportation, food, and retail industry. This was done in cooperation with company SOMMERRUST.	8
Florian Kapmeier	In the Honors course of the BSc International Business Program, Florian’s students develop climate scenarios using the En-ROADS climate-energy-simulator and assess implications for companies, politicians, and civil society. With his colleagues from NGO Climate Interactive, the MIT Sloan Sustainability Initiative, and the UMass Lowell Climate Change Initiative, Florian is co-developer of the simulation-based roleplays “World Climate Simulation” and “Climate Action Simulations” (based on the climate-energy simulation model En-ROADS). The games have been played by tens of thousands worldwide in high-schools, universities, by policymakers, and corporate decision-makers. Impact of the game is as follows: Worldwide, as of June 2022, more than - 89,000 people in 104 countries have experienced the World Climate Simulation - 120,000 people in 95 countries have engaged with En-ROADS (game and workshop) ... thereof, as of January 2022, in the German-speaking countries, more than - 6,120 people have experienced the World Climate Simulation - 6,960 people have engaged with En-ROADS (game and workshop)	13
Hans-Martin Beyer	In his basic finance course (Principles of Corporate Finance) he discusses with the students on the one hand the increasing importance of green and social finance (especially green/social bonds and ESG principles).	8
Hans-Martin Beyer	On the other hand, he addresses ethical conflicts in the financial sector in various contexts (including references to the principle agent theory) and the associated responsibility of decision-makers - including, of course, in the context of the financial crisis of 2008ff.	8



Jochen Hartung	Lecture Sustainability in Industrial Engineering in the BSc. Sustainable Production and Business: <ul style="list-style-type: none"> • Increasing efficiency and avoiding waste (“operational excellence”) • Reduce resource consumption e.g. energy consumption in production (minimum use of resources for maximum output) • Human-centered work science "adaptation of work to the human“ • Workplace design according to ergonomic standards; ageing-appropriate workplaces; considering principle of strain and stress 	9
Johanna Bath	Development of a new case study based teaching concept around the topic of Sustainability, with focus on Integrity and Compliance using the SDG goals as an example. 2 day interactive workshop at MBA part time in cooperation with Carolin Schwarz (former integrity officer at Daimler AG) in Wintersemester 2021/22.	4
Johanna Bath	Development of book contributions with Production Management students (the students developed the concept and researched the background on site, developed the concepts and wrote the articles) to the book "Nachhaltig Studieren, Arbeiten, Leben in Reutlingen" (Sustainable Studying, Working, Living in Reutlingen) (Editor Peter Krötz) in Summersemester 2020 and Wintersemester 2020/21.	4
Maud Schmiedeknecht	In her course Sustainability Management, students analyze and assess sustainability management issues e.g. sustainability strategies and implementation of management systems as well as stakeholder management. They analyze and evaluate sus-tainability reports regarding strategy, implementation, and KPIs. Fur-thermore, students solve sustainability case studies.	9



<p>Maud Schriedeknecht Florian Kapmeier</p>	<p>Workshops, concerning the topic Sustainability & Scenario Sprints using the Scenario Canvas Who? Prof. Maud Schriedeknecht and Prof. Florian Kapmeier together with the consulting company SOMMERRUST When? 2022 "In the year 2035... what do you think? How will people consume? What role will sustainability play in their decision? How can companies develop a future-ready strategy to meet possible changes in customer needs? At ESB Business School, Reutlingen University we aim to enable students to explore future-related aspects in strategic management considering sustainability in a systematic way and co-creative. There are various methods for building scenarios. Today, we've explored scenario building based on the Scenario Sprint approach of SOMMERRUST. During the session our students worked in teams and learned how to link trends and uncertainties in a systematic way, were able to develop four different, plausible scenarios of the future and explored concrete aspects of the future (e.g., what the most valuable company would be in each scenario in the year 2035). The experience of creating their first own scenarios allowed the group then to discuss potential applications of the methodology in the business world – especially in the context of sustainability management."</p>	<p>12</p>
<p>Peter Kleine-Möllhoff</p>	<p>Involvement of students in thesis and master's project works on the development of a biorefinery (circular economy approach) and its ecological and economic evaluation. A total of 38 students had to deal intensively over 2 years since 2020 with the Circular Economy approach, the established conventional processes and business models and their strengths, weaknesses, obstacles and opportunities. The thesis and project works were interconnected, creating a collaborative work environment. The work had a very strong transformative character, students had to engage creatively and were able to witness the further development. Students also took advantage of the opportunity to publish their new findings in relevant and recognized journals.</p>	<p>12</p>
<p>Peter Kleine-Möllhoff</p>	<p>The Industrial Ecology lecture (Semester 6, BSc. Production Management and Semester 4 BSc. Sustainable Production and Business) deals with sustainable production, covering SDGs 7, 12 and 13 in particular. The 4-hour course per week is held in English and is open to foreign students. Through workshops and discussions, students are encouraged to reflect on their own values and actions and understand the impact of their own actions. On the other hand, they will be confronted with the challenges of a transformation from classically linear-oriented business models to a circular economy.</p>	<p>12</p>



Peter Kleine-Möllhoff	Starting in Fall 2022, the Industrial Ecology lecture will be linked to the development of a student product and its production. This means that part of the lecture will be transformed into a project work, thus enabling students to participate even more actively and to have a holistic learning experience.	7
Peter Kleine-Möllhoff	The Sustainable Operations lecture (Semester 7, International Operations and Logistics Management, 4 hours per week) is half student project. The course is held in English and is offered specifically for an exchange program with Malaysia. The content of the course deals with economic, social and ecological sustainability aspects in the field of logistics and supply chains. For this purpose, the relevant real processes are modeled, analyzed and examined for optimization possibilities. The students have to process the central findings in such a way that decision makers in companies can implement them in terms of the ESG criteria. The project work is done in small groups of 4 to 6 members each. Care is taken to ensure that the teams are made up of an equal number of German and Malaysian students. This improves the ability to work in a team and promotes the possibility of interdisciplinary and cultural exchange.	12
Peter Kleine-Möllhoff	The English language lecture Sustainable Production and Logistics (Semester 1 and 2, MSc. Operations Management, 2 hours per week) is designed to deepen the sustainability aspects. Students should be able to identify the critical sustainability aspects in production and logistics and present them in a technological, business and social context. Students must use systematic methods to identify interdisciplinary optimizations of complex production and logistics processes in terms of reducing resource requirements, environmental impacts and costs. The master program in which this course is integrated is designed as a project study. Thus, the participants of this course will be able to apply and implement their acquired knowledge regarding ESG criteria in their real project. They will have to make decisions on a scientific basis in the context of social and ethical issues. Students should recognize that sustainable business requires an expansion of the range of values and respect for natural and social frameworks as well as moral conceptions.	12
Yoany Beldarrain / Niamh O'Mahony	Teaching Concepts, Course Content (every semester): Topics in intercultural business communication are taught from the perspectives of equity/equality, integration, fair and ethical communication. I also discuss various communication models and theories, including "feminist theory in communication".	5



Yoany Beldarrain / Niamh O'Mahony	Teaching Concepts, Course Content (every semester): Prof. Balderrain uses cases studies to explore the impact of business communication on the following: leadership styles; communication of CSR strategies; branding strategies (what companies say they do versus what they really do); the impact of international business activities in conflict zones/role of international business communication in world peace, trade deals, etc. Depending on the semester. She has a guest speaker to bring the topics to life and gain different perspectives. Example 1: discussion about “water wars” or “the avocado war”; Example 2: the influence of socio-political issues and political decisions in business communication	16
Yoany Beldarrain / Niamh O'Mahony	Teaching Concepts, Course Content (every semester): Prof. Balderrain uses international examples connected to business communication, that exemplify innovative approaches, innovative leadership and business models. Mark Hyland (external lecturer) uses current trends in industry such as the impact of climate change on how to think innovatively and gain a competitive advantage by using these challenges as opportunities (every semester BSc. Sustainable Production and Business).	9
Yoany Beldarrain / Niamh O'Mahony	The advanced language levels (Spanish and French C1), use case studies and examples related to this topic to teach the target language. They explore the social-political context of different French-speaking and Spanish-speaking countries. Every semester, the Spanish C1 lecturer invites special guests who are well-known in the Spanish-speaking world for their contributions to economics, social issues, etc. Students interview the guests in Spanish. Niamh O'Mahony & external lectures in the IMX lecture modules Communication Skills & Intercultural Competence (every semester): By exploring the cultural differences between Germany and the countries involved in the double degree programme via e.g. case studies, role plays, students develop an awareness that “the other” means different but not inferior.	10
Yoany Beldarrain / Niamh O'Mahony	The Spanish C1 group learns about the SDG 12 topics using Spanish-language examples. The group ends up creating a presentation and a prototype marketing campaign for a product that was produced sustainably. Mark Hyland (external lecturer) helps his students understand how sustainability can be reached in different ways for different industries and is not a “one size fits all” concept. As part of this he highlights the variations and effort required within different industries and encourages students to keep an open but also skeptical mind when companies make claims of “sustainability” (every semester BSc. Sustainable Production and Business).	12



ESB faculty primarily addresses SDG 12 (responsible consumption and production) in their courses, followed by SDG 8 (decent work and economic growth), SDG 4 (quality education), SDG 16 (peace and justice) and SDG 9 (industry, innovation, and infrastructure), among others.

Florian Kapmeier has recently won 3 awards:

- 2021: Heidelberg Center for Sustainable Development of the Pedogeological University of Heidelberg, Teaching Award “University Teaching for Sustainable Development” for “Integrating the World Climate and Climate Action Simulations in University Teaching”
- 2021: Academy of Management, Management Education and Development Division: “Best Professional Development Workshop” for “Preparing the Manager for Climate Change: From Awareness to Action” (leading academic conference on management)
- 2021: AACSB “Innovations that Inspire” for “Diffusion of Climate Action Simulation in Germany”

School for Engineering

In the school for engineering the group of professors and lectures encompass 109 persons.

In response to our survey, we received the following information:

Who	What	SDG
Degree program	Mechatronics program, B.Eng. degree, with a focus on automation and microelectronics. Students learn to develop systems that address Goals 9 (Industry, innovation and infrastructure) and 12 (Responsible consumption and production). One focus of the program is power electronics, which is an essential component of modern energy systems (Goal 7, Affordable and clean energy). The degree program includes lectures, exercises, internships and projects. Students are prepared to think and act in a future-oriented way: to understand the impact of their own actions, to imagine the impact on future generations, to make responsible decisions, to take responsibility in society. They learn to actively deal with problems and find solutions.	9
Clemens Umbach	The lecture "Alternative Energies - Thermal Systems" focuses on wind energy, thermal solar energy, heat pumps, combined heat and power plants, fuel cells and Stirling engines.	7
Degree Program	Mechatronics program, M.Eng. degree. Students learn to develop systems that satisfy Goals 9 (industry, innovation and infrastructure) and 12 (responsible consumption and production). In particular, project work will address energy technology topics (goal 7, affordable and clean energy).	9

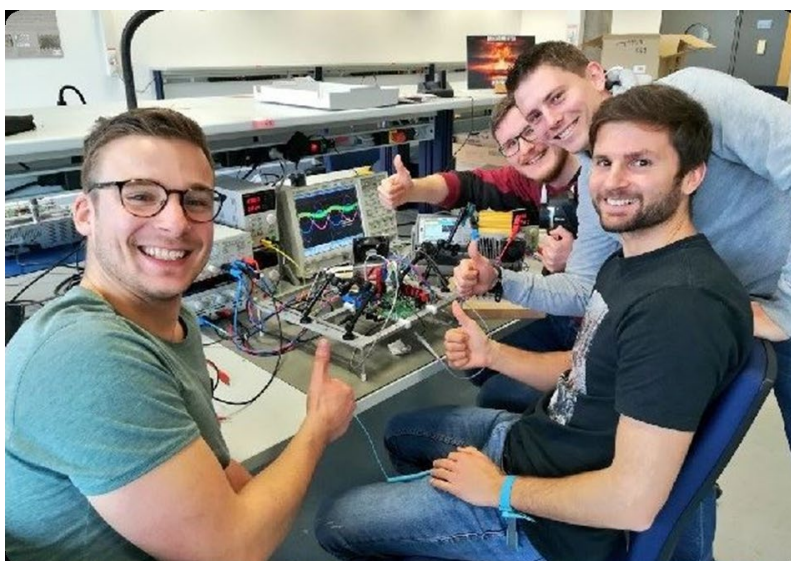


Antonio Notholt	Course „Renewable Energy Systems“: The students learn the basics of renewable energy technologies. A special focus is given to PV and wind but bioenergy and hydro are also covered. Also the basic technologies (storage and balance of the system components) and tools (LCOE and simple economics) needed to implement a real project are learnt. A focus on the sustainable aspect of renewable energy in question is addressed. Methods: Transformative learning formates (problem- and project-based learning) & Interdisciplinarity: Students from different degree programmes work together.	7
Burkhard Ulrich	Course „Electrical energy storage technology“	7
Degree Program	<p>In the master's program "Decentralized Energy Systems and Energy Efficiency" (DEE), we train the experts for tomorrow's energy. The rapidly developing energy sector needs people who have new ideas and the courage to change, who think outside the box and who want to and can implement innovations.</p> <p>In the DEE Master's program, students develop and implement decentralized energy generation systems, actively work to improve energy efficiency, and learn how to translate this into economically and entrepreneurially viable projects and businesses.</p> <p>Our graduates have excellent knowledge in energy technologies and energy economics. After three semesters, they have the necessary knowledge and are able to help shape change processes in the energy system as experts in their field.</p> <p>In addition to teaching the technical content, the focus is on the project-based teaching format and interdisciplinary collaboration. In this way, technical and economic perspectives are trained and deepened.</p> <p>Within the framework of research and development projects, students learn to apply the theoretical knowledge they have acquired before writing their master's thesis in the third semester.</p>	7
Degree Program	International Project Engineering program, B.Eng. degree: The following two lectures are highlighted here:	
Stephan Pitsch	<p>Energy Process Technology (Energieverfahrenstechnik). The following teaching content is applied:</p> <ul style="list-style-type: none"> • Economic efficiency • CO2 consumption/ energy transition/ land sealing • social inequity regarding electricity costs • Ethical issues: How to evaluate the danger of each form of energy production? Danger to life, danger to environment? • Resettlement/displacement with regard to surface mining (Germany) and the reactor accident in Fukushima. 	7



Michael Irmeler	Project Contract and Claim Management. The following teaching content is applied: Problems of law and justice, decisions of the justice, ethical questions of protection in the field of e.g. the trademark law, but also non-patentability of immoral inventions or generally in contract law. Ethics, e.g. immorality of contracts, etc.	16
Degree program	Power Electronics and Microelectronics, Master of Science. The combination of power electronics and microelectronics is the key to the major technical challenges of our time, such as the conversion of our power supply to renewable energies and the transfer to emission-free e-mobility. The focus of the master course is on the design of integrated circuits, power electronic systems and electrical drive technology. A highlight of the program is the project internship. For this purpose, the students of one semester form an industry-like project team in which each member assumes specific roles and tasks. The one-year project covers the entire product development process, in which students design a complete electronic system, develop it using professional tools, and then build it as a laboratory prototype and put it into operation. As part of the project internship, students develop their own IC (microchip), which is actually manufactured and used in the system - an unparalleled teaching opportunity.	7
Kerstin Reich	„Organizational Management“ and „Human Resources Management“. The following teaching content is applied: <ul style="list-style-type: none"> • Role of the manager, using the example of Enron. • Management styles as well as values and ethics in the company. • Students experience more about their own values. 	8

In the school for engineering the priority issue is clean energy (SDG 7). The dedicated degree program “decentralized energy systems and energy efficiency” fosters the coverage of this sustainability facet in lectures and research.



Students of the degree program „Power electronics and Microelectronics“, Master of Science. Foto: School for Engineering



School for Textiles & Design

The total number of addressees in the school for textiles & design is 66. Unfortunately, fewer professors participated in our survey this time than two years ago. Here are the results of our survey of this faculty:

Who	What	SDG
Jochen Strähle	Lecture and seminar "International Fashion Management - International business management for fashion and textile companies": Holistic approach on modern aspects of business management in the textile industry, responsibility of the fashion industry, sustainable business models. In the seminar students have to create utopias/dystopias about the future of the fashion and textile industry. Basic discussion about sustainable aspects in terms of the Triple Bottom Line.	12
Natalie Seng	Lecture „Fashion design / design“: Sustainability in the design process, application of design methods for the development of sustainable textile products from design and material selection to resource efficiency in production as well as recycling aspects after the use phase (e.g. design for circularity).	12
Thomas Kraft	Lecture „Microeconomics“: Discussion of the implications of neoclassical economic theory, alternatives to neoclassical economic theory (post-growth economics, common good economics).	8
Cross-curricular lecture series, organised by Kai Nebel	Lecture „Sustainability in the textile chain“: The technical content includes sustainability concepts / sustainability effects and strategies, sustainability aspects in the textile production chain from raw material to finished product, and the social, economic and political aspects of sustainability. The course takes the form of lectures, workshops, group work, project work and an excursion. External guest lecturers from industry, research institutes, NGOs are also involved.	12

The overall priority issue in the school for textiles & design concerning the SDGs is sustainable production and responsible consumption (SDG 12). Referring to the working conditions of the sewer on a global scale SDG 8 is of second priority in the courses.



Excerpts from Detricotage by a student (Lisa Bassot): Existing knitwear & old t-shirts were used to make new garments/ upcycling. Fotos: School for Textiles & Design

School for Informatics

The total number of the teaching personal in the school for informatics is 87 persons. Unfortunately, none of the professors responded to our survey this time.

However, the faculty of computer science was not inactive: A new professorship was established.

The new professorship for business informatics, in particular innovation and sustainability, is intended to combine the teaching of innovative and practice-oriented methods and processes in computer science with the application areas of sustainability, environmental protection, and business.

A central teaching and research subject of the professorship should be the development and evaluation of operational information and communication systems (Green Information Systems). These serve to support sustainable corporate development with a focus on key technologies of digitization: Internet of Things, artificial intelligence, and machine learning.

In addition, the teaching and research profile of the professorship should include concepts for the sustainable use of information technology (Green IT and Green by IT). This includes, among other things, the development of advanced methods for determining the resource and energy consumption of software products, methods for recording the effects of information technology on the environment and society, and the development of solutions for how computer science can contribute to solving environmental problems and challenges of sustainable development.

The appeal process is actually ongoing.

School for Applied Chemistry

The smallest school of Reutlingen University is applied chemistry. The school counts 43 persons that are engaged in lectures.

The faculty offers two new degree programs in which sustainability topics are a core element of teaching: "BSc Chemistry and Sustainable Processes" and "MEng. Environmental Protection".

Starting in the winter semester 2021/22, the "Chemistry and Sustainable Processes" degree program focuses on the development of innovative materials and processes for various application areas. Students can focus on sustainable product development or quality management. In two elective classes students can deepen their specific knowledge in these areas.

The degree program "M-Eng. Environmental Protection" is offered in cooperation by four universities: Reutlingen University works here together with Esslingen University, with Nürtingen-Geislingen University of Economics and the Environment, and with Stuttgart University of Technology.



The four universities contribute their core environmental protection competencies to this cross-university program and train students for jobs in municipal, technical or biological-ecological environmental protection. The focus is on cross-sectional topics such as the condition and quality of rivers and lakes, concepts for wastewater treatment and air pollution control, and sustainable environmental development.

In the last report, we already informed about the teaching of alternative methods to animal experiments and the Reutlingen based research on in vitro meat – cell cultures that taste like meat without producing any CO₂. The SDGs do not encompass targets to ameliorate living conditions for animals. Ethical reflections on justifications of animal testing cannot be categorized according to the SDG. That is why we concentrate on the second aspect: the reduction of CO₂ by inventing non-animal in vitro meat. The meat consumption is a valuable contribution to climate change. Thus, we link this aspect to SDG 13.

Who	What	SDG
Degree program: Polymer chemistry and process analytics, MSc		
Andreas Kandelbauer	Lecture „Thermal analysis and process safety“: Thermal methods for characterizing chemical production processes, kiriticality criteria, risk assessment, thermal process safety, plant safety,	13
Andreas Kandelbauer	Lecture „Advanced Materials Synthesis“: Innovative and sustainable new materials, advanced materials, renewable raw materials, bio-based composites, natural fiber composites	13
Karsten Rebner	Lecture „Industrial Process Analytics“: Process analytics, industrial sensor technology for real-time analytics, efficiency optimization through real-time analysis, PAT as PI-enabling technology	12
Andreas Kandelbauer	Lecture „Process Engineering and Industrial (Bio) Chemistry“: Thermal reactor safety, process engineering measures for risk reduction, process intensification (PI) in general, various PI technologies such as membrane technology, biocatalysis, catalysis, reactive extrusion.	13
Degree program: Chemistry and Sustainable Processes, BSc		
Andreas Kandelbauer	Lecture „Sustainable processes and process intensification“: Measures and innovative approaches for sustainable design of chemical processes; risk analysis, technology assessment, facility safety, thermal process safety; exemplary presentation of sustainable chemical processes / process intensification in the chemical industry (examples of facility layouts/process designs), criteria for evaluating the sustainability of chemical processes (life cycle analysis, eco-efficiency analysis using a concrete example, and many other indicators such as ecological footprint, CO ₂ balance,	13



	E-factor); Green Chemistry; REACH, special reactor types and special process technologies.	
Andreas Kandelbauer	Lecture „Biobased materials“: Major sources of biobased materials (such as annual plants, algae, wastes and residues from food/feed/agricultural industries, and more.), Biorefinery and bioeconomy basics, Important classes of materials and their applications (such as proteins, carbohydrates, fats/lipids, polyphenolic and other materials); Process engineering peculiarities of renewable raw materials (such as degree of polymerization, contamination, local and temporal variability, complexity of composition), Preparation and processing techniques, Importance of process analytics in the use of renewable raw materials (adaptive process engineering), Important examples for the integration of renewable raw materials for the production of high value-added products/materials.	9
Herr Kubik Marc Brecht	Lecture „Sustainable industrial value creation“: Chemical industry, pharmaceutical industry, biotechnology and medical technology, business and value creation: needs and goods, location factors, entrepreneurial challenges, value chains, corporate functions, marketing, sales, materials management, logistics, supply chain management, production, research and development, sustainability strategies in politics and business, biointelligent value creation.	12
Günter Lorenz	Lecture „Sustainable Chemistry“: Green Organic Chemistry / Biogenic Resources. The course deals in depth with the main classes of compounds (nomenclature, physical and chemical properties, synthesis, reactions and reaction mechanisms, safety and environmental aspects). - Introduction and history of green chemistry - The 12 principles of green chemistry - Innovative aspects of Green Chemistry - Aqueous organic synthesis - Importance of solvents and strategies for replacement or substitution - Importance of catalysis for Green Chemistry - The different types of renewable raw materials, advantages and disadvantages	12
Günter Lorenz	Laboratory: „Sustainable Chemistry“ Practical examples on the topics of the lecture "Sustainable Chemistry".	12
Günter Lorenz	Lecture „Polymer Chemistry“ - Basic definitions in macromolecular chemistry - Strategies and reactions for the production of polymers under the aspect of sustainability - Technologies for the production of polymers - Modification of polymers	13



Rumen Krastev	Lecture „Catalytic systems“: The innovation field "Catalysts" works on the development of chemical, electrochemical and biotechnological catalysts for the sustainable production of chemicals and fuels from renewable resources.	13
Rumen Krastev	Lecture „New technologies and future topics“: Hydrogen production - technologies and their application. Energy balance of production. Hydrogen storage and transport. Application of hydrogen as an energy carrier. Fuel cells. Necessary materials. Modern systems of energy storage - fundamentals and ways of their optimization. Necessary materials.	7
Degree program: Environmental Protection, MEng.		
Daniela Almeida Streitwieser	Lecture „Environmental Chemistry“: Essential aspects of environmental chemistry, especially chemical facts in the lithosphere, hydrosphere and atmosphere, as well as the importance of anthropogenic pollutant inputs. The latter are dealt with in the context of climate change and world pollution. The necessity of sustainability concepts is discussed.	13
Daniela Almeida Streitwieser	Lecture „Basics of process and plant engineering“: Students gain an overview of the various process technologies of environmentally relevant plants. Examples of technical sustainability concepts are introduced, such as acid reprocessing, plastic recycling, among others.	6
Degree program: Biomedical Sciences, BSc		
Petra Kluger	Lecture „Tissue Engineering“: Alternatives to animal testing, plant alternative materials instead of animal materials, in vitro meat, ethics and ecology issues.	13

The School for Applied Chemistry primarily addresses SDG 13 (protect the planet) in their courses, followed by SDG 12 (responsible consumption and production), among others.

Objectives

In terms of curriculum change, Reutlingen University made huge progress. Various reasons led to this result. Students' demand has remained high. Business is urgently looking for specialists in sustainable development and production, and the university is responding to this need by developing new degree programs and modules. Sustainability and climate protection are now anchored in Reutlingen University's strategy.

The objective is to stay active in this progressive development and inspire more and more lectures in all schools to include ethical questions and sustainability issues.



Quelle: Pixabay

Principle 3 | Method

We will create educational frameworks, materials, processes and environments that enable effective learning experiences for responsible leadership.



Overview

“Traditionally, a high frequency of bike riders and a pronounced coffee culture are the recognition features of university cities. The well-established image of cities with a long university tradition might be a vision for the campus at Reutlingen University, too. Sustainable mobility, a highly attractive outdoor area and responsible consumption might be three pillars of a modern and sustainable campus.”

The 2022 report picks up where this 2020 vision left off. A lot has already happened with regard to mobility: We are pleased to see more and more cyclists on campus. It is clear that university members care about the issue. We are continuing on the path toward sustainable mobility with full vigor.

In addition, a comprehensive climate protection concept is currently being developed for the university.

Cooperation with the canteen needs to be put on a new footing after the canteen was completely closed for two semesters due to the Corona pandemic.

The Canteen

During the Corona pandemic, lectures were held entirely online in the 2020/21 winter semester and the 2021 summer semester. The staff also worked predominantly in their home offices. For this reason, the canteen had also closed completely.

This closure, combined with Dr. Baumgärtner's departure from the university, represented a break in the already difficult cooperation with the canteen. Unfortunately, the student initiative oikos was also unable to continue its work. Members lost contact with each other during the pandemic, and the group disbanded.

The chancellor of the university took the initiative and invited a representative of the "Studierendenwerk" to join our steering committee, the "Sustainability Board". The sustainability officer and the new sustainability adviser had an initial get-to-know-you conversation with the canteen representative. Our conversation partner reported that customers help shape the food offerings through their choices. While vegetarian meals used to be sold at about 30%, currently about 50% of students choose a vegetarian or vegan meal.

The canteen has also announced that it will no longer sell coffee in single-use cups in the future. We expressly welcome this step. However, there is no real alternative offer, because the now again provided porcelain cups may not be taken out of the canteen. For a coffee to go you are supposed to bring your own cup.

Only time will tell how the cooperation with the canteen will work out.

Mobility Concept

The topic of climate-friendly mobility continued to gain momentum since the last report. The working group established in 2020 continued its work. Interested employees of the



university, students and representatives from the regional administrative level (“Vermögen und Bau”) worked together on ideas and possible solutions for more sustainable mobility at the university.

In 2020, two surveys were conducted among students as well as among professors and employees on their mobility behavior. The results showed that a high number of university members come to the university with their own car (45% of students, 43% of employees). However, the results also showed,

- that many individuals drive a fairly short distance that would be easily accomplished by bicycle or bus,
- that for many car drivers the bicycle, e-bike or public transport would in principle be an alternative,
- and that the infrastructure on campus could influence personal mobility behavior.

The Sustainable Mobility Working Group then gave high priority to two measures in particular:

1. communication (highlight the contribution of sustainable mobility to climate protection),
2. build bike infrastructure (covered bike parking facilities, showers, changing rooms, etc.).

To advance communication on sustainable mobility, the sustainability adviser launched a campaign for cycling at the beginning of the winter semester 2021/22. Broad-based communication via the campaign website (www.hochschule-reutlingen-nimmt-fahrt-auf.de), promotional postcards, newsletters, social media, etc., as well as participatory offers such as a bike checkup and a bike repair course ensured the desired attention for the topic of "cycling". As the centerpiece of the campaign, a fundraising bike ride for a covered bike rack was organized. Staff and students cycled over 16,000 km in three weeks. The sustainability adviser conducted a fundraising effort to finance the covered bike racks. The student parliament contributed a large sum to the project, as did the university's booster clubs, the presidium, individual employees and a bicycle store.



Two examples for promotional postcards. Pictures: Reutlingen University.

Currently, the university lacks the personnel resources to develop a comprehensive mobility concept. For this reason, an application for funding is now to be submitted to the Baden-Württemberg Ministry of Transport. The goal is to increase the half-time position of the sustainability adviser so that she has more capacity to develop the mobility concept.

Sustainable Campus (“Nachhaltigkeit im Betrieb”)

The state of Baden-Württemberg has set itself the goal of making the state administration net greenhouse gas neutral by 2030. This goal was fixed in writing in the Climate Protection Law of the state of Baden-Württemberg.

In 2020, the universities of applied sciences in Baden-Württemberg committed to supporting the state government's climate protection goals. As part of the funding agreement, the state government called on the universities to launch or continue climate protection activities in the areas of electricity and heat supply and mobility. In order to meet this demand and its social and ecological responsibility, Reutlingen University has initiated the "Klimacampus RT" project. The goals of the project are

- A climate-neutral university campus by 2030,
- to be a role model with regard to students, employees and teachers as well as the region and civil society,
- motivating universities in Baden-Württemberg and in particular the Neckar-Alb region to initiate and implement climate protection measures,
- the establishment of Reutlingen University as a catalyst for applied climate protection and
- the creation of an integrated climate protection concept for Reutlingen University.

A climate protection manager was hired to implement the "Klimacampus RT" project. When Ing. Bühler-Marx took up her duties, the two-year project officially started on April 01, 2022. The following fields of action are considered in the project: Real estate, mobility, procurement, IT infrastructures, space management, heat and cold utilization, adaptation to climate change, and renewable energies.

Within the framework of the project, potentials for the reduction of greenhouse gases emitted by Reutlingen University are to be identified and climate protection measures are to be defined and implemented. In addition, climate protection management is to be anchored in the university's organizational structure and processes beyond the project term. The milestones of the project are shown in the following table.

Milestone	Description
1	Analysis of the current situation and preparation of an energy and greenhouse gas accounting



2	Carrying out a potential analysis and developing scenarios
3	Definition of greenhouse gas reduction targets, action strategies and prioritized fields of action
4	Participation of the key stakeholders
5	Development of a catalog of short-, medium- and long-term climate protection measures
6	Development of a continuation strategy for climate protection and climate protection management
7	Development of a controlling concept to monitor the effectiveness of climate protection measures
8	Develop a strategy to continuously communicate progress on greenhouse gas reduction to internal and external stakeholders

Within the project, there is close cooperation with the building authority responsible for Reutlingen University (Vermögen und Bau Baden-Württemberg, Tübingen Office) and the central climate protection manager of the state of Baden-Württemberg. The future structural development of the university campus is described in the master plan "Klimacampus Reutlingen".

In addition to energy-efficient building renovations and increasing the degree of self-sufficiency of the energy supply, campus greening also plays a central role in the design of a sustainable, climate-neutral and biodiverse university campus. Reutlingen University already uses large-scale photovoltaic systems to cover part of its electricity needs with self-generated green power and has also been supplied with electricity from renewable energy sources and regionally generated district heating for several years. In addition, Reutlingen University uses innovative plant technology for building air conditioning (e.g. ice storage for cold supply). The bicycle infrastructure on campus has also been upgraded in recent years and investments have been made in an electric car for business trips.

Objectives

Protecting the world's climate has moved to the top of the priority list. At the latest with the war in Ukraine and the associated shortage of gas, people have become aware that we cannot continue as before in dealing with our energy resources. At Reutlingen University, we want to find creative solutions to the current situation and then anchor them permanently in our operations. Technical solutions are just as important here as the behavior of employees and students.





Quelle: Pixabay

Principle 4 | Research

We will engage in conceptual and empirical research that advances our understanding about the role, dynamics, and impact of corporations in the creation of sustainable social, environmental and economic value.

Overview

This chapter presents an analysis of the latest report of the Reutlingen Research Institute (2021). We decided again to link the projects to one Sustainable Development Goal to get a pointed picture. Furthermore, we report on the progress to establish an ethics commission at the university.

Statistics on Sustainability in Research

The overall number of research projects coordinated by the Reutlingen Research Institute (RRI) counted 122 in 2021. The amount of articles in peer-reviewed journals (127) exceeded significantly the number of previous years. Elementary scientific publications without review process (150). Also in terms of raising external funds, the numbers grew. In total, researchers at Reutlingen University obtained 9,5 Mio Euro in 2019 (6,8 Mio. Euro in 2019).

Many of the research projects have an obvious relationship to sustainability issues and climate protection. In particular, the current challenge of the energy transition is addressed in research projects. We assigned one SDG to each project. In doing so, we got a clear picture of the thematic priorities and a robust overview. A colleague from the RRI assisted in the categorization of the projects.

The following table lists those research projects that could make a particularly extensive, holistic contribution in the context of sustainability.

Project	Researcher/ team	SDG
Model-based decision support for the proactive and life-cycle-oriented development of vehicle components (Cyclometric); Subproject: Modelling of circular production structures	Prof. Dr.-Ing. Anja Braun Prof. Dr.-Ing. Vera Hummel Prof. Dr. techn. Daniel Palm Prof. Dr.-Ing. Peter Ohlhausen	12
Virtuelles Kraftwerk der zweiten Generation	Prof. Dr. Debora Coll-Mayor Prof. Dr.-Ing. Antonio Notholt Prof. Dr.-Ing. Helmut Nebeling	7
Urban Energy Systems and Ressource Efficiency	Prof. Dr. Dieter Hertweck Prof. Dr.-Ing. Bernd Thomas	7
Living Lab Climate Neutral Reutlingen: Transformation of the City Corporation towards a developer of Climate-Neutrality (Klima-RT-LAB)	Prof. Dr. Sabine Löbbe Prof. Dr.-Ing. Bernd Thomas Prof. Dr.-Ing. Frank Truckenmüller	13
ReziProK - Verbundvorhaben DiTex - Digitale Technologien als Enabler einer ressourceneffizienten kreislauffähigen B2B-Textilwirtschaft -	Dipl.-Ing. (FH) Kai Nebel Prof. Dr. Karsten Rebner	12



TP 4: Produktdesign, digitale Trackingverfahren und Pilotierungsmanagement		
Electromobile logistics Ettlingen	Prof. Dr.-Ing. Wolfgang Echelmeyer	11
City Logistics Reutlingen: Reduction of inner-city traffic congestion through intelligent parcel delivery and control in the city of Reutlingen	Prof. Dr.-Ing. Wolfgang Echelmeyer	11
Participatory early warning systems to mitigate local Consequences of Climate Change through Citizen Science Activities in Environmental Informatics	Prof. Dr. Dieter Hertweck	13
Organic farming in the context of social, economic and ecological transformation processes (EcoTrans)	Prof. Dr. Dieter Hertweck	12
Development of materials from natural fibers with multifunctional properties for the substitution of Plastics	Prof. Dr.-Ing. Volker Jehle	12
Preparation for diffusion of the climate simulation model En-ROADS in German-speaking countries	Prof. Dr. Florian Kapmeier	13
VALORKON: The new biorefinery - valorisation of condensate streams from torrefaction of biomass	Prof. Dipl.-Ing. Peter Klein-Möllhoff	12
Nachhaltige Nährmedien für die industrielle Herstellung von sauberem Fleisch	Prof. Dr. Petra Kluger	12
Company- and employee-oriented energy management: qualification and sensitization for holistic energy management in SMEs	Prof. Dr. Sabine Löbbe	7
Joint research project PV-Diesel Global – Next generation renewable-diesel hybrid systems for the global decarbonization in electrically isolated regions	Prof. Dr.-Ing. Antonio Notholt	7
PowerLand 4.2 – Smart and Innovative Land Power Systems	Prof. Dr.-Ing. Bernd Thomas	7
Demonstrationsprojekt Second-Life-Speicher in Smart Grids	Prof. Dr.-Ing. Bernd Thomas	7
Demonstrator automated cable distributor as an alternative to the controllable local power transformer (DEMO rONT alternative)	Prof. Dr.-Ing. Frank Truckenmüller	7
Teilvorhaben „Gemeinschaftsdienliche Energie-Lade-Zellen am Campus Hochschule Reutlingen“	Prof. Dr.-Ing. Frank Truckenmüller	11
Entwicklung eines optischen Wasserstoffsensors zur präventiven	Prof. Dr. Karsten Rebner Prof. Dr. Marc Brecht	7



Qualitätssicherung des Energiesystems Brennstoffzelle		
FRE Demonstrationsprojekt Modellregion Grüner Wasserstoff Hy-FIVE: Leuchtturmprojekt H2-Grid - Wasserstoff Modellregion Mittlere Alb-Donau	Prof. Dr.-Ing. Thorsten Zenner, Prof. Dr.-Ing. Gernot Schullerus	11

The above listed research projects that are coordinated by the RRI deal with

- Sustainable and modern energy for all - Ensuring access to affordable, reliable, sustainable and modern energy for all (SDG 7)
- Sustainable cities and settlements - Making cities and settlements inclusive, safe, resilient and sustainable (SDG 11)
- Sustainable consumption and production patterns - ensure sustainable consumption and production patterns (SDG 12)
- Take immediate action to combat climate change and its effects (SDG 13)

Establishing an Ethics Commission

In our last report we reported, that members of the university who research on artificial intelligence asked for establishing an ethics commission. The acceptance of peer-reviewed publications in this area requires a notification from an ethics commission. The ethics officer has taken up this matter.

During the last two years a focus was set on the development of a “Recommendation for ethics codices, guidelines and ethics commissions” for the universities of applied sciences of Baden-Württemberg. To achieve this goal several workshops and conferences addressed to the ethics officers of the universities of applied sciences were held in 2021 and 2022. A concept to institutionalize ethics in academic teaching, research and governance was developed and shall be adopted by the conference of the university ethics officers of Baden-Württemberg in their yearly assembly in September 2022. So, the results can be presented to the presidencies of the universities of applied sciences during the winter semester 2022/23.

Contributions on Sustainability in Research

In the last report we reported on the research project "university social responsibility" by Prof. Banke and Dr. Baumgärtner, due to a teaching assignment at Kehl University, and their seminar reader “ethics and sustainability in public administrations” (2019). Meanwhile the third revised edition of this reader has been published at Kehl University.



Objectives

For research, goals are now anchored in the university's current structural and development plan:

“In research, Reutlingen University strives for growth in the areas of sustainability and climate protection in order to make a strong contribution to a comprehensive societal transformation. Innovative solutions are to be developed for business, administration, society and education. In concrete terms, this means:

- Increasing the internal and external visibility of research in the field of sustainability,
- Improving the exchange between researchers, central institutions and all other interested parties,
- Increasing the volume of applications in the field of sustainability, also by expanding inter- and transdisciplinary research competencies.”

We are working hard to pursue these goals.





Quelle: Pixabay

Principle 5 | Partnership

We will interact with managers of business corporations to extend our knowledge of their challenges in meeting social and environmental responsibilities and to explore jointly effective approaches to meeting these challenges.

Overview

Reutlingen University is a university of applied sciences. As such nearly every professor, lecture and research project interact with business corporations and administrative bodies. The research projects listed in chapter 4, for instance, are partly funded by the Fraunhofer Institute for Industrial Engineering (IAO), ministries on the federal and regional level („Länderebene“), the European Union and others. Each semester big business fair take place on campus. And professors and academic staff are frequently asked for scientific assistance.

Reutlingen University is committed to creating opportunities for companies and individuals in the area of continuing academic education. We would like to use this chapter to describe the work of KFRU in particular in more detail.

Knowledge Foundation @ Reutlingen University (KFRU)

Since 2008 the Knowledge Foundation @ Reutlingen University (KFRU) is the continuing education institution of Reutlingen University (HSRT). The University thus realizes its mission of further education and lifelong learning in a non-profit foundation under civil law.

The goals of the KFRU in the area of continuing education are as follows

- Fulfillment of the legal mandate for continuing education
- Responding to demographic change: creating opportunities for companies and individuals in the area of continuing academic education
- Intensify and expand the university's intensive contacts with industry, associations and international partner universities by means of expanded offerings
- Create additional third-party funding for the university

In order to meet the requirements of these self-imposed goals, the KFRU offers a broad portfolio of in-service training opportunities. KFRU's continuing education offerings are divided into three areas: Academic Education includes part-time Bachelor's programs, Master's or MBA programs. Open Expert Programs include a wide variety of seminars and certificate courses, Executive Education, offers interested companies continuing education programs tailored specifically to their requirements.

The teaching methods, in almost all training offerings can be described as follows:

- Trainers open up spaces in which participants reflect on their own values and actions and develop empathy
- Trainers open up spaces in which participants think and act in a sustainable way: They understand the effects of their own actions, can imagine the effects on future generations, make responsible decisions
- Participants deal with contradictions, dilemma situations, areas of tension



- Transformative learning formats (for example problem- and project-based learning)
- Holistic learning (head, hands, and heart)
- Collaborative learning instead of individual learning in competition
- Interdisciplinarity: participants from different professional areas work together

Since the end of 2021, the KFRU has been part of the WEITER.mit.BILDUNG@BW continuing education initiative, a comprehensive strategy for the future of the state. The cross-departmental initiative focuses on continuing education in order to secure Baden-Württemberg's future viability. Developments such as digitization and new mobility, as well as challenges such as climate change, require new solution strategies and close networking between science, business and society. Lifelong learning and the further qualification of employees are being brought into focus in order to strengthen future viability. For the academic sector the project is called Hochschulweiterbildung@BW and is funded by Ministry of Science, Research and the Arts (MWK). In this project, the KFRU aims to establish close network structures together with other further education institutions of the participating universities, especially in the areas of sustainability, digitalization and management.

Since mid-2022, the KFRU is part of the Erasmus + ENCORE project, which includes 13 partners from 7 countries. The aim is to design, test and roll out new, innovative teaching methods in the fields of digitalization, green economies and entrepreneurship in order to promote competences in these areas.

Through its close partnerships with industry, its participation in national and international education projects, and its course offerings, KFRU addresses at least the following SDG Goals:

4. Quality education: The main goal of KFRU is to provide quality education for all stages of the professional career.

5. Gender equality: In principle, all KFRU offers are always aimed at all genders. Participants are addressed using gender-appropriate language.

7. Affordable and clean energy: Within the framework of the project University Continuing Education @ BW, the Rottenburg University of Applied Forest Sciences (HFR) is co-supervised by the KFRU for matters of scientific continuing education. The HFR develops cross-sector solutions in the fields of forestry, timber management, nature and environmental protection, landscape planning, water management, sustainable regional management and renewable energies

8. Decent work and economic growth: Almost all training offers aim at the realization of this goal for their participants

9. Industry, innovation and infrastructure: Due to the cooperation with all five Schools of the HSRT, the KFRU is in a position to intensify contacts with industry, associations and international partner universities by means of expanded offerings.



13. Climate action: The KFRU collaborates closely with the Faculty of Textiles and Design at the HSRT and is therefore able to offer professional courses on Sustainability in the Textile Value Chain, which are in great demand.

16. Peace, justice and strong institutions: KFRU as part of HSRT and with all its partners is a strong institution

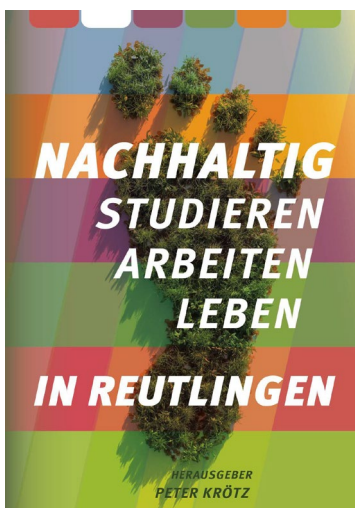
17. Partnerships for the goals: The KFRU is part of a large and international network of companies, universities and institutions

Center for Entrepreneurship/ Social Entrepreneurship

Since 2017 the center for entrepreneurship delivers training on social entrepreneurship inspiring students to set up a start-up that contributes to make the world a better place. The ideas developed by students are presented at the end of each semester in a university innovation competition. A special category is social entrepreneurship with jury members from the ecosystem.

In the lecture, the students have to know basic definitions and models of sustainability. In order to reflect on their personal life-style the students and future founders were invited to face different environmental and social challenges. In addition to the elective start-up talks presented social and green start-ups as well as female role models in order to inspire students for new innovative solutions for a better planet.

„Klimahandbuch“



In the last report, we reported on an ongoing project called "Klimahandbuch". In a regular course at the ESB, students developed a city guide for Reutlingen. The guide should list options for an eco-friendly and fair individual life-style. Information and hints about eco-friendly mobility, opportunities for cultivating its own food and vegetables, fair stores, regional and clean energy production or options for cooperative and inclusive living should be the content components of the guide.

In the meantime, this book has been published under the title "Nachhaltig studieren, arbeiten und leben in Reutlingen" ("Sustainable studying, working and living in Reutlingen").

Objectives

There is no doubt that cooperation with business companies is fruitful for both lectures and research. An objective is to support the faculties in their activities.



Quelle: Pixabay

Principle 6 | Dialogue

We will facilitate and support dialogue and debate among educators, students, business, government, consumers, media, civil society organisations and other interested groups and stakeholders on critical issues related to global social responsibility and sustainability.



Overview

In this chapter, we describe five projects that represent the intense dialogue the team for ethics and sustainability maintains with many different stakeholders. Four projects were already mentioned in last report but we are still committed to maintain them.

Do it! - Social competence through volunteer work

In the Do it! program, students learn precisely those things that are increasingly demanded by companies within the framework of a qualified supervised internship in a social institution: social competence, communication skills and responsibility, recognition of social connections, awareness of sustainability problems.

The students commit themselves for at least 25 hours e.g. in the “Kaffeehäusle”, “Weltladen”, “Samariterstift”, with “lebenswert” in dealing with handicapped people, people in need of care, old people, in neighborhood help, in fair trade.

With a guided written evaluation and in a colloquium, they reflect on their experiences and link them to the UN's Sustainable Development Goals. Students receive 25 ethic credit points.

The public lecture “*Studium Generale*”

The “*Studium Generale*” is a series of public lectures at Reutlingen University that facilitates the dialogue among members of different universities, the interested public audience, and civil society actors. The various speeches shed light on different aspects of global social responsibility and sustainability. That is why we chose the main title “*Verantwortung für die Gesellschaft*” (responsibility for society).

Each semester a consortium of institutions consisting of Reutlingen University, the Theological University, the study program “social work” at the Protestant University Ludwigsburg, the friend’s association as well as the Christian community organizes the series of public lectures.

The overall aim of the series of lecture is that members of the different universities or external lectures contribute to a deeper understanding of current debates by giving insights in his or her research. For the last years, we chose an overarching topic for the academic year that link the individual lectures and discussion rounds.

In winter semester 2020/21, we continued with the overarching topic of “Democracy in times of Corona”. The following researchers elaborated on their work:

- Dr. Eric Wallis, linguist and campaign consultant: „Das Corona-Wörterbuch – Über die Macht der Sprache in politischen Debatten“



- Hans Probst, consultant of the Protestant Church of Württemberg: „Schulterschluss einer neuen politischen Rechten in Zeiten von Corona?“
- Gabriele Arnold, prelate of the Protestant Church: „Wo war/ist die Kirche in der Corona-Krise?“
- Prof. Dr. Bernd Banke, Reutlingen University: „Führung in der (Corona)-Krise“
- Dr. Stephan von Twardowski and Christof Voigt, Theological University: “Der Mensch und die Corona-Pandemie: Wer sind wir? Wer wollen wir sein?”

We realized the lectures series as a hybrid event with lectures at Theological University and a simultaneous live-streaming service.

In summer semester 2021, we started the academic year with the new overarching topic of “Media. Power. Reality.”. The lectures series was realized as a live-streaming service. In concrete terms, the following lectures took place:

- Prof. Dr. phil. Petra Grimm, Media University Stuttgart: „Wie bilde ich mir eine Meinung? Zur Informations- und Meinungsbildungskompetenz in Zeiten der „Infodemie““
- Prof. Dr. Bodo Herzog, Reutlingen University: „Informationspopulismus: Digitale Echokammern – degenerierter Debattenraum?“
- Prof. Anja Hartmann and Prof. Dr. Gabriela Tullius, Reutlingen University: „„MEDIEN – mach(T)en – wirklichKEIT“. Von Algorithmus und Wirklichkeit“

In winter semester 2021/22, the overarching topic again was “Media. Power. Reality.”. The lectures series was realized as a hybrid event. In concrete terms, the following lectures took place:

- Prof. Dr. Frank Brettschneider, Hohenheim University: „Wahlkampf 2021: Plakat, Präsenz und Social Media“
- Prof. Dr. Katrin Schlör, Protestant University Ludwigsburg: „Teilhabe in, an und durch Medien – digitalisierte Medienwelten gestalten“
- Prof. Dr. Stephan Winter, Koblenz Landau University: „Von Likes zu Fakes: Zur psychologischen Wirkung von Desinformation und Microtargeting“
- Prof. Dr. Lambert Wiesing, Jena University: Medienphilosophie: „Bilder, Illusionen und digitale Fotografie“

In summer semester 2022, we started the new overarching topic of “Terms of freedom”. The lectures series was realized as a hybrid event. In concrete terms, the following lectures took place:

- Andreas Hofer: „„Du musst dein Leben ändern!“ Gesellschaftliche Herausforderungen auf dem Weg in eine Freiheit vom Wachstumszwang“



- Prof. Dr. Peter Eisenbarth, University of Public Administration and Finance Ludwigsburg: „Recht und Freiheit“
- Prof. Christof Voigt M.A., Theological University: Nicht: „Ich will“, sondern: „Wir können“. Überlegungen zum Begriff der Freiheit“
- Pascal Kober, Member of the German Parliament: „Politische Freiheit. Neue Herausforderungen.“

Reutlingen Climate Protectors (“*Erfa-Klimaschützer*”)

For several years, the former consultant Dr. Baumgärtner as well as Tine Seng from Campus (the friend’s association of the university) have taken part in a network that exchanges best practices and learning experiences in the struggle for realizing projects that protect the climate. The current sustainability advisor now represents the university in this network. The network consists of the city of Reutlingen, the county of Reutlingen, the climate agency, the *Kreissparkasse* (a local bank) as well as the *Diakonie* (a social service provider).

RTWE-Network

The ethics officer, the sustainability officer and the sustainability adviser are very engaged in the RTWE-network that encompasses all ethics and sustainability officers at universities of applied sciences in Baden-Württemberg.

Still Professor Banke is on the academic advisory board of the RTWE, concentrating on the development of a guideline on Ethics Codices, Ethics Manuals and Ethics Commissions for the universities of applied sciences Baden-Württemberg.

The leader of this network, Prof. Wörz, retired in 2019. Previously to its retirement a committee of professors and academic staff have worked intensively on the perpetuation of the position and the funds from the ministry of education.

Meanwhile the selection procedure has been finished and the new professor and chief officer of the RTWE will start working beginning in winter 2022/23.

The network meets three time per year and exchanges best practice and lessons learnt in the struggle to implement ethics and sustainability projects at the universities.

Climate Protection Council of Experts

Prof. Dr. Sabine Löbbe, the Officer for Sustainability in the President’s Office of Reutlingen University, is a member of the newly established Climate Protection Council of Experts of the Land Baden-Württemberg. Among other experts she advises the state government on climate protection issues.



Conferences

The team for ethics and sustainable development has represented Reutlingen University at numerous talks and academic conferences:

- The RTWE Conferences;
- PRME Chapter and Research Conferences;
- Public talks and participation in discussion rounds.

Objectives

The exchange of best practice and lessons learnt in the struggle to implement ethics and sustainability projects and to fight climate change is essential for the team for ethics and sustainability at Reutlingen University. On the one hand, the dialogue among educators, business, government, consumers, media, civil society organisations and other interested groups and stakeholders is crucial to test the relevance of the own ideas in the real world. On the other hand, the projects and ideas of others are essential for our own inspiration and the will to keep on in times of setbacks.

