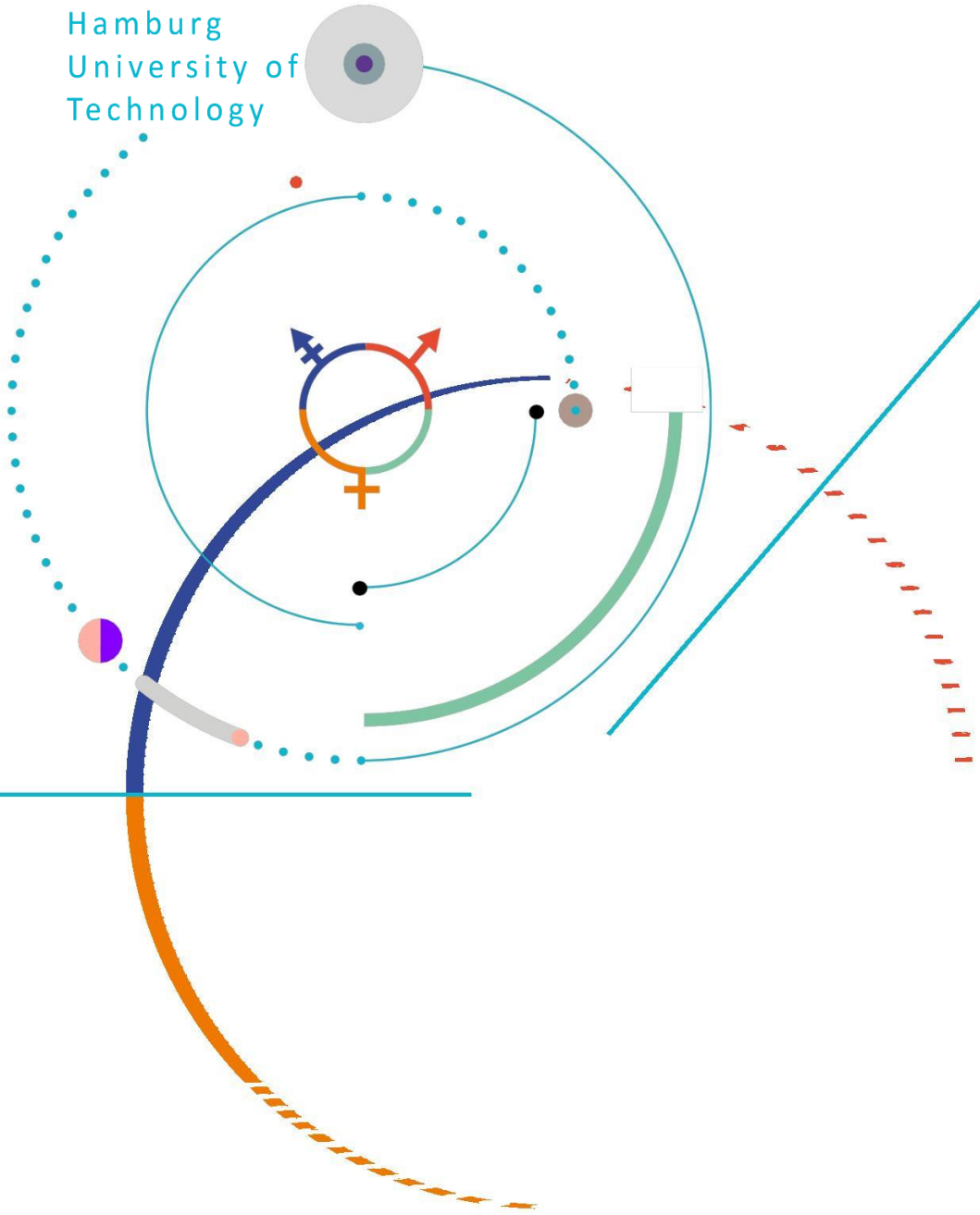
TUHH
Hamburg
University of
Technology



EQUALITY CONCEPT FOR PARITY

Prepared as part of the
Women Professors Program 2030

August 23, 2023

Contents

Preamble

Under the guiding principle “Technology for People,” the Hamburg University of Technology (TUHH) promotes technical and scientific competence within society. Gender equality in science, research, and teaching is of central importance to TUHH. Equality forms the foundation of a diverse, inclusive, and innovative university community. TUHH aims to ensure equal opportunities and access for all members of the university and to create a discrimination-free environment.

The university is actively committed to promoting women in science and engineering in order to strengthen their presence in these fields. TUHH’s gender equality concept is based on transparency, participation, and continuous development. Equality is to be embedded in all areas of university life, including personnel policy, teaching, research funding, and working conditions. TUHH strives for appropriate representation of women in leadership positions and supports the reconciliation of career and family life.

The university is committed to introducing gender equality monitoring and regularly reviewing its gender equality concept to ensure progress. TUHH is convinced that the successful implementation of equality measures enhances quality, excellence, and innovative capacity. Promoting gender equality contributes to a more just society in which talent is fostered regardless of gender or other characteristics.

1. Presentation of the Hamburg University of Technology

The Hamburg University of Technology (TUHH), founded in 1978, is one of the youngest technical universities in Germany. From the beginning, it was established as an independent and specialized institution in the field of classical engineering sciences. The guiding principles of TUHH are scientific excellence, interdisciplinary collaboration, innovation, and an international outlook.

In contrast to larger technical universities, TUHH concentrates primarily on engineering and does not include broad natural science, humanities, or social science disciplines. It follows the Humboldtian educational ideal, is internationally oriented, and promotes technological development in society through modern teaching methods and active technology transfer. Thanks to its location in the Hamburg metropolitan region, TUHH plays an important role both regionally and beyond. The research structure of TUHH is designed to foster interdisciplinary collaboration among researchers, as innovations and new solutions often emerge at the intersections of different fields. For this reason, TUHH’s research is not organized into faculties or departments but into five overarching research fields: Advanced Materials & (Bio-)Processes, Aviation & Maritime Technologies, Cyber Physical & Medical Systems, Environmental & Energy Systems, and Logistics, Mobility & Infrastructure.

The TUHH is currently pursuing a two-phase development strategy in cooperation with the Ministry of Science, Research, Equal Opportunities and Districts (BWFGB) of the Free and Hanseatic City of Hamburg (FHH). The first stage has already been successfully completed and received a highly positive external evaluation. The second stage is characterized by the reorientation towards the guiding theme of "Engineering to Face Climate Change," which is being implemented across the board in research and teaching.

The main focus of teaching is on the engineering sciences, which are assigned to six deaneries: Civil Engineering, Electrical Engineering/Computer Science/Mathematics, Mechanical Engineering, Process Engineering, Technology and Innovation in Education as well as Management Sciences and Technology. These focus areas comprise 16 Bachelor's and 29 Master's degree programs.

As TUHH almost exclusively represents the engineering disciplines in research and teaching, the challenge gender equality is particularly clear: 109 female professors work at the university, including only 12 female professors. In addition, 801 academic staff are employed, 207 of whom are female. There are 709 employees in technology and administration, including 378 women. The total number of students at the TUHH is 7438, 2100 of whom are female.

The TUHH is aware of this problem and has included equality deeply into its strategic orientation, which is reflected in a number of basic university policy principles. These include the anchoring in the TUHH's basic regulations, the concept for the promotion of young academics and the target and performance agreements with BWFGB.

At the same time, the TUHH's appointment regulations and the university's development concept reflect its deep commitment to equality.

A well-established network within the university, consisting of the Academic Senate's Equal Opportunities" "Committee and the Presidential Board's" "Professorial Equal Opportunities Officer," "ensures a holistic approach. The TUHH not" "only addresses the issue of equality within its" "own university boundaries, but also maintains close links with established experts outside the university, such as the Interuniversity" "Center for Gender and Diversity, and is a" "member of the State and Federal Conference" "of Gender Equality Officers.

Responsibility for gender equality at the TUHH lies with the President, Prof. Dr.-Ing. Since taking office in June 2021, he has been personally committed to equality, which has led to the rapid institutionalization and implementation of the measures described. The resources for equality have been significantly increased, and in the second quarter of 2022 an independent staff unit for equality was established, which is dedicated to aspects of gender equality, a family-friendly university structure and the promotion of diversity. The current development of a diversity concept underpins this approach and aims to further strengthen existing efforts to create an inclusive and diverse environment.

Both the Presidential Board and the Academic Senate support the Women Professors Program 2030 as a driving force for progress in gender equality work. The TUHH actively strives for equal opportunities and sees the PP2030 as a pioneering initiative.

2. TUHH in Figures

The figures relevant to gender equality at the TUHH are presented below.
The " diverse" category is not shown, as no data cases are stored. The figures are divided into data on professorships, academic staff, students and management positions at the TUHH.

2.1 PROPORTION OF WOMEN IN PROFESSORSHIPS

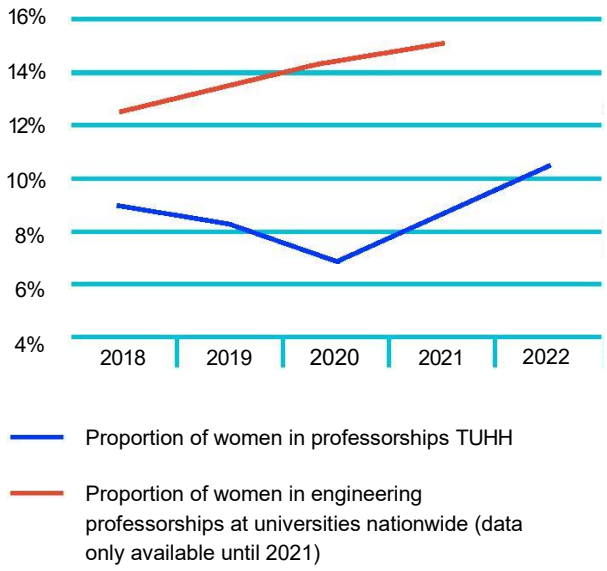


Fig. 1: Proportion of women in professorships

Figure 1 shows that the proportion of women in professorships at the TUHH[1] is significantly lower than the proportion of women in engineering nationwide[2]. In 2018, the figure at the TUHH was 9%. The national figure was 13% in 2018 and has risen steadily to 15% since then. In both 2019 and 2020 the proportion of women in professorships at the TUHH declined to 7.5% in 2020.
There has been a slight increase since 2020. In 2022, the proportion of women in professorships at the TUHH was 11%. However, it should be noted that due to the small number of professorships, even one or two appointments make a large percentage difference.

Figure 2 shows that the proportion of professorships differs greatly by deanery of studies and that a trend over time can also be seen. In the deanery of studies for civil engineering, the proportion of women in professorships was 11% in 2018 and has fallen to 4% by 2022, meaning that the figure is currently at a very low level. In the Dean's Office of Electrical Engineering, Computer Science and Mathematics, the proportion of women in professorships was 9% in 2018 and fell to 8% in 2020. In 2022, the proportion is 13%.
In the Dean's Office of Management Science and Technology, there was a slight decline in the proportion of female professors. In 2018, the proportion was 15% and fell to 13% by 2022. In the Dean's Office of Mechanical Engineering, the proportion of female professors was 3% in 2018 and only rose to just over 6% in 2022. The proportion of women in professorships remains very low here. There were no female professors in the Dean's Office of Technology and Innovation in Education from 2018 to 2022. At just over 18%, the Process Engineering has the highest proportion of female professors by deanery at the TUHH. In 2018, 18% were represented. By 2021, there was a slight decline to just under 16%. In 2022, the proportion of women in professorships was again 18%. In summary, it can be stated that there is a particularly low proportion of women in professorships at the TUHH, especially in the Deans of Studies for Civil Engineering, Mechanical Engineering and Technology and Innovation in Education.

1 Source: TUHH Human Resources Department
2 Source (10.07.2023): Data on universities - Federal Statistical Office (Destatis), 2022; own compilation. In: https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bildung-Forschung-Kultur/Hochschulen/_inhalt.html#234574

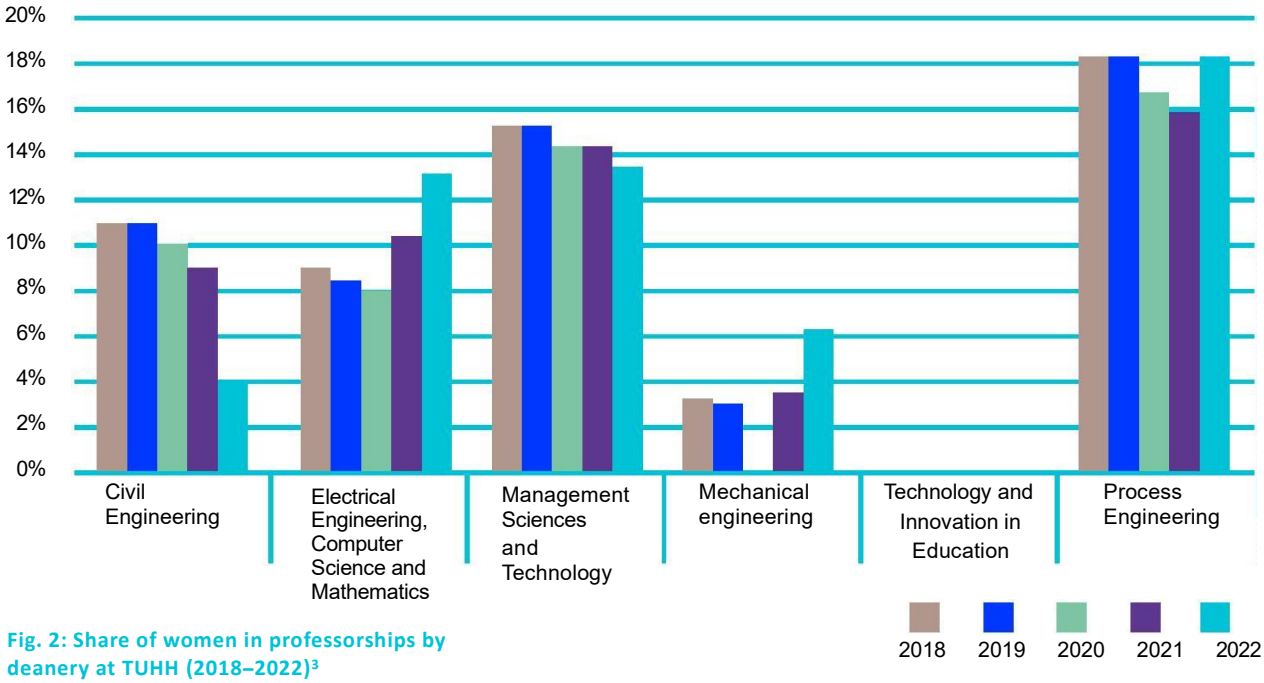


Fig. 2: Share of women in professorships by deanery at TUHH (2018–2022)[3]

2.2 PROPORTION OF WOMEN IN SCIENTIFIC STAFF

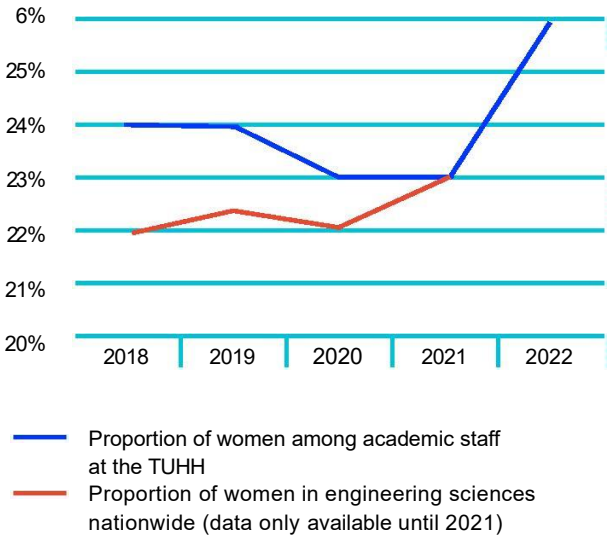


Fig. 3: Proportion of women among academic staff

Figure 3 shows that the proportion of women among academic staff at TUHH[4] in 2018 (24%) was significantly higher than the proportion of women among academic staff in the engineering sciences nationwide[5].
However, contrary to the national trend, the share of women at TUHH declined to 23% in 2021,
while the national figure increased to 23%. No national data are available for 2022. At TUHH, the proportion of women among academic staff then rose again to 26%. 2

3 Source: TUHH Human Resources Department

4 Source: TUHH Human Resources Department

5 Source (10.07.2023): Data on universities - Federal Statistical Office (Destatis), 2022; own presentation. In: https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bildung-Forschung-Kultur/Hochschulen/_inhalt.html#234574,

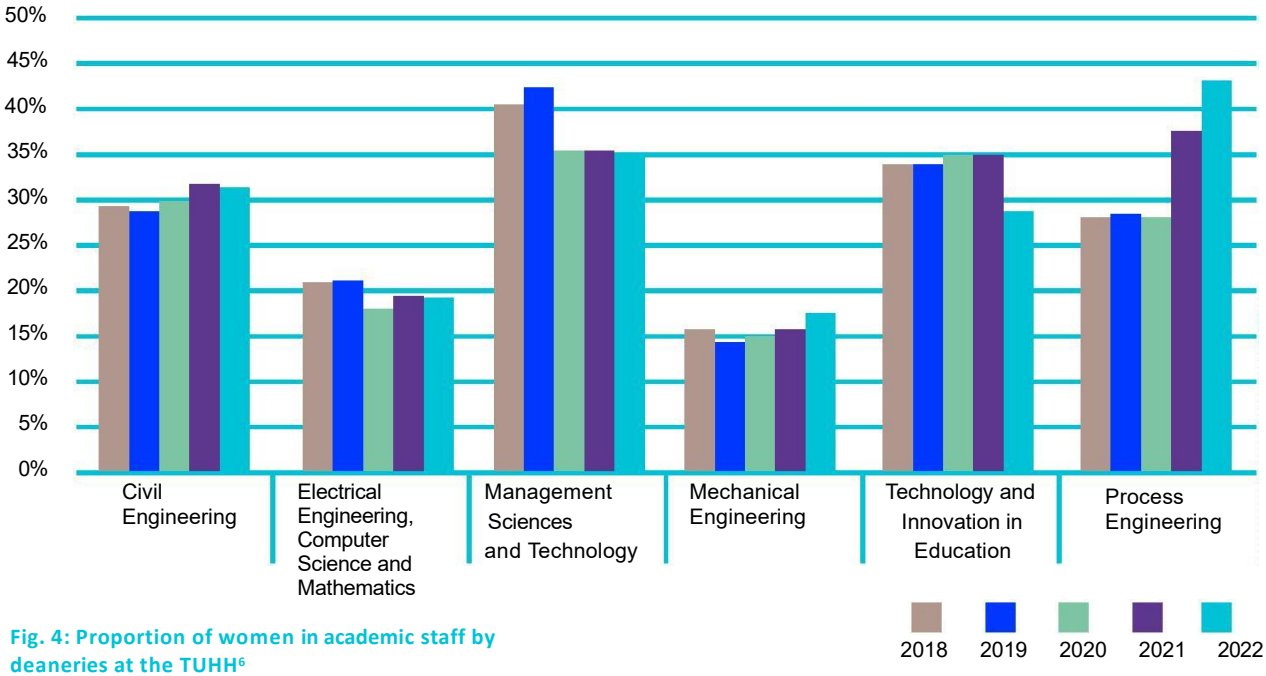


Fig. 4: Proportion of women in academic staff by deaneries at the TUHH[6]

Figure 4 illustrates the considerable differences in the share of women among academic staff across the various deaneries at TUHH. From 2018 to 2022, there was a steady increase from 29% to 32% in the Deanery of Civil Engineering.

In the Deanery of Electrical Engineering, Computer Science, and Mathematics, the share of women was slightly above 20% in 2018. This fell to around 17% in 2020 but rose again to just over 19% in 2022.

The Deanery of Management Sciences and Technology showed particularly high values in 2018 and 2019, with 40% and 42% of academic staff being women. This proportion fell to 35% in 2020 and remained just under 35% in 2022, still above the TUHH average. In the Deanery of Mechanical Engineering, the share of women rose slightly from 15% in 2018 to 17% in 2022 after a brief decline.

The Deanery of Technology and Innovation in Education initially also recorded high shares of women, but this fell to 28% in 2022, following 33% and 35% in 2018/2019 and 2020/2021 respectively.

An increase in the share of women was also observed in the Process Engineering deanery, rising from 27% in 2018 to 33% in 2021 and 38% in 2022.

In summary, the lowest shares of women among academic staff are found in the deaneries of Electrical Engineering, Computer Science and Mathematics, and Mechanical Engineering.

6 Source: TUHH Human Resources Department

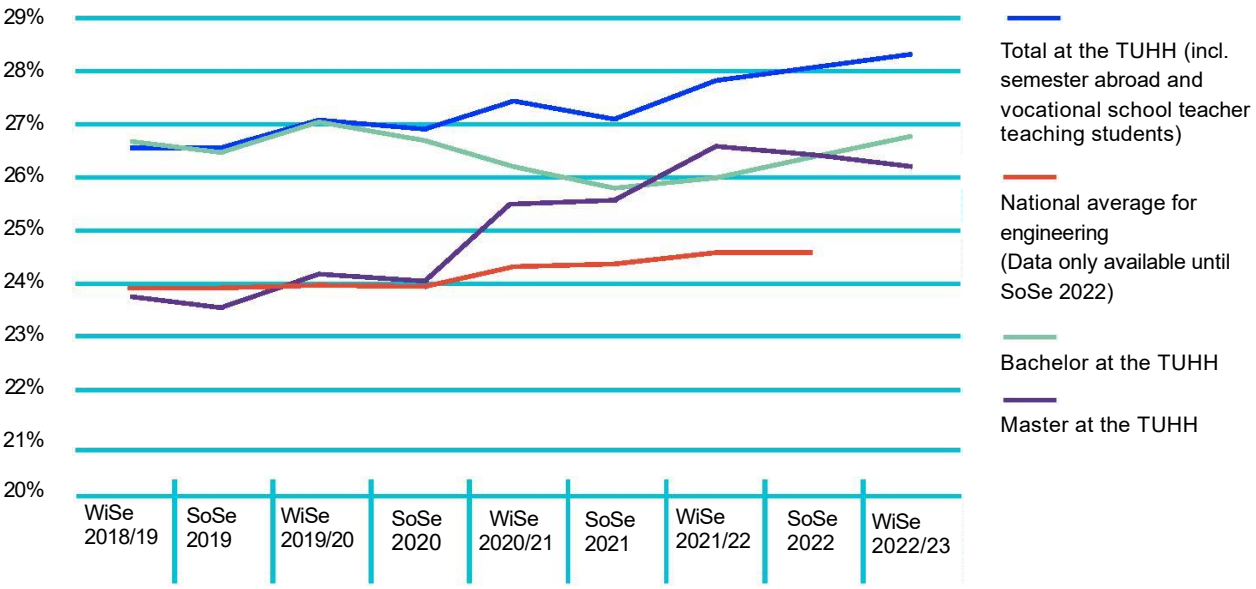


Fig. 5: Share of female students

2.3 SHARE OF FEMALE STUDENTS

Figure 5 shows that the share female students at the TUHH[7] in the Bachelor's degree and overall (incl. semester abroad and vocational school teacher training students) is above the national average[8] in the engineering sciences. The national average is available up to and including summer semester 2022 and is 24% at this time. In the summer semester of 2022, the proportion of Bachelor's students was 27% and has risen slightly since then. The overall proportion was 27% in the summer semester and just over 28% in the winter semester 2022/2023. Since the summer semester 2021, the proportion of women among Master's students has been below the national average and is just over 26% in the winter semester 2022/2023. In the winter semester 2022/2023, the overall proportion was just over 28%.

Figure 6 shows that there is a relatively high share of female students in the Deaneries of Civil Engineering, Process Engineering, and Management Sciences and Technology compared with the other deaneries.

Female students make up around 40% of students in the Deanery of Civil Engineering, an increase from 38% to 40% in recent years. Degree programs in Electrical Engineering, Computer Science, and Mathematics have also seen growth: in the 2018/2019 winter semester, the share of female students was 16%, rising to 21% in the winter semester 2022/2023.

The share of female students in Mechanical Engineering remains low and has stayed roughly constant over the years at 15%. In contrast, a slight decline can be observed in Process Engineering, where the figure fell from 41% in 2018 to 37% in the winter semester 2022/2023.

7 Source: TUHH student statistics

8 Source (10.07.2023): Data on universities - Federal Statistical Office (Destatis), 2022; own presentation. In: https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bildung-Forschung-Kultur/Hochschulen/_inhalt.html#234574,

Likewise, the Deanery of Management Sciences and Technology has recorded a slight decline in the share of female students. In the 2018/2019 winter semester, 34% of students were women; in the 2022/2023 winter semester, this share was 30%.
The degree programs in Technology and Innovation in Education, on the other hand, have seen an increase in the share of female students. In the 2018/2019 winter semester, 27% of students were female. After a slight decline to 25% in the 2020/2021 winter semester, the share rose again to around 28% in the 2022/2023 winter semester.

2.4 Share of Women and Men in Management Functions

Figure 7 shows that 25% of the members of the Executive Committee are women. Between 2020 and the end of 2022, the four-member Executive Board had equal gender representation.

The distribution of senators in the Academic Senate is almost balanced, with 45% women and 55% men. However, it should be noted that the high share of women is largely due to representation from the status groups of technical and administrative staff, students, and academic staff. Among the members of the University Council, the share of women is 40%.

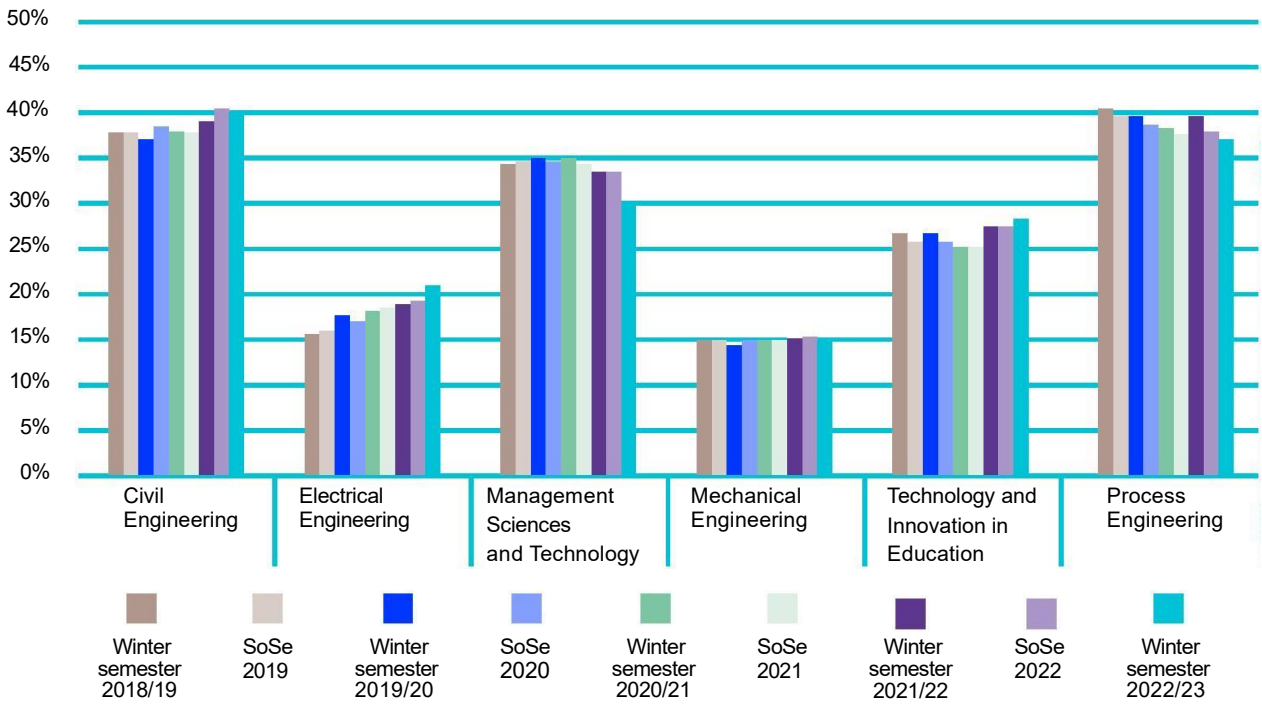


Fig. 6: Share of female students by degree program across TUHH deaneries[9]

9 Source: TUHH student statistics

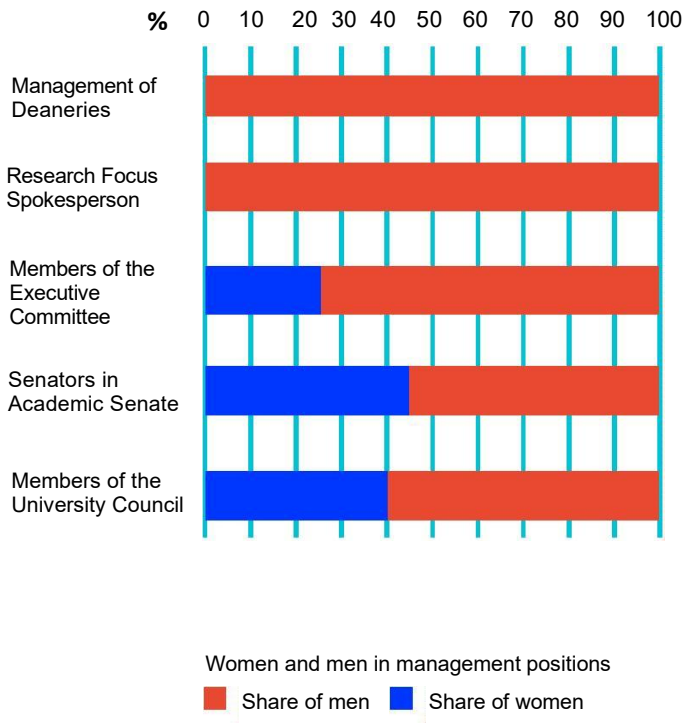


Fig. 7: Proportion of women and men in management positions (as at May 2023)[10]

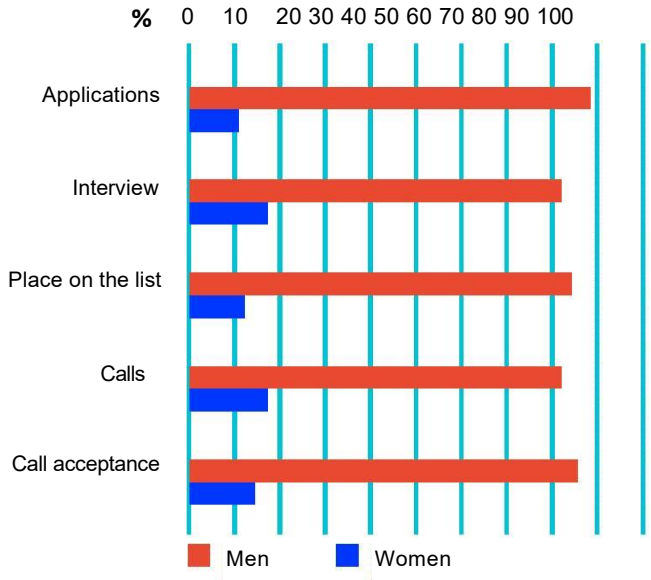


Fig. 8: Share of women in appointment procedures by stage of procedure in 2019 - 2022[11]

The currently very low proportion of women in the status group of professors can be explained by the low number of female professors, which amounted to only 13 in May 2023.

Both the management of deans of studies and the positions of spokespersons for key research areas are currently held exclusively by men. In earlier years, the proportion of women in academic leadership positions exceeded the proportion of women among professors, at 10% to 16%. All long-standing female professors at the TUHH have already held such positions for one or more terms, but are now devoting themselves to other tasks. With a larger number of female professors, there would be a wider selection of women to take on responsibility in academic leadership positions. With such a limited number of female professors, the decline in the proportion of women in leadership positions, as well as the current exclusively male leadership positions, is seen as a statistical phenomenon that requires careful observation.

Figure 8 illustrates the low proportion of women in all stages of the appointment procedure in recent years. The proportion of women in applications is 11%. Among those invited, the proportion of women is 16%, which demonstrates the sensitization of the actors to the issue of "increasing the proportion of women in professorships". In the final list, women are then represented with 12%, and 17% of the calls go to women. The proportion of women accepting appointments is a good 14%.

10 Source: Equal Opportunities Office TUHH
11 Source: Appointment management TUHH

3. Analysis of Strengths and Weaknesses

A culture of equality must be lived and supported by everyone at the university. As Leopoldina - National Academy of Sciences said in its statement Women in Science: Developments and Recommendations (2022)", knowledge alone is not enough. political will of all those involved is required to continually adapt gender equality measures to research findings and the respective circumstances. The results of this study will be referred to repeatedly below

This equality concept was developed through a participatory process that involved a broad-based exchange and close coordination with stakeholders, multipliers and members of the TUHH. The integration of different perspectives and perceptions of gender equality enabled a broad view to be taken, on the basis of which a tailor-made gender equality concept was developed for the TUHH.

PARTICIPATION FACTORS:

- Methodical survey on the status quo gender equality and the needs of academic staff
- Brainstorming and discussion rounds with female professors
- Technical discussions with TUHH institutions such as: Presidential Board, Graduate Academy, Alumni Association, School Contacts, Academic Controlling, Representatives of the Presidential Board for Equal Opportunities, Public Relations, Appointment Management, professors, representatives of the student body (from AStA and FSR)
- Concept presentation in the context of the university's public Committee for Gender Equality and in the Academic Senate
- Expert discussions with University Council member Prof. Dr.-Ing. Ellen Ivers-Tiffée, Vice President Prof. Dr.- Ing. Irina Smirnova, equal opportunities officers from other universities and the Hamburg Center for Gender & Diversity (ZGD)

A SWOT analysis was then conducted to assess the current situation, from which fields of action and corresponding measures were derived and are described in Chapter 4. Some of these measures are to be implemented using additional funds from the Women Professors Program 2030 (PP2030). In addition, measures already included in the TUHH Gender Equality Plan for academic staff, professors, and students (2022–2026) were reprioritized accordingly.

3.1 SWOT-ANALYSIS

A strengths, weaknesses, opportunities and threats analysis (SWOT analysis) is useful for evaluating gender equality at the TUHH, as it provides a structured method for analyzing the internal and external factors that can influence gender equality at the university.

STRENGHTS

- Attractive research through interdisciplinary research fields
- Refocusing on the guiding principle Engineering to Face Climate Change"
- Established internationalization strategy
- Institutionalization and professionalization of gender equality structures
- Approaches to gender equality established in appointment procedures
- Share of women among students and academic staff in engineering sciences is above the national average
- Successful fourth re-audit as a family-friendly university (incl. successful implementation of the packages of measures)
- Established graduate academy at university level
- Implicit gender sensitization of students through visibility of women as role models
- "Member of the Dual Career Network Hamburg and the North"

WEAKNESSES

- Lack of incentive culture for gender-equality topics
- Low proportion of female professors
- Underrepresentation of women in academic committees
- Absence of gender-equality targets, for example for the deaneries
- Little management responsibility for achieving equality targets
- Lack of institutionalized recruiting in the run-up to appointment procedures
- High personnel costs for the organization and implementation of offers for schoolgirls

OPPORTUNITIES

- Strategic further development of gender equality through the PP 2030
- Increasing importance of gender aspects in the acquisition of third-party funding
- Attractive location Hamburg with high quality of life, diverse research environment and with a strong regional economy
- Gender indicators in the target and performance agreements with the BWFGB
- High proportion of women in technical degree programs in other countries, with interest in in pursuing doctoral studies
- Member of the Association of North German Universities and the international ECIU network

RISKS

- Lack of predictability in academic careers paths.
- Stereotypes about women in technical Professions that continue to shape public perception
- Competition for top personnel in science especially for female researchers
- Equality is seen exclusively as a women's issue.
- Care work is mainly attributed to women.
- Attractiveness of direct entry into the economy for female graduates with better conditions in some cases
- Gender-specific offers are often associated with neediness.

3.2 DISCUSSION OF THE CURRENT SITUATION

The proportion of female professors remains low, at 8 to 11 percent, but shows a slight upward trend. Within the *Program for the Promotion of Early-Career Researchers* (*WISNA Program*), supported by the federal and state governments, eleven tenure-track professorships were filled at TUHH, three of which were occupied by women—a share of 27 percent. Because TUHH is a comparatively small university (with roughly 110 professorships), only a few positions are advertised each year. In addition, the number of female applicants for professorships is low, as shown in Figure 8 in Chapter 2: between 2019 and 2022, only 11 percent of all applications came from women. To increase this number, TUHH will place particular emphasis on active recruiting through personal outreach.

At the same time, TUHH can highlight its many advantages: an agile, interdisciplinary research structure, a close-knit community of professors that facilitates rapid integration and mutual support, and flexibility in developing one's own research and teaching profile.

The share of female academic staff lies above the national average in the engineering sciences and continues to rise slightly. The deaneries of Electrical Engineering, Computer Science and Mathematics as well as Mechanical Engineering show particularly low figures. This is partly because the associated study programs also have a low proportion of female students. A key cross-deanery measure will therefore be the systematic recruitment of female researchers from abroad, where engineering is not predominantly seen as a male domain and where more women study electrical engineering and mechanical engineering.

The share of female students has been above the national average since TUHH's founding and has even increased in recent years. Study programs that combine technical aspects with environmental or social components are chosen significantly more often by women (up to 40 percent female students) compared with traditional programs such as mechanical or electrical engineering, which are perceived as purely technical.

With the reorientation toward TUHH's guiding theme *"Engineering to Face Climate Change"* in research, teaching, and knowledge transfer, the university aims to further enhance the attractiveness of its study programs, particularly in key industrial disciplines such as mechanical engineering, electrical engineering, and computer science, by highlighting their relevance to climate-change solutions. Because stereotypes and biases about women in technical professions still persist and continue to shape public perception, it remains essential for TUHH — as for other universities — to make a concerted effort to attract more female students.

Gender-specific stereotypes still play a significant role in study-choice decisions. Research shows that women tend to have a lower self-concept than men and often underestimate their abilities, particularly in mathematics (see Jurik et al. 2013, p. 41). It is therefore necessary to challenge and gradually change these gender stereotypes, in order to strengthen women's self-confidence (Sengler & Sungur 2009).

It also became clear that academic leadership positions at TUHH are still held predominantly by men. Both the deaneries and the positions of research-focus spokespersons are currently occupied exclusively by men. This situation is partly due to the low number of female professors, whose increase remains a priority. The continuing underrepresentation of women in leadership positions requires special attention. It is important to examine whether institutional processes hinder women's access to such positions or whether this imbalance will lessen as the number of female professors rises.

Data on gender representation are not yet used systematically to guide institutional processes.
This means that gender-equality monitoring has so far been implemented only in its early stages. The goal is to establish functional gender-controlling mechanisms, to introduce standardized data collection on gender aspects, and to implement systematic monitoring of equality measures.
For all newly developed measures, both qualitative and quantitative criteria for gender-equality monitoring are therefore being defined (for a detailed description of monitoring, see Chapter 4.8.1).

3. 3 DERIVATION OF TARGET FIGURES

When setting target figures, TUHH deliberately deviates from the "cascade model."
According to that model, the target proportion of women at each academic career level is derived from the proportion of women at the next lower qualification level within the same field over a five-year period.

Given the 28% share of female students and 26% of female academic staff, an increase of just 2% seems unambitious. Habilitations are not taken into account due to their low number at the TUHH, which is due to system-related circumstances and therefore does not appear to be statistically meaningful. This creates a gap in the analysis, which leads directly to the consideration of professorships. Currently, the proportion of female professors is 11%. The aim is to achieve a 10% increase in the number of female students and academic staff over the next five years, with a minimum increase of 1% per year. In view of the expected occupation of only six professorships by 2027, the potential creation of two further professorships and unexpected departures, the aim is to increase the proportion of female professors by 5%. Particular attention will be paid to increasing the proportion of women in the Departments of Electrical Engineering, Computer Science and Mathematics and Mechanical Engineering, as these currently have the lowest proportion of women at all academic levels.

	2022	2027
Female students	28%	38%
Female academic staff	26%	36%
Female professors	11%	16%

Table 1: Current status and target figures for 2027 for the proportion of women in the academic sector

4. Fields of Action and Measures

Based on the situation described in Chapters 2 and 3, eight fields of action with corresponding measures have been derived. These proposed measures directly address the specific challenges at TUHH while at the same time fulfilling the expectations of the *Women Prof. Program (Professorinnenprogramm) regarding* the Gender Equality Concept for Parity.
The greatest challenge, not only for TUHH but for the academic system as a whole, is to increase the proportion of female professors and to establish a comprehensive culture of gender equality. The barriers women face in achieving professorships are to be reduced through measures at all academic levels, and women are to be supported and motivated from an early stage to pursue a career in science and engineering. This also includes initiatives to reconcile family and career and to promote a reflective approach to gender-equality issues. The measures set out in TUHH's Gender Equality Concept, adopted in March 2022, will continue to be implemented.

4.1. INCREASING THE SHARE OF FEMALE PROFESSORS

Work culture and working conditions in scientific fields can collide with the compatibility of family and career. A lack of flexibility, a lack of childcare facilities and fixed-term contracts pose additional challenges for women in particular (cf. Kremkow and Sembritzki 2017, p.117f). The uncertainty of obtaining a professorship is also a major factor.

In addition, there is still a shortage of female role models and leaders in academia and academic networks. Unconscious bias often results in less recognition and fewer career opportunities for women—for example, during recruitment or promotion decisions. The following measures are designed to address these challenges.

4.1.1 Planned Career Paths for Early-Career Female Researchers

Clearly structured and transparent career paths can make it easier to combine professional and family life. When female researchers have clear career perspectives, they can make better-informed decisions about their professional development while taking their personal priorities into account (see Findeisen 2011, p. 298). Such structures help women remain in academia and advance their careers in the long term—without feeling forced to choose between family and profession.

As part of an innovative pilot program, young female research group leaders at TUHH will be given the opportunity, within their employment at TUHH, to take up a temporary position at suitable non-university research institutions. This arrangement will allow them to develop their qualification pathway so that, upon completion, they are eligible to apply for open W3 professorships at TUHH (or other universities). An initial cooperation has already been established with the Fraunhofer Society for the Promotion of Applied Research (Fraunhofer-Gesellschaft e.V.), and further collaborations are currently being planned.
Possible indicators for monitoring and evaluation include: number of women participating in this career path (temporary position/W3 professorship), number of cooperations with non-university research institutions, results from structured interviews with participants

4.1.2 Early-Career Colloquia

Early-career colloquia are an effective means of getting to know excellent female researchers. These lecture series bring together scientists who present and discuss their work on specific research topics. In addition to the presentations, participants have the opportunity to visit institutes engaged in related fields and, where appropriate, to give guest lectures in relevant degree programs. Through such exchanges, female scientists can become familiar with TUHH, serve as role models, and establish valuable professional networks that may prove advantageous when professorships are advertised. At the same time, they gain insight into TUHH's specific strengths and working environment. The colloquia should be initiated by the deaneries and financially supported by the university.

For evaluation purposes, indicators may include the number of colloquia conducted, the deaneries involved, and the number of participating female researchers. With participants' consent, data may also be compared to later appointment statistics to assess whether any of these researchers subsequently applied for positions at TUHH.

4.1.3 Establishing an International Network of Female Professors

The TUHH actively promotes working visits by its female professors to female professors at other universities worldwide, for example by offering financial support or travel grants. These visits not only serve to increase the visibility of the TUHH abroad, but also to build up an international network of female professors through personal contacts and long-term relationships. At the same time, return visits by international female professors to the TUHH are also supported. To

In order to be able to use this network sustainably, the contacts are entered into a database after approval. This means that the contacts in the database can be used in a targeted manner to approach female academics when professorships are advertised at the TUHH and to encourage them to apply. In addition, it is requested that the advertisements be disseminated in the networks of female professors in order to ensure a greater reach with personal contacts.

The contacts with female scientists from measure 4.1.2 can also be included in the database.

Possible metrics or key figures for controlling are Number of working and return visits, number of contacts in the database

4.1.4 Reducing Committee Workload for Female Researchers

A balanced gender ratio in committees is an important step towards promoting equality. It has been observed that women often carry out more committee work than their male colleagues (see Misra et al 2011, among others). At the TUHH, too, there is the challenge that women are strongly underrepresented and therefore have to take on committee work more often than their male colleagues. A compensation system is to be developed to compensate for this additional time burden. The basis for the compensation system will be a transparency concept that provides an overview of the committee work to be performed for each dean's office. On this basis, female professors can apply for support measures in the event of a disproportionate workload, such as a reduction in teaching load, funding for additional academic staff months or individual funding for travel and material resources.

In addition, the TUHH explicitly promotes the activity of female professors in, for example, the DFG, the BMBF, in EU commissions and in (state) advisory boards.

Possible metrics or key figures for controlling are: Number of women with an above-average amount of committee work, number of women who take advantage of relief offers, supplemented by information on which relief offers are used and how often

4.1.5 The Best for TUHH – Lighthouse Professorships

TUHH is developing a program to establish two "Female Lighthouse Professorships." These professorships are intended for outstanding female researchers who demonstrate excellence in their fields, drive innovation, and achieve international recognition for their work. The aim is to provide established female scientists with an exceptionally attractive appointment offer, including optimal personnel and material resources. For this purpose, TUHH will make use of the special appointment procedure provided under Section 14 (6) No. 4 of the Hamburg Higher Education Act (HmbHG), which offers a suitable framework for such appointments. Deaneries will have the opportunity to participate in this process by nominating candidates. Progress will be evaluated by the number of lighthouse professorships successfully filled and the resulting increase in the visibility and leadership of women in research at TUHH.

4.2 FIELD OF ACTION: RECONCILATION OF FAMILY AND CAREER

Care work continues to be carried out more frequently by women than by men (Samtleben 2019). According to the Federal Government's Second Gender Equality Report, women in Germany perform on average 52.4% more care work. Family-friendly working conditions also enable men to take on their family responsibilities (Müller and Samt- leben 2022). This helps to promote gender equality breaking down traditional role models and encouraging men to take a more active role in the family.

The TUHH has been certified as a family-friendly university for the fourth time in a row. Many measures were agreed and implemented as part of the audit. The following two measures round off the portfolio of measures:

4.2.1 Reduction of Teaching Load upon Starting a Family

Balancing family and professional responsibilities is a decisive factor for the long-term retention of female professors in academia. This balance must continue to be supported through measures such as flexible working arrangements (see Lenk et al. 2020, p. 95). Allowing professors to reduce their teaching load during the first year after the birth of a child enables them to remain active in research while adjusting to new family responsibilities.
Such a measure also sends a strong signal that the university recognizes and supports the needs of female researchers in reconciling family life and academic careers. It can encourage other women to pursue an academic path and remain committed to long-term engagement in higher education.

Possible metrics or key figures for controlling are: Number of teaching load reductions per birth, duration of teaching load reductions.

4.2.2 Hybrid Meetings Outside Core Care Hours

It is important that official university meetings, such as committee sessions, are held during core care hours. This allows both women and men to balance family responsibilities with professional commitments without incurring additional childcare costs or feeling torn between work and family obligations.

Because it will not always be feasible in the short and medium term to schedule all meetings exclusively within these core hours, TUHH will introduce a policy requiring that any meetings held outside of care-compatible times must be offered in hybrid format.

In addition, TUHH will explore whether this policy can also be extended to lectures scheduled outside of care hours, or whether such lectures should alternatively be recorded to ensure accessibility.
For evaluation purposes, data will be collected on the number of meetings and sessions held outside care-compatible hours and the proportion of these that are conducted in hybrid format.

4.3 FIELD OF ACTION: SUPPORT FOR YOUNG FEMALE RESEARCHERS

Promoting women as young scientists in engineering increases the potential for innovation and progress. In addition, successful young female scientists are role models for other young women.

The following measures support the field of action:

4.3.1 Mentoring

Through a mentoring program aimed specifically at doctoral candidates and postdoctoral researchers, TUHH seeks to increase the proportion of female professors in the long term.

The program is directed toward women at the early stages of their academic careers who are interested in pursuing a future in science and who wish to develop their skills and knowledge through dialogue with experienced mentors.

The mentoring program includes regular meetings between mentees and mentors to discuss research results, career goals, and professional challenges. Participants are selected through an application process in which they outline their motivation for an academic career and their objectives for the program. A maximum of twenty mentees will be chosen on the basis of their motivation letters, academic background, and potential.
The program is coordinated by a dedicated office, which manages the matching process and provides mediation support if needed. It offers participants a valuable opportunity to learn from experienced female scientists, reflect on their own career paths, and continue developing within academia.

Monitoring will consider participation numbers, application figures, mentor engagement, and feedback gathered through structured interviews.

4.3.2 Spring School for Female Students Interested in Doctoral Studies

A three-day Spring School will be organized to reach TUHH students who are considering doctoral studies. Participants will receive information about the process of pursuing a PhD and reflect, with professional guidance, on whether a doctorate aligns with their personal and professional goals. The event will also address expectations and include panel discussions with invited speakers who share their own experiences of doctoral research and answer questions from participants.
The Spring School provides an opportunity for students to engage intensively with the topic of doctoral studies and gain a realistic picture of its challenges and opportunities. Evaluation will include the number of participants and how many later begin doctoral studies.

4.3.3 International Early-Career Female Researchers

A concept is to be developed to recruit female academics internationally, preferably in countries where the proportion of women on technical degree courses is high. The pilot project will be launched in the Deans of Studies for Mechanical Engineering and Electrical Engineering, Computer Science & Mathematics, as the proportion of women is particularly low here.

4.4 FIELD OF ACTION: INCREASING THE SHARE OF FEMALE STUDENTS

Increasing the proportion of female students in engineering can help to overcome stereotypes and prejudices against women in engineering.

technical professions. If more women are successful in this field, traditional gender roles and prejudices will be overcome and women's self-concept will be strengthened (Kriesi and Im- dorf 2019). This is because women are still underrepresented in STEM degree courses and there is also a general shortage of qualified specialists in the engineering sciences (cf. Bünning 2020, p.117).

The following measures contribute to increasing the proportion of female students:

4. 4.1 Mint:dual

The project mint:dual is intended to provide schoolgirls with an introduction to STEM fields and dual-study programs. The emphasis is on active, hands-on experience of technical professions in laboratories, workshops, and companies. The aim is for participants to reflect on what they experience and to translate it into concrete career intentions.
The project will be implemented in cooperation with the Hamburg Authority for Schools and Vocational Training, as well as with various initiatives and companies. Evaluation will focus on participation rates, frequency of events, and the range of opportunities offered.

4.4.2 Mint:youth club

This project involves the targeted and accessible provision of activities for children and young people within the framework of open youth work, both by TUHH and by other Hamburg-based partners. These include mobile experiments and extended project days where young people can explore technical professions outside of school obligations, at their own pace and interest level.

The spontaneity arises from the low-threshold nature of youth clubs, where children and young people can drop in unannounced during opening hours and take advantage of the offers on site, and this is also the potential that youth clubs offer for this form of TUHH offer. The project focuses on girls.

Possible metrics or key figures for controlling are Participation figures, frequency of events, number of offers.

4.4.3 "Girls' Technology Modules"

Learning modules will be developed specifically for schoolgirls to spark their interest in technology. The goal is to make these materials available to teachers across Germany, providing them with ready-to-use tools for classroom or extracurricular activities. The modules can be used in study groups or as part of substitute lessons and will enable girls to explore the diversity of engineering disciplines while establishing a direct link to TUHH.
It is planned that these modules will be distributed through digital platforms such as the digital.learning.lab or in cooperation with the Hamburg Open Online University. Monitoring will track the number of modules produced, the number of schools using the materials, and feedback collected through evaluation forms.

4.5 FIELD OF ACTION: APPOINTMENT PROCEDURE

The slight increase in the proportion of female professors is due not least to the systematic integration of gender equality into the appointment process and the initial sensitization of the appointment committees to the topic. However, the results from the study by Auspurg, Hinz and Schneck (2017) show that female scientists apply for positions less frequently than would have been expected based on their respective qualifications. The following measures therefore address the handling of gender equality in the appointment committee and active recruiting in order to increase the number of applications from women.

4.5.1 Gender Bias Training for Appointment Committees

TUHH will introduce mandatory gender bias training for all members of appointment committees. This training will be held regularly, with the aim of raising awareness of unconscious gender bias during selection and evaluation processes. Participants will learn how stereotypes can influence decisions and how to recognize and prevent such effects.
The training will be integrated into the university's appointment procedures and will take place before the first meeting of each committee. Evaluation will include the number of training sessions, participant feedback, and participation rates among committee members.

4.5.2 Active Recruitment

Active recruiting of female scientists should be anchored before the actual work of the appointment committee. Parallel to writing the dedication, research should be carried out into whether there are suitable candidates for the planned focus, especially young female academics. The personal contact of a professional member of the dedication committee must be documented. If there are not enough potential candidates, it should be checked whether the dedication can be adapted or broadened. The documentation of the potential candidates must be submitted to the AS together with the dedication.

Possible metrics or key figures for controlling are Number of women contacted during proactive recruiting, number of women who apply as a result, number of women contacted from the TUHH database

4.6 FIELD OF ACTION: VISIBILITY OF FEMALE SCIENTISTS

Increasing the visibility of female researchers helps to challenge stereotypes and demonstrate that women play an essential role in shaping science and innovation. TUHH aims to make its female scientists more visible both internally and externally through the following measures.

4.6.1 Social Media Campaigns

The measures implemented under the Women Professors Program are accompanied by a social media campaign. This campaign contributes to increasing the visibility of female scientists at TUHH. Appreciative and positive reporting helps to create role models who can inspire others.

The campaign will use a variety of formats to generate synergy effects and to address different target groups. These target groups are located both within the university—for example, TUHH students who can see local female scientists as role models—and outside the university, where the aim is to make women in science more visible to the general public.

The formats will combine factual information, such as presenting a professor's research field or reporting on research developments, with more personal and emotional content. These personal stories are intended to make science more relatable, particularly for women.
Possible indicators for monitoring and evaluation include the number of measures accompanied by media coverage and the overall reach achieved.

4.6.2 Touring Exhibition: "TUHH Women in Science"

The photo exhibition "TUHH Women in Science" illustrates working conditions and perspectives on scientific careers. The photo exhibition will be created in cooperation with the Alumni Association and will be conceived as a touring exhibition, which will start at the TUHH and could then travel across Hamburg institutions and the North German University network. The aim is to engage a well-known photographer who would like to make the topic of equality visible.

Possible metrics or key figures for controlling are Number of visitors to the exhibition, duration of the exhibition, number of locations

4.7 FIELD OF ACTION: ANCHORING EQUALITY

The concept of equality extends beyond merely increasing the proportion of women. It involves ongoing processes that reflect on and transform gender relations at multiple levels within the university. The following measures are designed to support this goal.

4.7.1 “Step Up” – Program to Strengthen the Equality Competence of All TUHH Members

Knowledge of gender equality is not an innate or exclusively “female” competence; it develops differently in women and men, and both may hold gender stereotypes that shape their perceptions and actions. For this reason, a program will be established for all university staff, regardless of gender, to raise awareness of equality-related issues and promote a broader understanding of fairness and justice.
The program will offer a range of event formats—from informal “coffee talks” to one-day workshops—designed to reach all TUHH members, taking into account their differing levels of prior knowledge and time availability.
Possible indicators for evaluation include the number of participants, the frequency of events, and feedback collected through participant questionnaires.

4.7.2 Overcoming the Perceived Conflict Between Excellence and Equality

At first glance, equality and best selection appear to be incompatible and point in different directions. Selection of the best represents the norm, while equality seems to mean a break with this norm (see Klammerer et al. 2019, p.37). There needs to be a discussion about expanding the current quality or excellence criteria, which are often historically tied to the male 'norm' and which do not apply to women to the same extent at the same career stage (e.g. family commitments vs. international mobility). Universities should be encouraged to reflect on the fact that performance is complex and is influenced by a variety of factors and should therefore not be viewed in isolation.

The TUHH will take into account the relevant national and international developments in this area, particularly at the DFG. The DFG has addressed the change in research assessment with the international Coalition for Advancing Research Assessment (CoARA). For example, when evaluating proposals, but also applications, the focus should be placed more on content and less on quantitative metrics such as the H-index.[12] In this way, the supposed contradiction between selecting the best and equality could be weakened (eliminated) and the focus could be directed towards so-called "integrative excellence" (Williams et al. 2005; Zippel et al. 2016).

Possible metrics or key figures for monitoring are number of participants, supplemented by structured interviews

4.8 FIELD OF ACTION: BINDING NATURE OF MEASURES

By agreeing on binding measures, clear goals and indicators are defined that serve as a benchmark for measuring progress. This enables a regular review of the effectiveness of the measures and targeted adjustments to ensure that the desired changes are actually achieved. At the TUHH, initial approaches to gender equality monitoring have been received extremely well and are seen as valuable support, rather than mere monitoring. It enables an honest look at the existing challenges and needs at

12 Source (22.08.2023): https://www.dfg.de/dfg_profil/internationale_zusammenarbeit/internationales_handeln/verbuende_organisationen/index.html

TUHH, which leads to increased transparency and creates acceptance for changes. This instrument allows the necessities of TUHH to be appropriately presented and explained internally.

4.8.1 Monitoring and Evaluation

The objectives of gender equality monitoring are to achieve the integration of functional gender monitoring mechanisms and thus enable the standardized recording of gender aspects and the systematic monitoring of gender equality measures. In order to achieve this, qualitative and quantitative key figures and metrics for gender equality monitoring are developed from the outset for all new measures launched here.

Gender equality monitoring will include the following elements:

- Data collection: Collection of gender-specific data in relevant areas such as staffing, students, leadership levels, appointments, promotions, and other personnel processes. This includes information on gender distribution, career paths, salaries, part-time rates, dropout rates, and study success.

- Metrics and indicators: Development and use of suitable indicators and metrics to measure and track progress toward gender equality. This includes calculating women's representation, gender pay gaps (particularly among professors), the proportion of women at specific career stages, and participation numbers in training sessions or other programs.

- Monitoring and evaluation: Regular monitoring and assessment of equality measures and goals. The collected data will be analyzed and evaluated to determine the effectiveness and impact of the measures. Feedback and evaluation mechanisms will also be implemented to incorporate the experiences and perspectives of those involved.

- Reporting: Preparation of regular reports or dashboards to communicate the outcomes of gender equality monitoring transparently. This includes both internal reporting and external reporting, for example to third-party funders and the BWFGB.

- Development and adjustment of measures: Based on insights gained through gender equality monitoring, additional suitable measures will be developed and implemented, or existing measures will be adapted as necessary.

4.8.2 Target and Performance Agreements with the Deaneries of Studies

To ensure that the measures become binding, target and performance agreements on gender equality will be concluded with the deaneries of studies. These agreements will formally anchor selected measures—such as 4.1.2, 4.1.4, 4.2.2, 4.3.3, 4.4.3, and 4.7.1—and make their implementation obligatory.

Possible indicators for monitoring and evaluation include the number of target and performance agreements concluded, the degree to which targets are achieved, and the frequency with which the agreements are updated.

5. Tabular Overview of Measures

In the following table, the measures defined in the TUHH Equality Plan 2022–2025 are shaded in grey. Measures that TUHH will implement in addition to these are marked in green, while those to be funded through the PP2030 program are highlighted in turquoise.

Responsibility for the individual measures is assigned to different actors within TUHH and is indicated in the table. Overall coordination lies with the Gender Equality Office to ensure that the various measures are aligned and implemented in a coherent manner.

MEASURES	RESPONSIBLE	COSTS	STATUS
Field of Action: Increasing the Share of Female Professors			
Plannable career paths for young female scientists	Vice-President Research	Cost-neutral	planned
Early career colloquia	Deaneries	Travel expenses	planned
Building an international network of female professors	Female professors at the TUHH	0.25 position to build database + travelling costs	planned
Reducing committee workload for female researchers	Deaneries, Presidential Board, Equal Opportunities Office	Teaching assignments, material resources, WiMi months	planned
The best for the TUHH -Lighthouse Professorship	Presidium	Financing from growth concept	planned
Coaching for female professors	Personnel development	3000 € per coaching	Additionally from PP2030

MEASURES	RESPONSIBLE	COSTS	STATUS
Field of Action: Reconciliation of Family and Work			
Reduction in teaching load when starting a family	Deaneries	1-2 semester teaching assignment	planned
Hybrid meetings outside core care hours	Deaneries	cost-neutral	planned
Continuation of the "family-friendly university" audit and implementation of the agreed measures	Family office	> 600,000 euros incl. daycare center conversion	Implementation ongoing
Contact mediation of qualified daycare options in emergency situations	Family office	cost-neutral	Implementation ongoing
Concept for contract extension for fixed-term (third-party funded), scientific staff	Equal Opportunities Unit	cost-neutral	planned
Flexibilization of working hours and place of work	Presidium	cost-neutral	implemented
Field of Action: Support for young female scientists			
Mentoring for doctoral candidates and postdocs.	Graduate Academy	0.5 position for coordination, development and implementation	Additionally from PP 2030
Spring School for female students interested in a doctorate	Graduate Academy	Included in mentoring position	Additionally from PP2030
International young female scientists	Deans of Studies, Equal Opportunities Office	Travel funds for job fairs	planned
Career development and networking opportunities for young female scientists	Graduate Academy Equal Opportunities Office	1.500,-€ per offer + coordination	implemented
Field of Action: Increasing the Number of Female Students			
mint:dual	School contacts	125.000,00 € (with cooperation partners)	planned
mint:youth club	School contacts	0.25 position+ Material resources	Additionally from PP2030
"Girls' technology units	Deans of Studies	Student assistant	Additionally from PP2030
Girls`Day, Roberta Project, MINT:pink, Girls-STEM-Camp, Girls for code - learning to program Python, MINT 4 Girls, (HH, S-H, NDS), female students as "role models" in schools,	School contacts	Student assistants + material resources	implemented
Increase in study programs in English	Vice-President Teaching	cost-neutral	Implementation ongoing
Mentoring for high school girls	School contacts, Equal Opportunities Office	0.25 position	Additionally from PP2030
Mentoring for female students	Equal Opportunities Unit	0.25 position	Additionally from PP2030

MEASURES	RESPONSIBLE	COSTS	STATUS
Field of Action: Appeal Proceedings			
Gender bias training for participants in appointment procedures	Presidium	1500€ per unit	planned
Active recruitment	Appointment committee	cost-neutral	planned
Field of Action: Visibility of Female Scientists			
Social media campaign to implement the measures	Public relations	0.25 position for implementation	Additionally from PP2030
Photo exhibition: TUHH Women in Science (with children)	Public relations	15.000€ (via foundation)	planned
Field of Action: Anchoring Equality			
"Step-up": Program to increase the gender equality competence of all TUHH members	Equal Opportunities Unit	100-1500 € per unit+ 0.2 position for coordination	Additionally from PP2030
Removing the contradiction between selecting the best and equality	Equal Opportunities Unit	500 - 1500€ per speaker	planned
Creation of a diversity concept	Equal Opportunities Unit	25,000 euros for the Diversity + audit Costs for measures	Implementation ongoing
Reorganization and expansion of gender equality work	Presidium	1.5 TVL 13 positions	implemented
Field of Action: Binding Nature of Measures			
Gender equality controlling	Academic Controlling, Equal Opportunities Office	student assistant	Implementation ongoing
Target and performance agreements with deaneries of studies	Presidium Dean of Studies	cost-neutral	planned
At least one woman is listed on 50% of the appointment lists	Presidium Chairmen of the Appeals Committees	cost-neutral	Implementation ongoing

6. Concluding Remarks

TUHH submitted a gender equality concept during the first phase of the Women Professors Program (PP1), which received a positive evaluation. However, during the program period no female professor could be recruited for a first-time appointment. For higher-education policy reasons and due to personnel constraints, TUHH did not participate in PP2 and PP3.

To ensure the sustainable advancement of gender equality for women and men at TUHH across all qualification levels and structural areas, the existing Gender Equality Concept (adopted by the Academic Senate on 23 March 2022) has been further developed. Because gender equality is a cross-cutting topic, an integrative strategy has been designed that is closely linked to the development of an equitable organizational culture and personnel policy.

The TUHH Executive Board has played an active role in this process and has demonstrated its commitment to gender equality since 2021. By participating in the Women Professors Program 2030, TUHH sends a clear signal both internally and externally that it is committed to actively promoting gender equality for women in academia.

This Gender Equality Concept for Parity, developed within the framework of the Women Professors Program 2030, was adopted by the Academic Senate on 23 August 2023.

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