

# NAVIGATING THE PERSONAL AND PROFESSIONAL

How University STEM Mentorship Programs  
support women in Austria and Germany

## 2024



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# WHO WE ARE

For more than seven decades, the Society of Women Engineers (SWE) has given women engineers a unique place and voice within the engineering industry. SWE values diversity, equity, and inclusion as essential to our mission. SWE believes in a world where equal opportunities and equitable outcomes exist for all.

## VISION

A world with gender parity and equality in engineering and technology.



## MISSION

Empower women to achieve their full potential in careers as engineers and leaders; expand the image of the engineering and technology professions as a positive force in improving the quality of life, and demonstrate the value of diversity and inclusion.

## OBJECTIVES

**Goal 1:** Professional excellence – SWE will develop women engineers at all stages of their personal and professional lives.

**Goal 2:** Globalization – SWE will be recognized as a global, inclusive organization that promotes diversity and inclusion and serves women engineers wherever they are.

**Goal 3:** Advocacy – SWE will advocate for the inclusion and success of women, both present and prospective, in engineering and technology.

**Goal 4:** SWE will champion diversity in the engineering and technology professions and promote an inclusive environment



# METHODOLOGY



## RESEARCH QUESTION

What are the key factors that contribute to the effectiveness of university STEM mentorship programs in promoting the advancement and success of women in engineering and technology fields within the specific contexts of Austria and Germany?

## PROBLEM

Research indicates a gap in evaluating STEM mentorship programs for women in German and Austrian educational settings

## AIM


To investigate the factors that make an impactful university STEM mentorship program for women, specifically within Austria and Germany

## RESEARCH GOALS

To identify distinctive themes and patterns within the collected data, allowing for the extraction of lessons learned, best practices, and evidence-based recommendations aimed at enhancing similar mentorship efforts on a global scale

## RESEARCH DESIGN

Semi-open ended online interviews for qualitative analysis. Four individuals were interviewed for this study, one from each case site.



Disclaimer: Everything described in this report represents SWE's authentic work and data. SWE used generative AI to assist with the first drafts of various portions of this report. The usage of generative AI was limited to 30% of the overall content creation. Segments that relied on generative AI were carefully reviewed and edited. This report's critical and confidential aspects, including data analysis, interviews, findings, and methodological decisions, were made independently of AI assistance.



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# SELECTED INTERVIEWEES

## **1** GENDER AND DIVERSITY MANAGER

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Helps shape and implement diversity-focused elements within the mentorship program at their institution. Expert in gender and diversity issues. Brings a perspective that greatly contributes to making the STEM mentorship programs for women inclusive and effective.

## **2** STEM GRADUATE STUDENT

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Graduate student from the Professionally Oriented Education Systems who now works as a mentor. Experience as a STEM graduate. Provides personalized insights for mentees pursuing academic paths, thereby enhancing the relevance and impact of the mentorship.

## **3** HEAD OF THE STEM MENTORING PROGRAM

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Plays a role in leading, coordinating, and overseeing the mentorship program. Provides an overview of the program's structure, goals, overall impact, successes, recommendations, challenges, and implications to ensure alignment with intended objectives.

## **4** NON-STEM PROJECT MANAGER

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Despite lacking a STEM background, the Non-STEM Project Manager contributes to diversity retention and performance within the STEM mentoring program at their institution. Offers insights into technical aspects of female STEM mentorship programs.



# CASE SITES

The research focused on mentorship initiatives implemented at university institutions in Austria and Germany.

## PROGRAM

1

### GERMANY

Supports female doctoral students & postdocs in science careers and leadership positions

## PROGRAM

2

### GERMANY

Helps female students in academic & professional development

## PROGRAM

3

### AUSTRIA

Encourages women in computer science, natural sciences, and technology

## PROGRAM

4

### GERMANY

Assists diverse women from non-academic backgrounds develop scientific & leadership skills

# CASE SITE MENTORSHIP OVERVIEW

“It's the effect of a reciprocal process... once you have benefited yourself, give it back and you become a mentor later.”

## 01. PROGRAM APPROACH

The program is aimed at empowering and assisting female doctoral students and postdocs in their scientific career pursuits. It offers opportunities for skill development, knowledge exchange, and networking with academic and research leaders. The program is dedicated to providing effective support to women in their journey toward leadership roles, with a focus on recognizing and fostering hidden potential.

## 02. STEM APPROACH

The program offers a range of components including training, mentoring, events, and an annual summer workshop. This comprehensive approach ensures holistic support for female scientists across various disciplines within the faculty. The overarching objective is to enhance the visibility of women in mathematics and science, inspire others, and promote diversity in these fields.

## 03. PROGRAM STRUCTURE & HIGHLIGHTS

**Events and Workshops:** Includes events such as virtual networking, workshops, and conferences on topics like success celebration, understanding professorship selection committees, and personal branding, encouraging interdisciplinary learning among natural scientists.

**Networking and Participation:** The program provides networking with university and research leaders and hosts events for research presentations and informal peer interaction, targeting female scientists in mathematics and natural sciences from advanced students to junior group leaders.

# CASE SITE INTERVIEW HIGHLIGHTS

1

## LESSONS LEARNED

It's not uncommon for mentees to participate in multiple rounds of mentoring to find the right fit

## BEST PRACTICES

Individualized mentor-mentee matching, setting clear goals for meetings, and encouraging active participation from mentees

2

3

## KEY RECOMMENDATIONS

- Additional mentoring programs to meet the growing interest in STEM
- Encouraging individuals to become mentors could increase participation
- Better marketing to promote mentoring programs



# CASE SITE MENTORSHIP OVERVIEW

*More marketing is important for the mentoring programs [to get that knowledge out there that such programs exist and are available].*

## 01. PROGRAM APPROACH

The program is designed with a research-informed approach and incorporates best practices to cater to the unique needs and challenges faced by women in STEM fields. Through regular gatherings, participants have the opportunity to network and collaborate, fostering a supportive community within the program.

## 02. STEM APPROACH

A comprehensive approach, addressing not only professional development but also personal growth, networking, and gender-specific challenges in the workplace. This holistic approach is especially valuable given the underrepresentation of women in STEM fields.

## 03. PROGRAM STRUCTURE & HIGHLIGHTS

**Mentorship and Personal Development:** Mentees are paired with mentors for one-year periods, meeting regularly for support in personal and professional decisions. The diverse training program covers topics like career planning and work-life balance, with practical job application training and feedback from partner companies.

**Events, Workshops, and Networking:** Networking is encouraged through joint events and interactions among mentors, mentees, and company representatives. Kick-off events feature ambassador panels with first-generation academics and students, connecting individuals from diverse backgrounds and inspiring confidence among mentees.

# CASE SITE INTERVIEW HIGHLIGHTS

# 1

## LESSONS LEARNED

Lack of commitment results in lost opportunities both for the unengaged mentee and for others who might have benefited from the program

## BEST PRACTICES

Matching mentors and mentees based on similar professional areas or fields of study is effective. It ensures relevance and mutual understanding in the mentorship relationship

# 2

# 3

## KEY RECOMMENDATIONS

- Motivation is crucial for both mentors and mentees.
- Regular meetings require a time commitment
- Mentoring relationships often get better with time.

# CASE SITE MENTORSHIP OVERVIEW

*In our approach, there's no higher hierarchy; we work together like a startup, where everyone is on the same page. Everyone, regardless of their technical expertise, can learn from one another.*

## 01. PROGRAM APPROACH

The program aims to address gender-related challenges and stereotypes by fostering a supportive environment for young women in STEM and offers opportunities for skill development, knowledge exchange, and networking with academic and research leaders. It is initiative-driven to address gender-related challenges and stereotypes by fostering a supportive environment for young women in STEM.

## 02. STEM APPROACH

The program prioritizes diversity and inclusion, welcoming people from all backgrounds, including women and minorities, to join STEM fields. Organizers seek to boost confidence and break stereotypes, encouraging them to become skilled problem solvers and critical thinkers. By showcasing real-life examples of successful women in STEM fields, the program encourages creative solutions and inspires participants to pursue STEM-related careers.

## 03. PROGRAM STRUCTURE & HIGHLIGHTS

**Events and Workshops:** Offers a variety of hands-on workshops, hands-on activities, and initiatives designed to inspire and empower women to explore and pursue rewarding careers in STEM fields. The program also features a role models exchange where young individuals can gain real-world insights into the lives and careers of successful female STEM professionals.

**Networking and Participation:** The program showcases inspiring examples of successful women in STEM fields, sparking creativity and fueling ambition in participants to pursue STEM careers. The program actively promotes diversity and inclusivity, ensuring a welcoming environment for individuals from all backgrounds, especially women and underrepresented minorities

# CASE SITE INTERVIEW HIGHLIGHTS

1

## LESSONS LEARNED

Building a network of like-minded individuals and collaborating with existing networks can help expand the program's reach

## BEST PRACTICES

Foster a collaborative and non-hierarchical environment within the program to promote equal participation and sharing of knowledge

2

3

## KEY RECOMMENDATIONS

- Keep the entry requirements minimal to encourage participation
- Encourage mentor-mentee pairs to learn from each other
- Collaborate with existing networks and initiatives

# CASE SITE MENTORSHIP OVERVIEW

“We want to connect, first of all, culture because you can have the best program but if the system is discriminative, it won't help.”

## 01. PROGRAM APPROACH

The program supports women with non-academic backgrounds, enhancing their digital, scientific and entrepreneurial leadership skills. It involves mentoring for personal growth and decision-making, networking events with keynotes on diversity and LGBTQIA+ topics, and workshops in coding, scientific creativity, and entrepreneurship

## 02. STEM APPROACH

The program seeks to empower individuals to become future startup founders, scientists, or leaders, thereby bolstering innovation in science, business, and society. It includes workshops in coding and scientific creativity, aiming to empower women in STEM and promote their presence in leadership roles. Mentors are seen as role models at eye level – explaining things in a simple and clear way.

## 03. PROGRAM STRUCTURE & HIGHLIGHTS

**Events and Workshops:** Workshops focus on various skills such as coding, creative scientific work, and entrepreneurship essentials. They are open to all - not just those in the mentoring program. Seeks to foster a sense of belonging and creates a platform for knowledge exchange, contributing to personal growth, enhanced performance, and a stronger community

**Networking and Participation:** The program provides regular networking events featuring keynotes from diverse experts, including those with backgrounds in diversity, equity, inclusion, LGBTQIA+, and first-generation academics. Workshops aim to bridge the gap in digital knowledge, scientific thinking, and startup development, especially for women and people from non-academic backgrounds.

# CASE SITE INTERVIEW HIGHLIGHTS

# 1

## LESSONS LEARNED

Establishing peer networks alongside mentor relationships is important for building a supportive community

## BEST PRACTICES

Regular assessments of the program's effectiveness and adjustments based on feedback are important, including incorporating ambassadors/spokespersons to advocate and raise awareness

# 2

# 3

## KEY RECOMMENDATIONS

- Emphasis on inclusivity is critical
- Align the program with a broader cultural change within institutions
- Aligning mentors and mentees based on shared interests and goals

# Best Practices & Recommendations

## Adaptability, Commitment & Inclusive Collaboration

- 1**
  - **Stay Flexible and Committed:** Be adaptable and dedicated to inclusive mentorship in STEM.
  - **Reduce Entry Requirements and Foster Collaboration:** Reduce entry requirements to encourage participation and foster a collaborative network without hierarchical structures.
  - **Try Different Approaches:** Use workshops and coaching sessions for inclusive mentorship. Learn from successful practices at other universities.

## Institutional Support and Leadership Involvement

- 2**
  - **Tailored Supports.** Success is influenced by institutional support and leadership involvement, including allocating resources, involving faculty members as mentors or advisors, and expanding the program's reach and scalability by collaborating with institutions.

## Reciprocal Mentorship

- 3**
  - **Build Lasting Relationships & Networks.** Key experiences that are shared foster a reciprocal mentorship process. Highlight the importance of giving back after mentorship by encouraging participants to become mentors later on.
  - **Work Together.** Create an inclusive, collaborative environment to encourage equal participation and the sharing of knowledge. Establishing peer networks alongside mentor relationships is crucial for nurturing a supportive community and fostering collaboration.

## Personalized Mentor-Mentee Matching

- 4**
  - **Personalized connections:** Matching mentors and mentees based on their interests, goals, and backgrounds were found to be highly effective in fostering relationships. By considering specific interests and career goals, rather than taking a generic approach, mentor-mentee matching can build more meaningful connections and enhance the effectiveness of the mentorship relationship and process.

## Building Awareness & Outreach

- 5**
  - **Strong Leadership and Collaboration Drive Success.** Effective leadership and ongoing institutional support are critical for program success. Regular assessments, driven by mentee feedback, allow for continuous improvement and ensure the program meets evolving needs. Building a network of like-minded individuals and leveraging existing networks significantly expands program reach and raises awareness of these valuable opportunities.



# LIMITATIONS

This study focused on STEM mentoring programs for women in two European countries. The researchers encountered some difficulty engaging with universities in Germany and Austria due to the researchers being based in the United States, including distrust and uncertainty, which impacted the scope of the study and potentially skewed the findings towards a more localized perspective. Despite continuous efforts to engage with various universities, researchers experienced a low response rate which affected the representativeness of the study and limited the conclusions reached about STEM mentorship initiatives in these countries. The study's focus on Austria and Germany, with their unique cultural, educational, and socio-economic contexts, restricts the generalizability of findings to other regions, highlighting the need for caution in applying conclusions beyond these specific contexts. The interviews conducted for this study may not encompass the full range of experiences and perspectives within the STEM communities in Austria and Europe, reducing the comprehensiveness of insights despite the qualitative approach used.



# ACKNOWLEDGEMENTS

SWE extends its deepest gratitude to all those who generously participated in our interviews. Their candid insights and shared experiences have provided invaluable research-informed lessons, best practices, and recommendations to advance the development of impactful women-focused STEM mentorship programs on an international scale, further aligning with SWE's goals, mission, and vision.



iMPROVE  
DEVELOP  
TRAINING  
MOTIVATE  
COACHING  
iNSPIRE



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