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Women Stem-up

Train the trainer resources for WomenSTEM Up for Good Programme

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LINKÖPING UNIVERSITY

UNIVERSITY OF THESSALY

STIMMULI for social change

NTNU Norwegian University of Science and Technology

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TOT Learning Objective

Objective: to provide trainers and mentors with all the necessary information to successfully deliver one or more parts of the Women STEM UP for GOOD Program. Trainers will learn about:

✓ Women STEM UP for GOOD Program concept and principles.

✓ the main skill sets that trainers & participants will exercise during a WSU for GOOD Program.

✓ practical information on delivering the sessions.

✓ tips on how to carry out the Women STEM UP for GOOD Program virtually.

✓ suggestions for community-building activities.

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Introduction – WSU GOOD Program

Objective:

To boost women's passion for STEM by assisting female students to explore and understand different aspects of their fields, such as the potential for **creativity** in STEM through the E-STEAM approach. The E-STEAM approach provides a holistic educational framework in which STEM is powered by **Entrepreneurship** and **Arts**.

The Program:

- based on a curriculum of 20 workshops.
- to be delivered through online workshops and campfire sessions (online or in presence) between May and June 2025
- leading into an international 3-day hackathon that will bring together university students and staff from all partner organizations, in September 2025

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WSU for GOOD Programme framework

The E-STEAM approach is the focus,which is why we are incorporating Arts and Entrepreneurship in this curriculum.

Framework:
The program curriculum was built including some of the recognized standards in competency development:

- EntreComp
- DigiComp (now updated to DigComp 2.2)

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DigComp2.2

The Digital Competence Framework for Citizens -DigComp provides a common framework to assist European citizens and workforce in self-evaluating their skills, setting learning goals, identifying training opportunities, and reaching more and better career opportunities.

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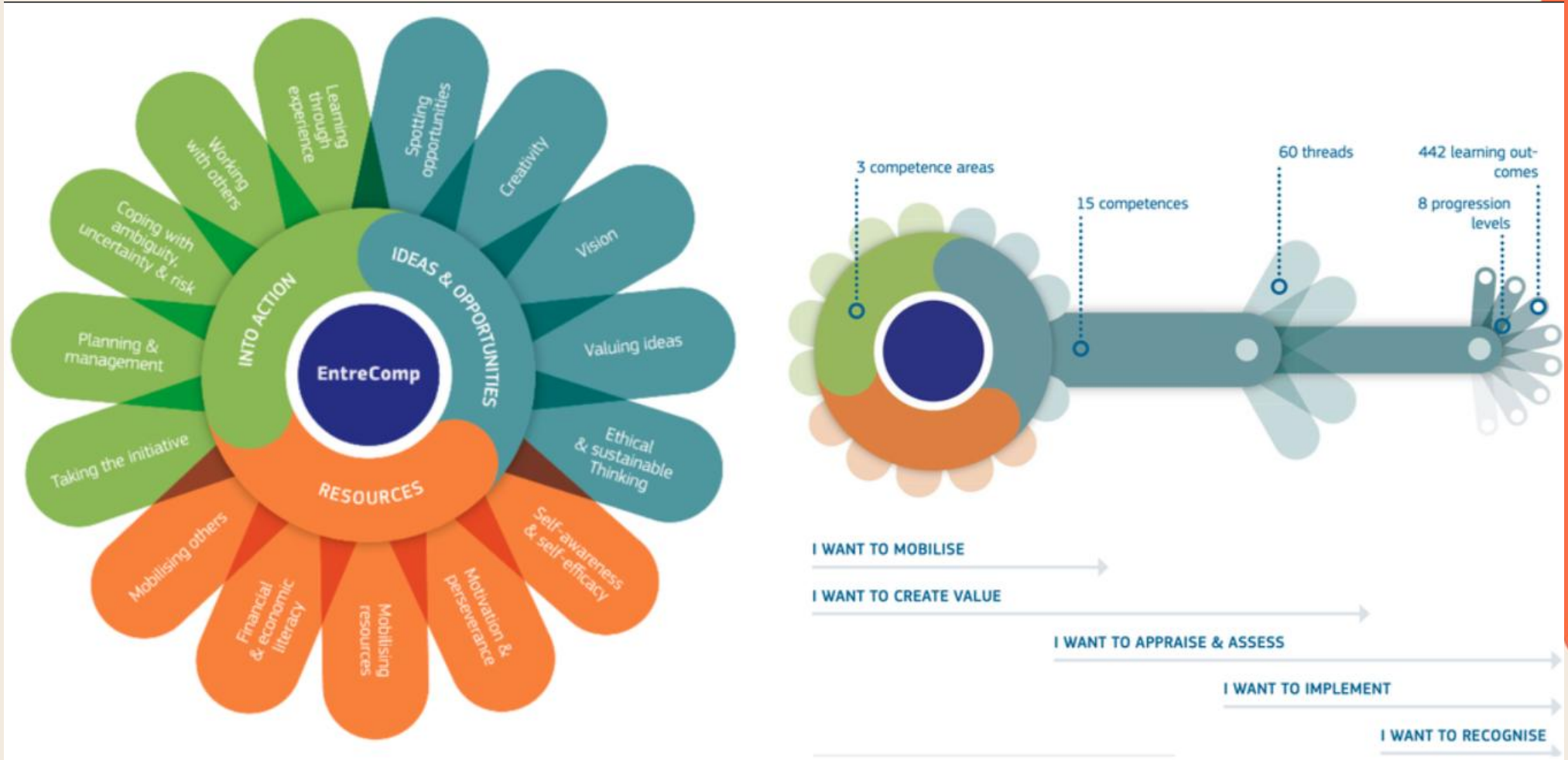
EntreComp-The entrepreneurship competence framework



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WSU for GOOD Programme: Principles & concepts

Programme is guided by the following principles:

✓ **Gender-Aware**: the program is tackling challenges impacting women and addressing gender equality issues;

✓ **Creative & entrepreneurial**: the program extends students' STEM skills to include entrepreneurship and creativity;

✓ **Practical & result-oriented**: Challenge-based learning activities, promoting hands-on, result-oriented skill development

✓ **Socially oriented**: the outputs are projects/ ideas that are addressing social challenges and with a clear societal impact, helping to co-create "Tech for Good" future projects

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Addressed skills - students:

Entrepreneurial Mindset: transform ideas and opportunities into shared value. Entrepreneurship as a key competency refers less to skills for starting and growing a business and more to "**mindset**" – the psychological and behavioural traits (e.g., creative thinking, problem solving, opportunity-seeking and risk assessment) typically associated with the entrepreneurial character.

Digital Competence: basis for global competitiveness; key for successful transition into the labour market as well as for the ability to safely socialize and engage online; enabling to use and **understand** technology, search for and manage information, create and share content, collaborate, communicate, build knowledge, and solve problems safely, critically and ethically.

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Addressed skills - students:

Gender Dimension: focus on how to better **contribute** to gender equality, by breaking down existing stereotypes. Many aspects of STEM can have a gender dimension: the causes, the impacts, as well as the solutions or products can have different effects on women and men.

***Social Awareness/ Social Innovation*:** creation and implementation of new ideas, practices, and solutions (problem solving) aimed at addressing social and environmental challenges in society. By developing the social innovation skills of women, we can equip them with the ability to identify and address these challenges in creative and innovative ways.

- **AI**: issues that have been created in a highly influential field dominated by one gender
- **Sustainable cities**: reimagine what living in a city could be like when all needs are considered and explored how new smart technology can enable this.

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Skills to be used by trainers:

•**Empathy**: understand the unique challenges that women face, including issues related to gender, culture, and identity. Build trust and create a safe and supportive learning environment.
•**Cultural understanding**: This involves understanding the diverse cultural backgrounds of women and being able to create an inclusive learning environment that respects and values these differences. Facilitators must be aware of their own cultural biases and be able to create a learning environment that is sensitive to the needs of all.
•**Communication skill**s: communicate effectively and clearly. This includes actively listening to participants, providing feedback, and asking thoughtful questions that encourage deeper reflection and learning.
•**Leadership skills**: lead and guide participants through the learning activities, while also fostering a sense of community and collaboration. This includes providing direction and structure, as well as empowering participants to take ownership of their own learning and development.

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Skills to be used by trainers

•**Listening**: Focus your mind and listen carefully. Maintain eye contact. Keep looking at the person speaking even if they are not looking at you. Convey acceptance and empathy with body language.
•**Engagement**: Ask questions that are open-ended that invite participation and not those that call for yes and no responses. Examples are: “Would anyone else like to add something to this point?”; “Is there anything else you want to say about this?”
•**Observing**: Watch the group attentively. What is the body language of the participants saying? Are they absorbed or losing interest? Make eye contact with the person who is waiting to speak, to acknowledge.
•**Conflict resolution**: Catch conflicts early. You might need to stop the workshop process to deal with it. On sensitive issues, begin with sharing personal experiences rather than opinions. Work with the participants to create processes to address the conflicts. Enable the arguing sides to present their views and to listen to each other.

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Curriculum Design

This program consists of 20 interactive workshops (45 min to one hour each) across four general topics:

1. Topic 1: Gender in STEM
2. Topic 2: Building a STEM start-up
3. Topic 3: Gender-Inclusive AI
4. Topic 4: Designing Sustainable & Inclusive Cities

Each topic has 5 sessions that blend learning with hands-on activities.

Students are free to participate to all or one topic, but within the topic they are strongly invited to follow all 5 sessions.

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Curriculum Design

- Introduction
- Topic presentation
- Brainstorming & ideation
- Hands-on practice & work in teams
- Solution presentation/ final discussion/ feedback

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Topic 1 - Gender & STEM

1. **Understanding Gender Bias** : Examining the societal and institutional barriers that women face in STEM and how to navigate them with confidence and resilience.
2. **Gender Aware Mindset:** the participants will discover how to cultivate a gender aware mindset as an essential foundation to inclusivity and equity in STEM
3. **Empathy for inclusion & social impact:** Using empathy-based methodologies as a foundation for developing solutions to social problems and contributing to gender equality.
4. **Design Thinking for Gender-Inclusive Solutions**: Applying design thinking principles to create products and services that address the needs of women and marginalized groups, particularly in environmental and tech industries, that could result in building gender-neutral STEM products.
5. **Hands-on project**: Choose a gender issue they've experienced in STEM and, in small groups, propose a solution based on the learnings from above.

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Topic 2 - Building a STEM Startup

1. **From Idea to Action: Turning STEM Innovations into Startups**: Exploring how to transform STEM knowledge into entrepreneurial ventures, learning to navigate challenges such as funding, market research, and scaling. This module will include:
    - **What problem do you want to solve?** Students will propose ideas, then form small teams of 2-3 around those ideas (hackathon-style).
    - **Confidence and Risk-Taking for Female Entrepreneurs**: Practical exercises focus on managing fear of failure, confronting imposter syndrome and overcoming self-doubt.
2. **Designing for Social Good**: Using design thinking and the E-STEAM approach to create products and services that prioritize social impact, accessibility, and community well-being.
3. **Business models and funding strategies**: students will learn about different business models and funding strategies, then apply those to their STEM startup idea.
4. **Storytelling and Marketing for STEM startups**: digital marketing, visual creation, storytelling and create a marketing plan for their startup idea.
5. **Pitching your STEM startup:** Techniques for crafting a compelling pitch to investors and stakeholders. Inspiring role model stories:
    - Women as Role Models in STEM Entrepreneurship to provide extra resources and strategies for women to become entrepreneurs in the STEM space.

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Topic 3 - Gender-Inclusive AI

1. **Understanding Bias in AI & Data:** In this introduction, we'll look at how AI systems become biased, and review case studies on this. What issues does this cause when it happens? How do we identify bias?
2. **Building Ethical & Inclusive AI:** In the second session, we'll discuss the principles of responsible AI development and inclusive data collection and model training. We'll then get hands-on by developing an AI model with diverse training data.
3. **AI for Social Good**: We'll explore how AI is being used to make our world a better place through case studies on AI in healthcare, education, and climate action. In small teams, students will design an AI-driven social impact project
4. **AI for Social Good (cont'd):** Students will continue their design and then present to the group.
5. **Future of AI & Inclusive Innovation:** In the final session, we'll discuss emerging trends in AI and gender inclusivity. Students will create an AI policy framework for inclusivity.

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Topic 4 – Designing Sustainable & Inclusive Cities

1. **Principles of Sustainable & Inclusive Urban Design:** In this intro, we'll discuss what makes a city sustainable and inclusive. We'll review case studies of urban design innovations and do an urban mapping exercise.
2. **Gender-Responsive Urban Design:** We'll discuss how cities impact different genders and create a gender-inclusive city blueprint with public spaces that consider safety, mobility, and engagement.
3. **Smart Cities & Technology for Sustainability:** This subtopic will go into AI, IoT, and big data for city management. In small groups, students will propose and outline smart city solutions addressing sustainability.
4. **Circular Economy in Urban Design:** Through case studies on waste reduction, sustainable construction, and urban recycling, we'll explore how circular economy principles apply to city planning
5. **Sustainable Infrastructure & Public Policy**: Here, we'll discuss policy approaches for urban sustainability and draft a sustainability action plan for urban development.

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General session structure

How to deliver a session:

- Each session includes a mix of theory (20 min) and hands-on activities (30-40 min), composed of a group's activity and discussion:
  - Theory (15 min)
  - Explanation of a practical exercise or challenge to solve (5-10 min)
  - Work in small groups (20 min)
  - General discussion & sharing or the exercise outputs (10-15 min)
- Hands-on activities are designed to be interactive, using real-world data and tools.
- Sessions can be adjusted to fit the 45 min to 1 hour format, depending also on the number of participants (i.e., more time for discussion).

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Tips for delivering WSU for GOOD sessions online

- Select a suitable and safe **web** space.
- Make sure all participants – including guest speakers – are well informed on how to **access** the virtual event.
- Have a brief **info session** on how to use the different functionalities of the online platform at the beginning of the session.
- Make all the **materials** to be used during the event available to be downloaded online.
- Add different online **tools** to support project work and make your event more interactive.
- If possible, involve **facilitators** for the project work in groups.
- Create a positive atmosphere and **engage** creatively the participants:
- Be **flexible** and calm over potential obstacles:
- Keep things **fun**:
- Manage **time** in a smart way:
- Build **trust** and good mood among participants with icebreakers and warm-up activities

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Start and end

Start: use **icebreakers** to create bonding and connection**.** It is a way to break the ice and get the discussion flowing between the participants.

End: **Evaluation** & assessment- questionnaires can help to identify strengths and weaknesses in a program or event.

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Timeline

- April 23: TOT – DLI
- April 30: partners choose 5 sessions to deliver/ mentors they choose any session they want to deliver – ALL (sessions can be done online or in presence)
- April 30: times and platforms/links for registration must be chosen (and communicated to all partners) – ALL
- May 1: marketing/ open call begins to students – UoT, ALL
- May 1 - July 31: sessions run - ALL

Overall coordination of the above activities - Stimmuli

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Questions?

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Thank You

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