

# Solar Energy Technology Training (SETechTra) Module for STEM Undergraduates

Erasmus+ Project No: 2020-1-UK01-KA203-079236

SETechTra project Newsletter#5 - February 2023



## Facts about the Norwegian University of Science and Technology (NTNU)



Largest University in Norway:

42 000 Students

9 000 Total employees

400 PhDs/year

Campuses at:

-Trondheim

-Ålesund



-Gjøvik



[www.ntnu.edu](http://www.ntnu.edu)



## NTNU Energy Team Solar

Energy is one of the four strategic research areas at NTNU. Within Energy, NTNU has established several teams including Team Solar, Team Wind, Team Hydrogen, Team Battery etc. NTNU Energy Team Solar consists of solar energy experts from different disciplines, departments, and faculties at NTNU that work along the whole value chain of solar energy, from basic research to end use. The team provides a platform to share research and experiences across disciplines, fostering collaboration and promote joint new initiatives. In addition, it is an entry point for everyone who would like to get into contact with NTNU researchers and teaching personnel in the area of solar energy. Main research topics:

- Solar cell physics and materials
- Solar cell technology
- Architectural integration of solar cells on buildings and infrastructure
- Integration of photovoltaic systems in the energy system
- Solar energy potential in Nordic conditions
- Digital solar electricity

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## NTNU PV systems installations

NTNU has several campus buildings with PV installation. At NTNU campus Gjøvik, there is one building with roof mounted PV: Smaragd building with 280 modules and installed capacity of 92 kW (estimated annual production of 70 MWh).



(a)



(b)

Photo: Fredrik E. Abrahamsen /NTNU

At NTNU Trondheim, there is Zero Emission Laboratory where over 700 solar PVs are installed on the facade



## SETechTra Women in Science and Engineering Mentoring programme: Interview with Mentees



**Taija Seppälä, Researcher and project manager at SAMK, Finland**

Photo taken by Veera Korhonen

### Q1 Tell us a little about yourself and your links with the SETechTra project

I'm an energy and environmental engineer from Finland. I'm currently working at Satakunta University of Applied Sciences (SAMK) as a researcher and project manager in climate and environmental projects. I joined the SETechTra mentoring programme because, my Manager, Meri Olenius who was working on the SETechTra project suggested it to me.

### Q2. Tell us about your experience as a mentee on this programme.

I have been really enjoying the programme. My mentor is so supportive and encouraging and I feel that I have gotten just the push and confidence boost from her that I needed. I have learned to trust myself and to first make a good plan and then just go for it.

### Q3. Final thoughts

I feel like this mentoring programme is a huge thing for my career development as I'm getting the encouragement that I needed. Also, it is awesome to get to network with professionals internationally.

## Inspiring pupils to study STEM and renewable energy related subjects at university level

### School pupil's visits SAMK, Fall 2022

Group of 9th grade pupils visited Satakunta University of Applied Sciences (SAMK) 30<sup>th</sup> November 2022. Student came from Kokemäen yhteiskoulu which is elementary school for classes 6-9. There were 17 students and three staff members. SAMK team presented them SAMK's solar electricity research system and told basics of solar energy. There was general information about solar battery systems and tracking systems as well as solar thermal systems. The design and installation of solar PV systems were also explained using pictures taken during the installation of SAMK Solar PV & Technology Training System (see sample photos below).

SAMK has small solar exhibition for showcasing different technologies, panels and collectors. Pupils showed great interest in solar energy and ask plenty of questions. The excellent feedback from pupils and their teachers evidenced this interest and their satisfaction with the event.



### School pupil's visits NTNU, Fall 2022

On the Open Day of November 2<sup>nd</sup> 2022, approximately 300 final-year high school students from Innland county visited Norges Teknisk-Naturvitenskapelige Universitet (NTNU) campus Gjøvik... The students were acquainted with the academic programs offered by NTNU Gjøvik and gained valuable insights into the learning experience. Student representatives from the different bachelor programs including bachelor in renewable energy engineering at NTNU Gjøvik held presentations for the pupils and to inspire them. During the event, these representatives shared their experience as a student at NTNU Gjøvik campus, and general tips about choosing an education and student life and to succeed.



Photo: Marie G. Tollefsen/NTNU

During this event, pupils had the opportunity to ask questions via digital platform and they were also given a tour of the laboratory in the Smaragd building. They were involved in different activities including a short introduction to solar energy (Solar PV and solar collector) from materials to installation and their impact on the world in contributing to targeting the net zero agenda.



## SETechTra Women in Science and Engineering Mentoring programme: Interview with Mentees (Continued)



**Henna Puromäki, Part time Student at LUT  
Part time Researcher at SAMK, Finland**



**Lynda Koffi, Graduate Engineer at TotalEnergies, France**

### **Q1 Tell us a little about yourself and your links with the SETechTra project**

I am engineer living in Pori, Finland with a Bachelors' degree in energy and environmental engineering obtained in 2019 from Satakunta University of Applied Sciences (SAMK). I am currently writing my master's thesis in energy technology at Lappeenranta-Lahti University of Technology (LUT). My previous working experience consists mostly of positions in the energy industry and now I am working at SAMK as a project researcher on Canemure (Towards Carbon Neutral Municipalities and Regions) project. Through my current job at SAMK I was offered an opportunity to attend this mentoring program with Dr Fideline Tchuenbou-Magaia.

### **Q2. Tell us about your experience as a mentee on this programme.**

I enjoy the conversations during the meetings as much as I enjoy preparations for the meetings with my mentor. In the preparations I usually have some things we have discussed in the previous meeting, and I work on those and get a good chance to think of my own professional development and my future wishes. I have found it very useful to take this time to sit down and think and talk about my career in technology and what are my goals for the future.

### **Q3. Final thoughts**

My main goal in participating in this program was to be able to broaden my views of possible career paths and get advice on how to proceed on my own goals and dreams. The programme has really helped me to visualise my own goals and future career, and to take the first steps towards achieving those goals! I am pleased with the outcomes so far.

### **Q1 Tell us a little about yourself and your links with the SETechTra project**

I am a chemical and energy engineer specialised in energy economics. After obtaining a BEng in Chemical Engineering from the University of Wolverhampton (UoW), my increasing interest in energy and climate-related issues led me to study MSc Chemical Engineering and Energy at the University of Birmingham and MSc Energy Economics at the University of Grenoble. I am currently working in the OneTech branch of TotalEnergies as a graduate engineer. I was approached by Dr. Fideline Tchuenbou Magaia, the SETechTra project, Coordinator, who was my academic tutor during my time at UoW, with whom I am still in contact. We discussed the SETechTra mentoring initiative and I decided to join as a mentee and mentor.

### **Q2. Tell us about your experience as a mentee on this programme.**

As a mentee on the SeTechTra programme, I am thoroughly enjoying the opportunity to learn from an experienced mentor in the energy sector. The meetings with my mentor have been particularly useful in helping me better understand the technical and commercial aspects of the energy sector as well as the different career pathways I could take. I have also had the opportunity to attend conferences, which have given me a broader perspective on the sector and its potential.

The most memorable thing I have learned so far is the importance of collaboration and innovation in the renewable energy sector. It has been inspiring to see how different companies and organizations are working together to develop innovative solutions to the challenges facing by the industry.

### **Q3. Final thoughts**

As a fresh graduate, I believe that being able to learn from an experienced mentor, especially a woman, working in the same field as me is invaluable. Such an initiative helps develop a deeper understanding of the different roles and opportunities available in the renewable energy sector, which is very important for a young graduate still thinking about how to shape their career. I realised that the SETechTra programme has the potential of having a significant impact on both mentees and mentors personal and professional development, as any mentorship programme. In my opinion, on the one hand, my mentor acts as a kind of enlightener for me and provides me with the guidance and support needed to kickstart my career while also helping to enhance my confidence. On the other hand, as a mentee, I could provide my mentor with a genuine and fresh perspective on renewable/solar energy topics, encourage her to examine the status quo and alternative possibilities. It must be a win-win relationship for it to work.