# Siemens Professional Education (SPE) goes Green Skills

**CEDEFOP** 

October 2021

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- Siemens Professional Education (SPE) and Siemens Sustainability framework
- Strategic innovation approach ensures green skills curriculum
- Fast and agile implementation of sustainability education project
- 4 Conclusion



## We provide training for more than 6,800¹ young talents worldwide with a total investment of €159' p.a.



As of September 2020

1 Therein: 890 learners for external partner and 1,648 learners for Strategic Companies (Mobility:1,097 | SHS: 551)

## Siemens DEGREE framework sets clear priorities for Sustainability at Siemens and must be operationalized into apprenticeship curriculum

## **D**ecarbonization

support the 1.5° C target to fight global warming

## thics

foster a culture of trust, adhere to ethical standards and handle data with care

## Governance

apply state-of-the-art systems for effective and responsible business conduct

## Resource efficiency

achieve circularity and dematerialization

## quity

foster diversity, inclusion, and community development to create a sense of belonging

## mployability

enable our people to stay resilient and relevant in a permanently changing environment



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## VET roadmap to include yearly updates of green skills topics embedded in continuous enhancement of IoT themes

FY21 FY231

## Curriculum successfully enhanced:

- Cyber Security
- IoT, Industrial Edge
- Simulation and Digital Twin
- Low Coding
- · Sustainability & Circularity





## Initiatives to enhance curriculum:

- Mobile Robotics, Driverless Transport Systems
- Open Ecosystems & Digital Business Models
- Open Source Software & Re-use
- Decentralized & Alternative Energy and Storage





#### **Candidates for Initiatives:**

- Blockchain Applications for Industry
- Predictive Maintenance incl. Serviceability
- Zero Coding
- Autonomous Robotics
- Retrofit and Shortage of Resources, Disassembly







USE CASE BASED DATA ANALYTICS & ARTIFICIAL INTELLIGENCE

1 FY23: Topics for continuous curriculum development

### Affected apprenticeships and dual study programs at Siemens

## INDEPENDENT OF PROFESSION (ALL FACULTIES):

→ Motivation, facts and knowledge

### **Basics**

- Serious games for sustainability & circular economy
- EHS continuous & integrated (Environment – Health – Safety)
- Mandatory trainings & Digital learning programs

#### **DEPENDENT OF PROFESSION (PER FACULTY):**

→ Experiences in application, transfer & practice to the business



#### **Electrical/Automation/Mechatronic Technology**

E.g., dual students in B. Eng./B.Sc. in Electrical Engineering or apprentice in Electronics/Mechatronics)

- Projects in energy efficiency, smart metering (e.g. ISO 50001)
- PLM¹ & how to work with digital twins



#### **Information Technology**

E.g., dual students in B. Sc. in Information Technology or apprentice in Information Technology)

- Green IT, IT solutions for minimizing ecological footprint
- Sustainable programming



#### **Business Administration**

E.g., dual students in B. A. in Business Administration or apprentice in Business Digitalization

- Stakeholder requirement engineering/risk management
- Tools & methods for material flow analysis, ESG<sup>2</sup> Radar

### Affected apprenticeships and dual study programs at Siemens

At Siemens we strive to make every employee and each apprentice aware of climate protection goals serving business and society, while fostering basic understanding, self-reflexion and business understanding of sustainability along the entire value-chain.

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### **Sustainability and Circular Economy**

High prior Trend card at SPE Trend Radar 2019

## The starting point for green skills training development



#### **RELATED TRENDS**

#### **Education Environment**

Generalist & flexible multiple Specialization

#### Work

Distributed Energy Systems

#### **Business**

Predictive Maintenance

#### Work Environment

Interdisciplinary Collaboration & external Networks

#### **Business**

Systems

Customer Value Co-Creation

**Work Environment** 

**Understanding of Complex** 

#### Business Retrofit and

Retrofit and Shortage of Resources

#### TREND DETAILS

#### **Description**

**Technology** 

**Business** 

Sustainability and circular economy/solutions is a highly prioritized trend mentioned by the majority of external and internal interviewees in all branches in 2019

#### **Examples**

- Energy: Power to Gas to Power incl. use of renewables to power electrolyzer
- Communication industry: Re-use of rare raw materials to save supply cost

#### **Strategic Relevance**

- Customer ask for sustainable (CO2 consumption free) solutions
- · High on the agenda of international regulation

#### **Key Facts**

- High Availability Risk for >100 Raw Materials (VDMA, 2019)
- Increase of international waste is rising by 70 % until 2050 (VDMA, 2019)
- Need for reduction of CO<sub>2</sub> consumption (parisian climate agreement, 2015)

## Technology and business competency assignment to green skills in multi level hierarchy allow for a differentiated VET portfolio



### **Project Sustainability & Circular Economy**

Innovative formats including project design, gamification and interactive elements to motivate apprentices, thereby contributing to enhanced mindset at participants

#### **Climate change**



https://www.vdma.org/future-business, Mechanical and Plant Engineering, restricted area for VDMA members only, Trendradar 2019 https://www.un.org/en/climatechange/paris-agreement

#### **Planned VET activities**

- Pilot run with a learning group in Regensburg, Austria and Switzerland in June 2021
- Subsequent improvements and finalization of the learning concept
- Rollout of the learning as basis project (2 – 3 days) for all SPE learning groups starting in September 2021 for all occupations

## Further implementation options

Adaptation and adjustment for other learning groups: E.g., blue collar learners



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### Conclusion for fast implementation of green skills

Reach a broad range of young talents rather than deep-dive for individual occupations

Apprentices to know the connections between greenhouse gas emissions, climate change and energy and resource efficiency.

create awareness for the dimensions of sustainability and how these are lived and addressed at Siemens.

VET Learning to



VET Learning to create an understanding of one's own contribution and possibilities for exerting influence in relation to sustainability.



**VET Learning to** motivate apprentices (and other learners withing Siemens) to reflect and advance the topics in their daily work and with the customer in relation to sustainability.



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# Contact

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