**Satakunta University of Applied Sciences**

Training Brochure

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**Digital Twins**

Title:

Digital Twins in Smart Manufacturing

Description:

A digital twin is a virtual simulation model created from a machine, robotic cell or manufacturing line that can mimic the use and behavior of a real life machine, robot cell or manufacturing line. A digital twin simulates the operating environment and all the manufacturing processes as realistically as needed. One of the main purposes of digital twins is that they can be used to simulate the operation of a manufacturing process before any of the equipment have been even purchased. With digital twins, different layouts and manufacturing processes can be easily tested in order to eliminate or reduce costly physical prototypes. This is not only cost-effective, but also risk-free.

Digital twins enable faster automation project development, thorough logic sequence and timing verification. They give possibilities for effective and non-disruptive off-site user training. The use of digital twins in industry is growing enormously. The benefits of a digital twin have been noticed, and grasping the idea behind digital twins is very important.

This training gives you a look on what digital twins are, how they are already used in industry and how they can improve development of smart manufacturing without interruptions.

Training dates:

08.02.2021 – 12.02.2021

Duration:

Online webinars/workshops ([link to Teams](https://teams.microsoft.com/l/meetup-join/19%3ameeting_ZDJkZjMwYWItYWU1OS00ZWNmLWJmZWItM2JhMzIxZDRjZmY1%40thread.v2/0?context=%7b%22Tid%22%3a%22505baed7-dce1-4559-a839-157d16fffe6f%22%2c%22Oid%22%3a%22942da570-76db-4e5b-8bc4-43d76002bb3f%22%7d)) on:

1. Monday 08.02. at 2 pm – 4 pm (CET)
2. Wednesday 10.02. at 2 pm – 4 pm (CET)
3. Friday 12.02. at 2 pm – 4 pm (CET)

Inquiry-based learning assessments on:

1. Tuesday 09.02.
2. Thursday 11.02.

Location:

Teams + Web

Price:

Free

Software used:

Teams

Learning objectives:

Learning outcomes of this training

* Understand the possibilities of a digital twin
* Start thinking of the factory of tomorrow, before even investing a dime into it
* Gain knowledge on how to identify the potential use cases for a digital twin

Substance of the training:

* Get to know what a digital twin is
* How is it beneficial
* Who uses it
* How it’s done in simplest form (From Virtual to Physical)
* How it’s done in simplest form (From Physical to Virtual)

Structure of the training:

1. Webinar 1
2. Assessment 1
3. Webinar 2
4. Assessment 2
5. Webinar 3

Who should enroll:

Vocational educators who are interested in digital twins and their use in smart manufacturing. Teachers who are interested in simulations.

Why choose this training:

The use of digital twins in industry is growing enormously. The benefits of a digital twin have been noticed, and grasping the idea behind digital twins is very important. Is it more than meets the eye, or is it simply just a digital clone of a physical cell? Come in the training, and find out!

Skills and knowledge gained:

Knowledge and insight on how to utilize digital twins, and to catch on situations where digital twins could be used and how it would benefit the smart manufacturing process.

Lecturer:

Joonas Kortelainen MSc (Tech), researcher/lecturer, Satakunta University of Applied Sciences

Linkedin: <https://www.linkedin.com/in/joonas-kortelainen-20712092/>

Certificate:

Participants in the Digital Twins in Smart Manufacturing training will receive a Talentjourney certificate with the traine's signature.

Reflect, learn and internalize:

Through a hands-on approach and team collaboration, participants will develop capacity to study and design digital twins in industrial environments.

Learn from the best:

Joonas Kortelainen has a MSc degree in automation and has worked as a researcher/lecturer at Satakunta University of Applied Sciences for over 10 years. He has participated in several applied automation technology research projects being responsible for extensive 3D simulation with targets of optimization and layout design of facilities as well as creating digital twins of different manufacturing processes.

Networking:

Participants will be encouraged to interact and collaborate with different stakeholders, and when possible, in cross-disciplinary teams.