The 1st Winter School on 3D DigitAInability: Exploring the Combined Effects of Digitalization, Sustainability, Artificial Intelligence, and Additive Manufacturing

3D Digitainability Talvikoulu: Miten Digitalisaatio, Kestävä Kehitys, Tekoäly ja 3D-Tulostus Nivoutuvat Yhteen?

## School schedule

Time: 27th of November – 11th of December, 2024 (full-day meetings on 27.11, 29.11, 04.12, 11.12)

Place: Tampere University (TAU), Central Campus (Pinni B1097) and 3DStep, Ylöjärvi

Participants with a student status at Tampere University obtain 2 ECTS (registration in SISU ITC.CEE.300-2024-2025 Seminar on Prototyping), others receive a certificate of participation.

### DAY 1 - November 27th Wednesday

**Morning**

| 09:00 | Welcome and introduction to 3D DigitAInability (morning coffee & snacks) |
| 09:15 | Perspectives into the Future of DigitAInability, Kirsikka Kaipainen |
| 10:00 | Coffee break |
| 10:15 | The Greatest Opportunity in Digital Manufacturing, Pekka Ketola |
| 11:00 | Group discussions |
| 12:00 | Lunch |

**Afternoon**

| 12:50 | Transportation to 3DStep / Ylöjärvi. The bus departs from the main entrance of the Main Building, Central Campus TAU (Kalevantie 4) at 12:50 sharp! |
| 13:30 | Introduction to 3DStep, a demo tour, Pekka Ketola (Address: Peltokatu 16 C 3krs, 33100 Tampere) |
| | Group work – brainstorming and presentation of the first ideas |
| 16:00 | End of the day and transportation back to the Central Campus, TAU |

### DAY 2 - November 29th Friday

**Morning**

| 09:00 | Agenda for today, practicalities (morning coffee & snacks) |
| 09:15 | **AI Agents in Smart Spaces,** Aygün Varol |
| 10:00 | Coffee break |
| 10:15 | **Haptic Mediation through Artificial Intelligence**: A Holistic Approach, Ahmed Farooq |
| 11.15 | A Life-Long Digital Support for Individuals with ADHD, Anneli Kylliäinen and Julia Kuosmanen |
| 12:00 | Lunch |

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| **Afternoon** | 13:00 | Go Ahead! Print Your Dreams! Hands-on practical design session about the tools for 3D printing design by Ahmed Farooq. (Note, attendance is mandatory for collecting 2 ECTS from the course!)<br>- Common web tools for 3D design (TinkerCAD, Sketcher, FreeCAD)<br>- Collaborative design (VR, 2D/3D)<br>- Creating stl files for 3D printing |
| | 15:00 | End of the day |

### DAY 3 - December 4th Wednesday

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| **Morning** | 09:00 | Agenda for today, practicalities (morning coffee & snacks) |
| | 09:15 | What if Humans are NOT in the Loop? Autonomous AI as a Driver for Sustainable Future, Pekka Abrahamsson |
| | 10:00 | Coffee break |
| | 10:15 | **The Elements of a Regenerative Smart City,** Aleksi Kopponen, Director of Digital Transformation, City of Tampere |
| | 12:00 | Lunch |
| **Afternoon** | 13:00 | Introduction to GenAI and tools to optimize 3D CAD modelling. Hands-on practical design session on, e.g., GenAI that can be used for 3D CAD or developing vector graphics. (Note, attendance is mandatory for collecting 2 ECTS!)<br>- Problem Description: Utilizing ChatGPT<br>- Graphical Representation: Using tools like Midjourney and Copilot<br>- Transformation to 3D Models: Employing free tools. |
| | 15:00 | End of the day |

### DAY 4 - December 11th Wednesday

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| **Morning** | 09:00 | Agenda for today, practicalities (morning coffee & snacks)<br><br>Groups receive their 3D printed solutions. |
| | 09:15 | Embedding Sustainability in Engineering Design and Manufacturing, Inigo Flores Ituarte |
| | 10:00 | Coffee break |
| | 10.05 | Group final presentations (Note, attendance is mandatory for collecting 2 ECTS from the course!) |
| | 12:00 | Lunch |
| **Aftern.** | 13:00 | Group final presentations (continues, if needed) |
| | 15:00 | End of the day |