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TWIN-IT-ROMANS - 101160215

TWIN-IT-ROMANS

**Summer School on Robot-Assisted Milling and
3D-Printing**

@ Innsbruck

Report

Rev-B

25.08.2025

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Approved by	Mehmet İsmet Can DEDE	



1. EXECUTION OF THE SUMMER SCHOOL AT MCI

This report contains the information on all the activities carried out during the *Summer School on Robot-Assisted Milling and 3D-Printing* organized by the project partner MCI in Innsbruck, Austria. The event details are as follows:

Dates: 26th of July – 2nd of August

Venue: Center for Production, Robotics & Automation, MCI, Innsbruck – Austria

1.1 Summer School Objectives

The summer school objectives were set as follows:

- Sharing TWIN-IT-ROMANS know-how with researchers of TWIN-IT-ROMANS and other researchers to contribute the target area
- ESRs receiving training on the industrial and application domain of the research that is being conducted within the TWIN-IT-ROMANS project
- Increasing the recognition and reputation of IZTECH in the academic field
- Strengthening research management capacities and administrative skills of the staff

1.2 Summer School Agenda

The summer school is organized to include lectures on fundamental concepts related to TWIN-IT-ROMANS project, hands-on lectures, lectures for guiding the consortium beyond the state-of-the-art, and team-building activities.

The summer school agenda included the following contents in the given order:

- 1) Materials
- 2) Additive manufacturing
- 3) Robot-assisted additive manufacturing
- 4) Robot-assisted milling
- 5) Mobile manipulators
- 6) AI for robotics
- 7) Robot kinematics
- 8) Physical human-robot interaction
- 9) Soft robots

The whole summer school group had a visit to a large scale robotic milling facility called FTM Company in Austria. The milling operation of the TWIN-IT-ROMANS emblem is observed. Insights on the problems and advantages of robotic milling is obtained directly from the end-user.





The robotic Milling of the TWIN-IT-ROMANS emblem at FTM Company



The agenda for the summer school is displayed below.

TWIN-IT-ROMANS

Summer School on Robot-Assisted Milling and 3D-Printing

Innsbruck, Austria
MCI | The Entrepreneurial School®
Center for Production, Robotics & Automation
SATURDAY, 26.07.2025 – SATURDAY, 02.08.2025

SATURDAY | 26.07.2025

17:00 – 22:00 Welcome evening & mountain dinner

SUNDAY | 27.07.2025

09:00 – 19:00 Mountain hike & alpine hut dinner

MONDAY | 28.07.2025

09:00 – 10:00 Welcome & Introduction

10:00 – 13:15 Online Programming
(MCI | Serafin Kollegger)

13:15 – 14:30 Lunch

14:30 – 16:00 Introduction to Additive Manufacturing
(IzTech | Halil Tetik)

16:15 – 17:45 Mechanical Behaviour of Fibre
Reinforced Composites
(IzTech | Senagül Tunca Taskiran)

TUESDAY | 29.07.2025

09:00 – 12:15 Robot-Based Additive Manufacturing
(ADMIRE Research Center |
Mathias Brandstötter)

12:15 – 13:30 Lunch

13:30 – 15:00 Introduction to Robot Assisted
3D-Printing
(MCI | Mathias Prast)

15:15 – 16:45 Introduction to Metal 3D-Printing and
WIRED3D
(RWU | Ralf Stetter)
(WIRED3D | Christoph Dietenberger)

WEDNESDAY | 30.07.2025

09:00 – 12:15 Introduction to Robot Assisted Milling
(MCI | Mathias Prast)

12:15 – 13:30 Lunch

13:30 – 16:45 Visit at live large scale robot milling
(Fertigungstechnik Miller |
Gerhard Miller)

16:45 – 21:00 Traditional mountain dinner

THURSDAY | 31.07.2025

09:00 – 12:15 Mobile Manipulators
(HKTM | Evren Samur)

12:15 – 13:30 Lunch

13:30 – 15:00 Modeling, Simulation and AI for
Robotics
(UIBK | Johannes Gerstmayr)

15:15 – 16:45 Introduction to Kinematics
(IzTech | Gökhan Kiper)

FRIDAY | 01.08.2025

09:00 – 12:15 Kinematics of Parallel Robots
(RWTH | Burkhard Corves)

12:15 – 13:30 Lunch

13:30 – 15:00 Physical Human-Robot Interaction
(IzTech | Can Dede)

15:15 – 16:45 Introduction to Soft Robotics
(Politecnico di Torino | Andrea Botta)

SATURDAY | 02.08.2025

09:00 – 15:00 Mountain hike & alpine hut lunch

18:00 – 22:00 Farewell evening & mountain dinner



Registration fee: free of charge

Accommodation & Breakfast: Hostel 55 €/night | Hotel 120 €/night

Registration: ZentrumPRA@mci.edu





1.3 Summer School Attendance

The advertisements for the summer school are made via social media and within e-mail groups. The registration for the summer school was free of charge. The project partner MCI organized the registration process. Below is the Linked-in advertisement of the Summer School.



Zentrum für Produktion, Robotik & Automati...

1.184 takipçi
4 hafta • 🌐

Summer School "Robot-Assisted Milling and 3D-Printing" |
26.07.2025 – 02.08.2025

Exciting lectures and workshops on "Robot-Assisted Milling and 3D-Printing" from our partners at [İzmir Institute of Technology](#), [RWTH Aachen University](#), [Politecnico di Torino](#), [University of Bath](#), [London South Bank University](#), [HKTM](#), [Universität Innsbruck](#), [Carinthia University of Applied Sciences / Fachhochschule Kärnten](#), and [Hochschule Ravensburg-Weingarten](#).

- **Date:** 26.07.2025 – 02.08.2025
- **Location:** [MCI | The Entrepreneurial School®](#), [Zentrum für Produktion, Robotik & Automatisierung](#), Innsbruck, Austria
- **Participation:** Free of charge
- **Registration:** ZentrumPRA@mci.edu.

[MCI | The Entrepreneurial School®](#)
[Industriellenvereinigung Tirol](#)
[Zentrum für Produktion, Robotik & Automatisierung](#)
[İzmir Institute of Technology](#)
[İzmir Yüksek Teknoloji Enstitüsü](#)
[RWTH Aachen University](#)
[IGMR - RWTH Aachen University](#)
[Politecnico di Torino](#)
[University of Bath](#)
[London South Bank University](#)
[HKTM](#)
[Universität Innsbruck](#)
[Carinthia University of Applied Sciences / Fachhochschule Kärnten](#)
[ADMIRE Research Center](#)
[Hochschule Ravensburg-Weingarten](#)

There were a total of 27 registrants from Germany, Türkiye, Austria, UK and Italy. Unfortunately, due to the unforeseen visa problems, the TWIN-IT-ROMANS project's ESRs could not attend the summer school. Among the TWIN-IT-ROMANS project researchers, the following attended the summer school:

- Mehmet Ismet Can Dede (IzTech)
- Gökhan Kiper (IzTech)
- Halil Tetik (IzTech)
- Burkhard Corves (RWTH)



- Andrea Botta (POLITO)
- Benjamin Massow (MCI)
- Mathias Prast (MCI)

#	Last name	First name	Nationality	Home Institution
1	Angerer	Arthur	Austrian	UMIT Tirol
2	Botta	Andrea	Italian	Politecnico di Torino ADMIRE Research Center, Carinthia University of Applied Science
3	Brandstätter	Mathias	Austrian	Applied Science
4	Corves	Burkhard	German	RWTH Aachen
5	Dede	Can	Turkish	Izmir Institute of Technology
6	Dietenberger	Christoph	German	WIRED3D
7	Drew	Dylan	British	University of Bath
8	Gerstmayr	Johannes	Austrian	University of Innsbruck
9	Kiper	Gökhan	Turkish	Izmir Institute of Technology
10	Massow	Benjamin	German	MCI
11	Panny	Matthias	Austrian	MCI
12	Pfurner	Martin	Austrian	University of Innsbruck
13	Polzin	Sebastian	German	RWTH Aachen
14	Prast	Mathias	Austrian	MCI
15	Repetzki	Sebastian Metin	German	MCI
16	Salamci	Uymaz	Turkish	Gazi University
17	Samur	Evren	Turkish	HKTM and Bogazici University
18	Schicks	Frederik	German	RWTH Aachen
19	Schmidmayr	Philipp Hans-	Austrian	MCI
20	Schröcker	Peter	Austrian	University of Innsbruck
21	Slyvka	Pavlo	Ukrainian	MCI
22	Stenger	Felix	German	MCI
23	Stetter	Ralf	German	Ravensburg-Weingarten University (RWU)
24	Tetik	Halil	Turkish	Izmir Institute of Technology
25	Unterhuber	Hannes	Austrian	MCI
26	van Kooten	Willemijn	Dutch	MCI
27	Wenger	Stefan	Austrian	MCI

Some of the lectures are provided by external parties from Germany and Austria. The list of the external parties are as follows:

- University of Innsbruck (Austria)
- ADMIRE Research Center at Carinthia University of Applied Sciences (Austria)
- Hochschule Ravensburg-Weingarten (Germany)
- WIRED3D (Germany)
- Fertigungstechnik Miller (Austria)





1.4 Summer School Results

The participants received information on fundamental concepts in robotic manufacturing, additive manufacturing and robotic milling. The ideas for moving beyond the state-of-the-art of these technologies are discussed. Insightful information is gathered through hands-on demonstration at MCI and FTM Company.

There were unofficial meetings with the representatives from external parties. In these meetings, possible future collaborations are discussed.

Among the TWIN-IT-ROMANS consortium partners, a meeting was organized for applying to a new call in Horizon 2020. As a result of this meeting, the consortium decided to move forward with the application to the call titled “Integrated approaches for remanufacturing (Made in Europe Partnership) (IA)” with the call identifier “HORIZON-CL4-INDUSTRY-2025-01-TWIN-TRANSITION-01”.

The extracurricular activities (i.e., mountain hikes and mountain dinners) helped in bonding the consortium partners.

2. PLANS FOR THE NEXT WORKSHOP ON COMPONENTS

The next workshop within the TWIN-IT-ROMANS project is the *Workshop on Components* to be organized in Izmir by the IzTech team. This workshop aims to review the progress of the project, introduce the components of the robotic manufacturing cell being built in IzTech and disseminate the project findings to the industry that includes the end-users and technology providers.

Aligned with the aforementioned aims, the temporary agenda of the workshop is proposed by the IzTech team and accepted by the consortium partners. The workshop will take place between the 15-17 September, 2025 in Izmir Institute of Technology. The temporary schedule of the workshop is given in the next pages.



DAY-1: 15 September 2025 Monday

10:00 – 10:15	Registration	
10:15 – 10:25	Introduction	Can DEDE (IZTECH)
10:25 – 10:45	Welcome Speech by the Dean of the Engineering Faculty	Mehmet POLAT (IZTECH)
10:45 – 11:30	Report on General Progress of the Project & WP1 Report on Gender Equality	Can DEDE (IZTECH) Benay UZER-YILMAZ (IZTECH)
11:30 – 11:45	Report on WP3 Report on Workshop on Sustainability	Gökhan KİPER (IZTECH) Guiseppe Quaglia (POLITO)
11:45 – 12:00	Report on Summer School & WP4 Summer Internships of ESRs	Benjamin MASSOW (MCI) Evren SAMUR (HKTM)
12:00 – 12:15	Report on Dissemination Activities & WP5 Report on Exploitation and Communication	Buğra ALKAN (LSBU) Büşra KARAŞ (IZTECH)
12:15 – 12:45	The Project Officer's Report	Christian Niemeyer
12:45 – 13:45	1 hour Lunch Break	
13:45 – 14:00	Report on Materials and Hybrid Manufacturing Components	Büşra KARAŞ (IZTECH)
14:00 – 14:30	Discussions on Materials and Hybrid Manufacturing Components	Alborz SHOKRANI (UBAH)
14:30 – 14:45	Report on Inline Quality Control	Halil TETİK (IZTECH)
14:45 – 15:15	Discussions on Inline Quality Control	Buğra ALKAN (LSBU)
15:15 – 15:45	30 Minutes Coffee Break	
15:45 – 16:00	Report on Cell Optimization	Gökhan KİPER (IZTECH)
16:00 – 16:30	Discussions on Cell Optimization	Burhard CORVES (RWTH)
16:30 – 16:15	Report on Prototype Development	Can DEDE (IZTECH)
16:30 – 17:00	Discussions on Prototype Development	Giuseppe QUAGLIA (POLITO)
~ 18.30	Dinner	



DAY-2: 16 September 2024 Tuesday

9:00 – 10:30	Introduction of End-Users and Technology Provider Companies	Companies
10:30 – 11:00	30 Minutes Coffee Break	
11:00 – 11:30	Description of the TWIN-IT-ROMANS Project Output	Can DEDE (IZTECH)
11:30 – 12:00	Report on System Integration at IZTECH Report on System Integration at MCI	Berk KURT (IZTECH) Mathias PRAST (MCI)
12:00 – 13:00	1 hour Lunch Break	
13:00 – 14:00	Focused Meetings of Partners with Companies	All Partners & Companies
14:00 – 14:30	30 Minutes Coffee Break	
14:00 – 15:00	Focused Meetings of ESRs with Hosting Institutes	All Partners
15:00 – 16:00	Revisions on WP3, WP4 & WP5 activities	All Partners
16:00 – 17:00	Discussions on the Workshop on Intelligent Manufacturing Schedule	Buğra ALKAN (LSBU)
~ 18.30	Dinner	

DAY-3: 17 September 2025 Wednesday

9:00 – 18:30	Full-Day Excursion in İzmir Center	
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