CZ EDU CON

Thursday, November 23
Large 3
9:00 – 9:40

Digital DECATHLON

Loreen Zeisberg, Jade University of Applied Sciences

Digital DECATHLON

Build Digital. Build Better.

Digital transformation

Change of an entire industry

New training offers must meet these changing requirements

We have to build digital and better

more resource-efficient

climate-friendly

quality-assured

taking into account the entire life cycle

with **new training concepts** that

- take everyone on the path to the digitalization of construction planning
- leave no one behind
- bring people together for joint collaboration
- strengthen intercultural skills that are of high value in today´s globalized working world

BIM

(Building Information Modeling)

Building Information Modelling (BIM) plays an important role in the digitalization of the construction industry. BIM is the digital model and working method for the design, construction, operation and deconstruction of buildings. It is about building more digitally and using digital transformation to design, construct, operate and deconstruct buildings in a better, more resource-efficient, climate-friendly and quality-assured way.

Digitalization BIM-related lectures are now offered as a subject at many universities in almost all countries, but the focus is rarely on the practical application of what has been learned. There should be much more emphasis on experiencing and designing with virtual models. Learning to work together on a model is best achieved in decentralized teamwork.

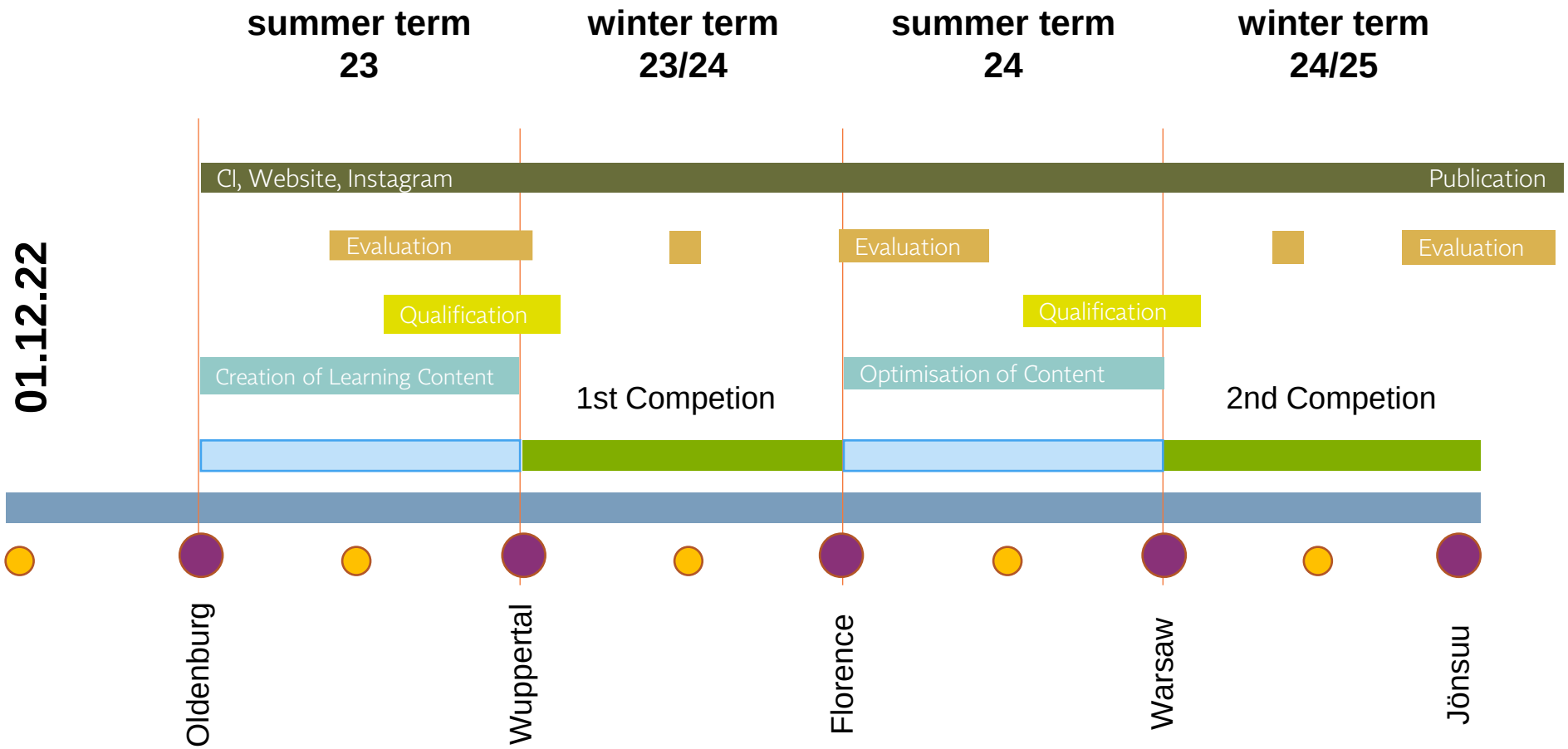
The Project

DIGITAL DECATHLON –
A multi-disciplinary design competition for students at universities across Europe

DIGITAL DECATHLON stands for Digital Design Collaboration in Higher Education and is an EU-funded Erasmus+ project - Cooperation Partnerships (KA220)

The Digital DECATHLON is an interdisciplinary and intercultural competition for students of architecture, civil engineering, building services engineering and related disciplines to train digital design skills using Building Information Modeling tools and methods in a collaborative way of working. In addition, the Digital DECATHLON is a unique training that provides participating students with an easy introduction to digital design and prepares them to work together in international teams. The competition links higher education institutions in Europe and promotes European identity. It opens new horizons of knowledge and perspectives of cooperation.

Schedule


summer term 23
winter term 23/24
summer term 24
winter term 24/25
01.12.22
CI, Website, Instagram
Publication
Evaluation
Evaluation
Evaluation
Qualification
Qualification
Creation of Learning Content
Optimisation of Content
1st Competion
2nd Competion
Oldenburg
Wuppertal
Florence
Warsaw
Jönsuu

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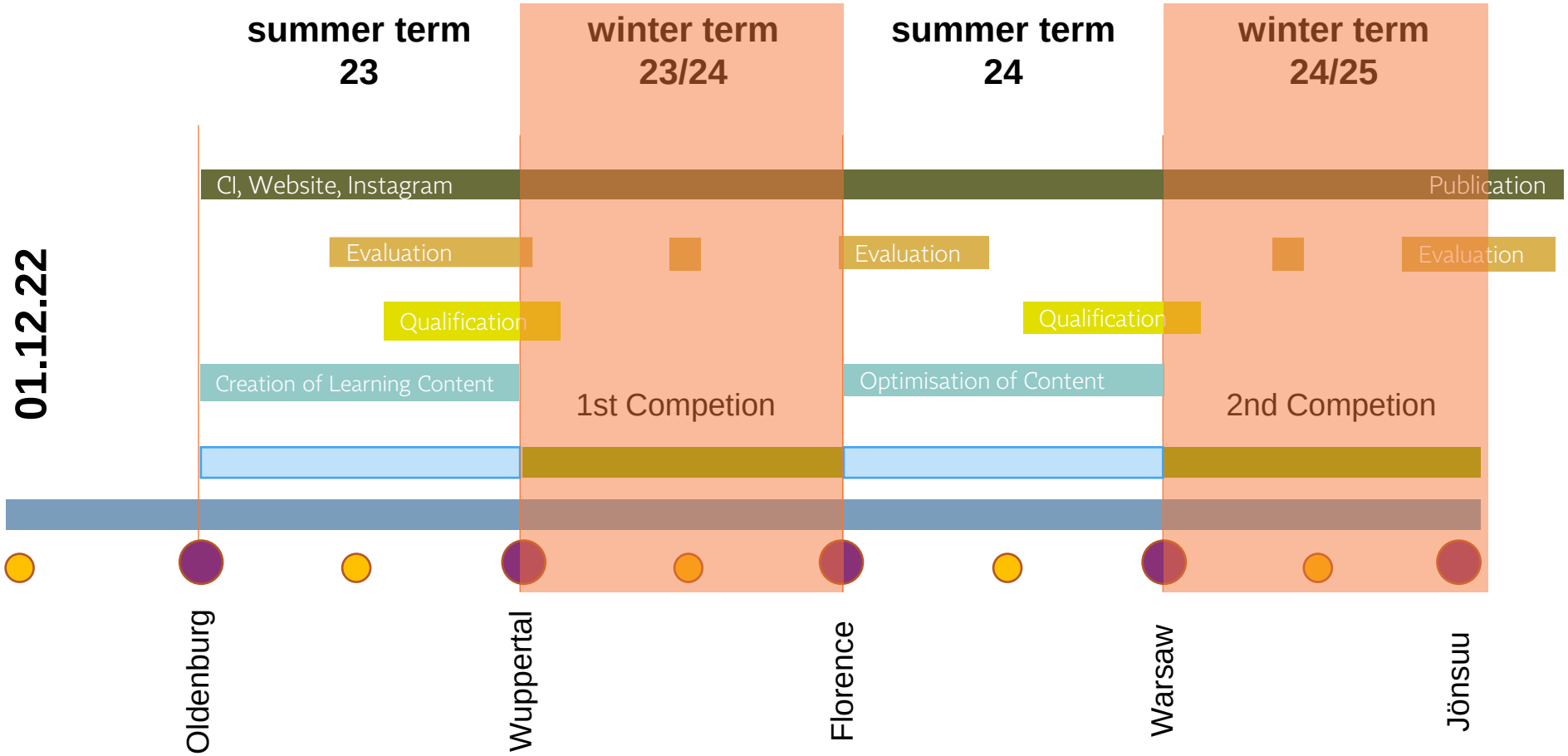
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Creation of Learning Content
1st Competion
Optimisation of Content
2nd Competion
Oldenburg
Wuppertal
Florence
Warsaw
Jönsuu

Project Partners

JADE UNIVERSITY OF APPLIED SCIENCES
Wilhelmshaven Oldenburg Elsfleth

Karelia ammattikorkeakoulu

UNIVERSITÀ DEGLI STUDI FIRENZE

Politechnika Warszawska

BERGISCHE UNIVERSITÄT WUPPERTAL

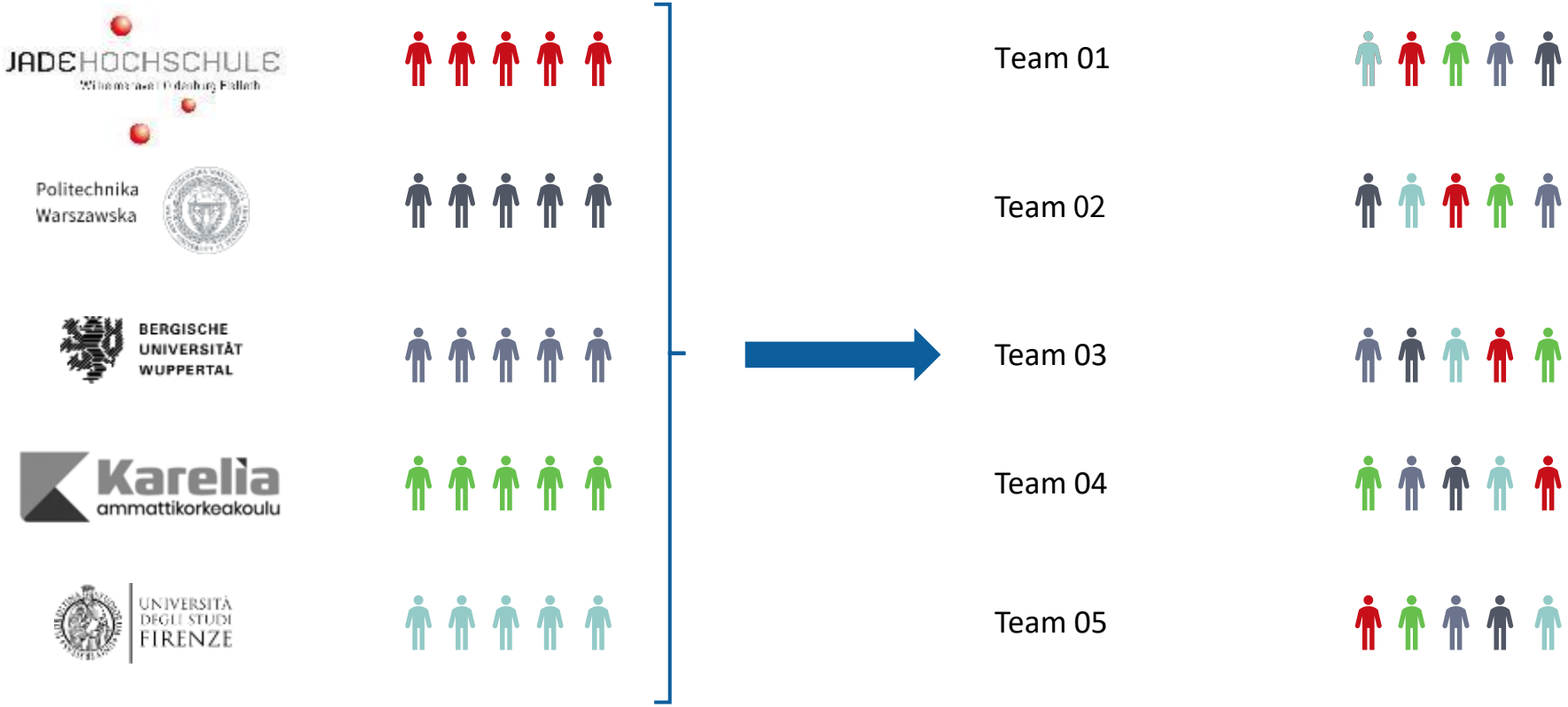
NA | DAAD
Nationale Agentur für Erasmus+ Hochschulzusammenarbeit
Deutscher Akademischer Austauschdienst German Academic Exchange Service

Co-funded by the European Union

The creation of these resources has been (partially) funded by the ERASMUS+ grant program of the European Union under grant no. 2022-1-DE01-KA220-HED- 000086134. Neither the European Commission nor the project's national funding agency DAAD are responsible for the content or liable for any losses or damage resulting of the use of these resources.

Student Teams

Student Teams



Disciplines

D 01: ARCHITECTURE

D 02: CONSTRUCTION

D 03: MEP

D 04: MODEL CHECKING

D 05: BIM DESIGN COORDINATION and COMMUNICATION

D 06: CONSTRUCTION SCHEDULING

D 07: LIFE CYCLE ASESSMENT

D 08: SIMULATION

D 09: BUILDING PRODUCT TRACEABILITY

D 10: REPORTING

These ten disciplines provide project participants with a comprehensive and in-depth understanding of the world of Building Information Modelling (BIM). By delving into these different areas, participants will gain a holistic perspective on the multifaceted aspects of BIM and its central role in the architecture and construction industry.

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Covers the principles and practices of architectural design.

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Focuses on timber construction, project planning and execution.

Disciplines

D 01: ARCHITECTURE

D 02: CONSTRUCTION

D 03: MEP

Examines mechanical, electrical and plumbing systems in buildings.

D 04: MODEL CHECKING

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Disciplines

D 01: ARCHITECTURE

D 02: CONSTRUCTION

D 03: MEP

D 04: MODEL CHECKING

Teaches the process of meticulous model checking to ensure design compliance.

D 05: BIM DESIGN COORDINATION and COMMUNICATION

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Disciplines

D 01: ARCHITECTURE

D 02: CONSTRUCTION

D 03: MEP

D 04: MODEL CHECKING

D 05: BIM DESIGN COORDINATION and COMMUNICATION

Covers Building Information Modelling (BIM) for design coordination and effective team communication.

D 06: CONSTRUCTION SCHEDULING

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Disciplines

D 01: ARCHITECTURE

D 02: CONSTRUCTION

D 03: MEP

D 04: MODEL CHECKING

D 05: BIM DESIGN COORDINATION and COMMUNICATION

D 06: CONSTRUCTION SCHEDULING

Covers construction scheduling, project time management and resource allocation.

D 07: LIFE CYCLE ASESSMENT

D 08: SIMULATION

D 09: BUILDING PRODUCT TRACEABILITY

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Disciplines

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D 02: CONSTRUCTION

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D 06: CONSTRUCTION SCHEDULING

D 07: LIFE CYCLE ASESSMENT

Examines environmental impact assessment and sustainability practices in construction.

D 08: SIMULATION

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Explores simulation tools for optimizing design and construction processes.

D 09: BUILDING PRODUCT TRACEABILITY

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Focuses on product traceability to ensure the quality and integrity of building materials.

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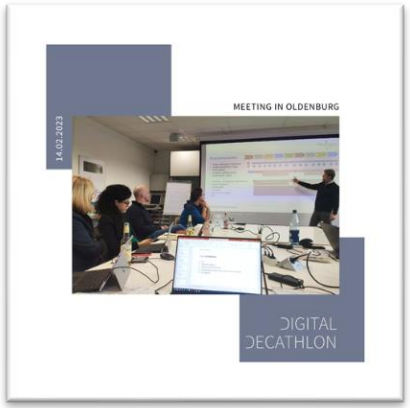
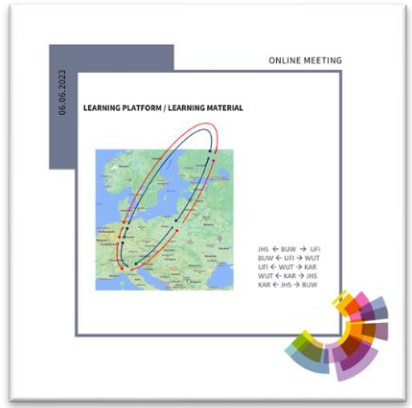
Develop effective reporting skills to communicate project progress and results to stakeholders.

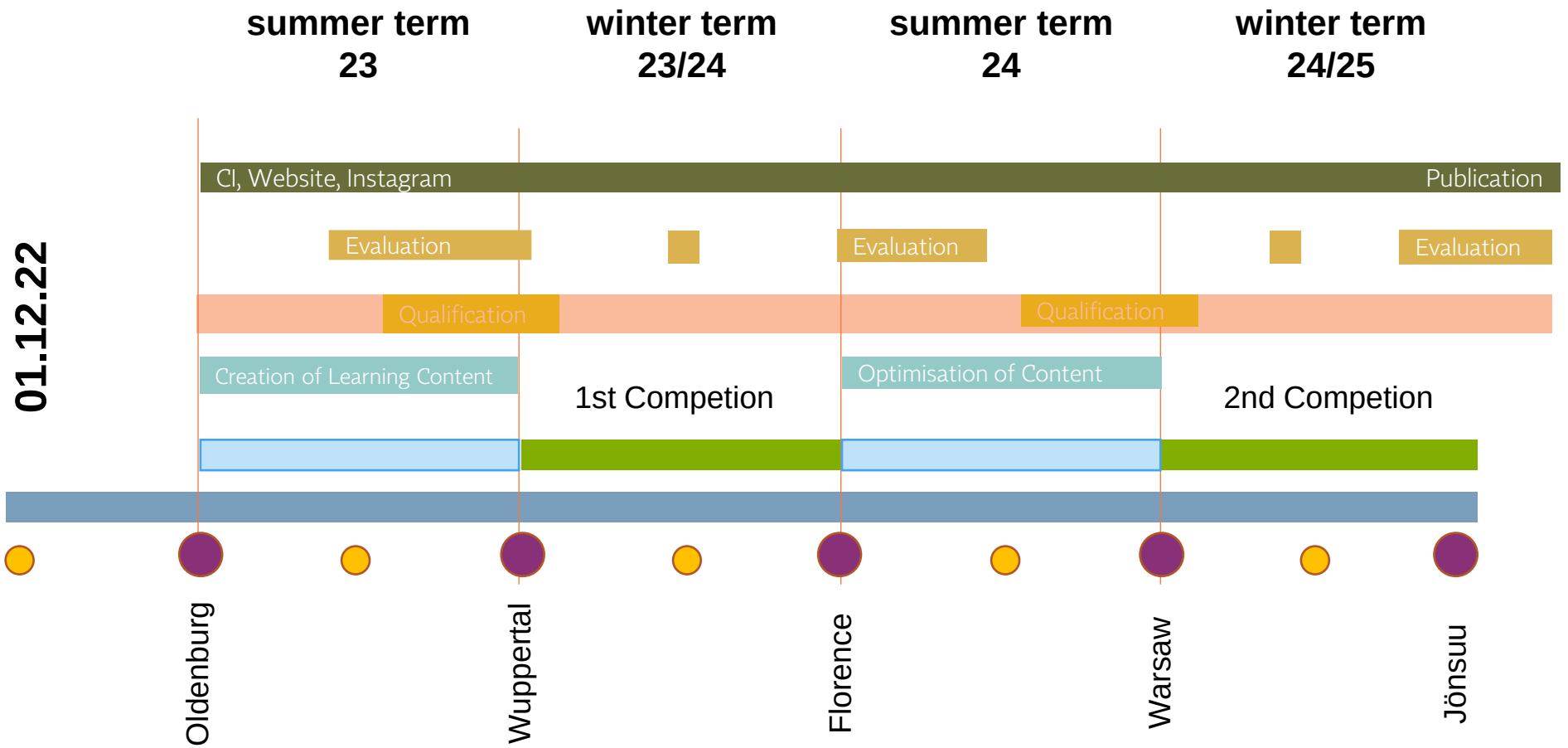
Publication



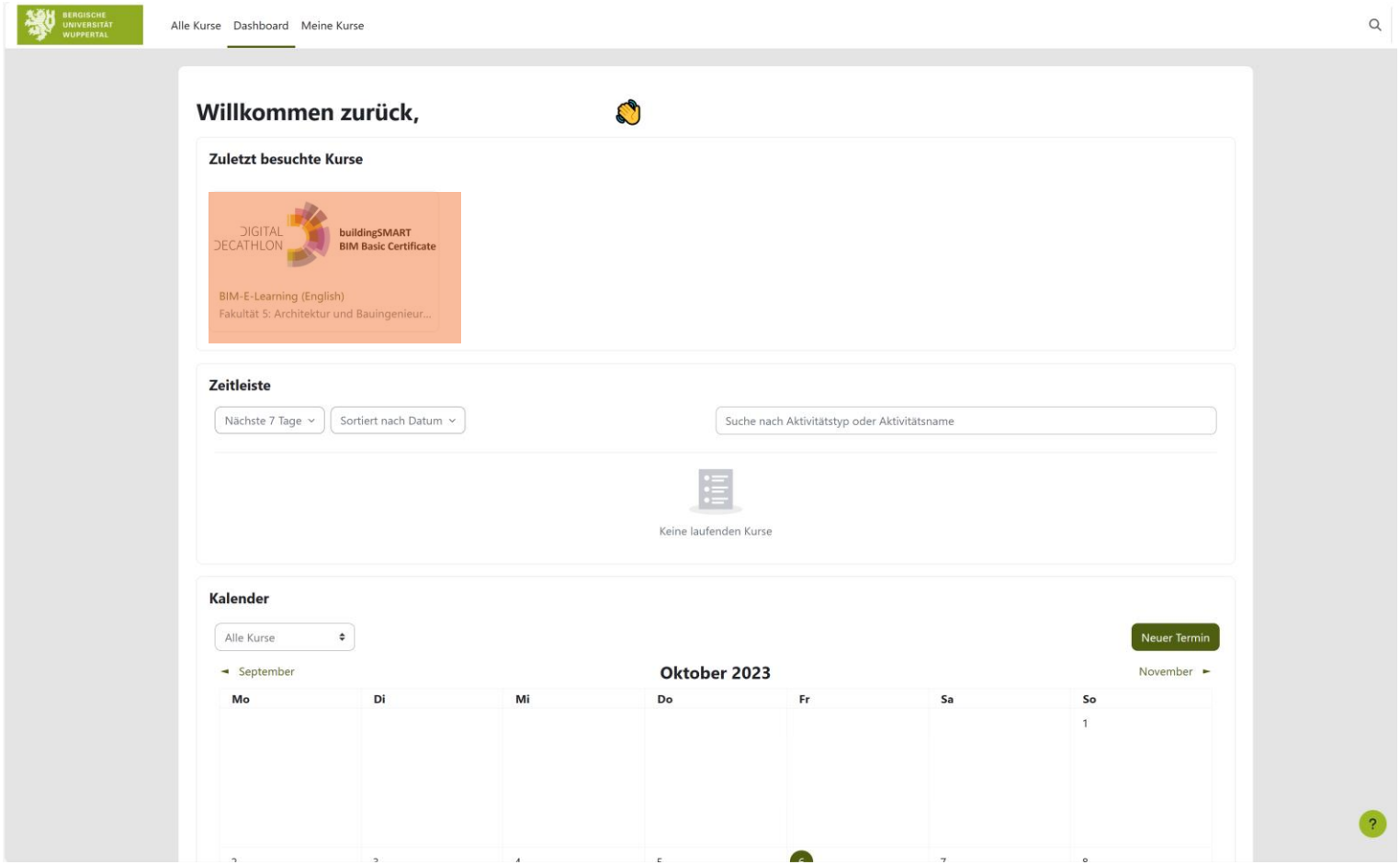


INSTAGRAM: digitaldecathlon

Qualification



BIM Introduction Course



First Competition

Start in Wuppertal, Germany: 10th October 2023
Final in Florence, Italy: 16th February 2024

First Competition

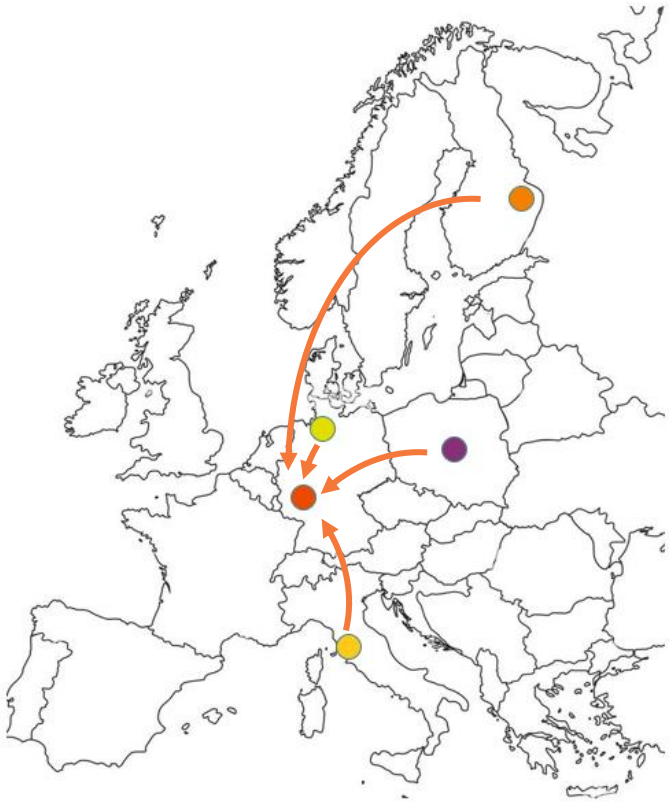
Karelia ammattikorkeakoulu

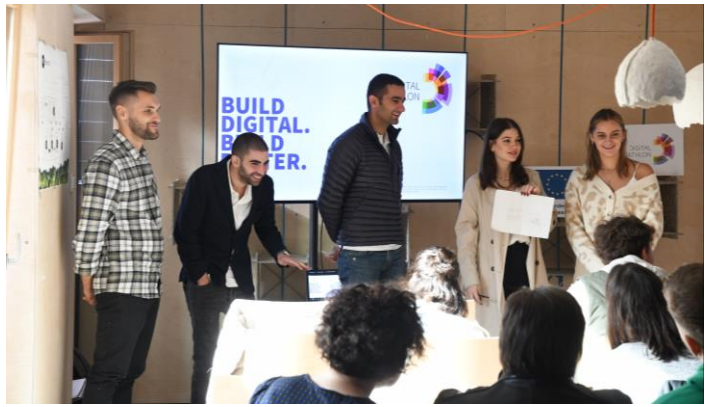
JADEHOCHSCHULE Wilhelmshaven Oldenburg Elsfleth

Politechnika Warszawska

BERGISCHE UNIVERSITÄT WUPPERTAL

UNIVERSITÀ DEGLI STUDI FIRENZE





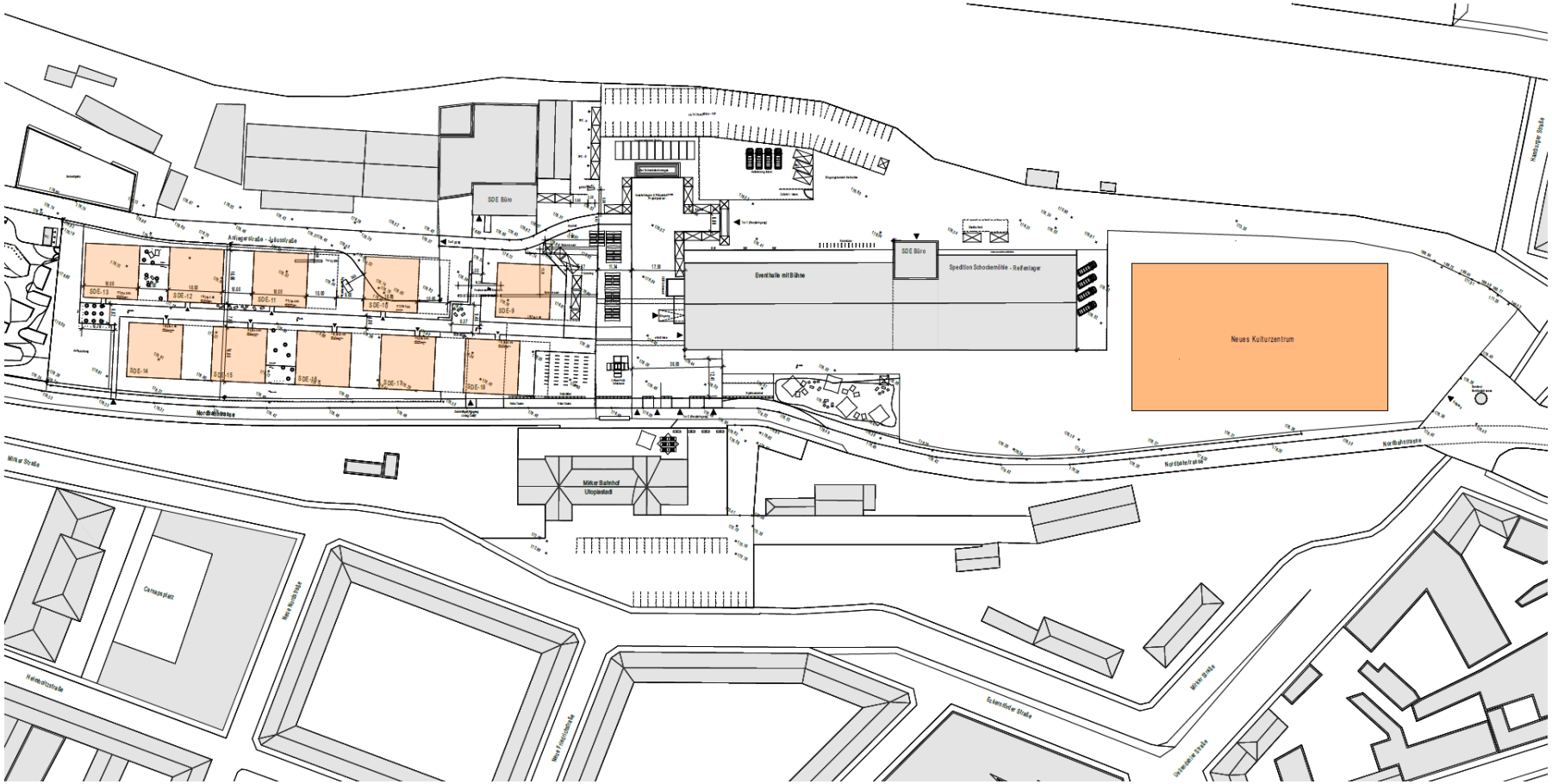
start event

Design Task

In the northern part of Wuppertal, close to the motorway A 46 there is a logistics center of around 4,000 square meters. This hall is to be converted into a cultural center and thus promote the structural change of the area from an industrial site to a lively quarter with exciting cultural offerings. The use should be as flexible as possible. Planned events may include, for example, concerts, weddings, dance events, lectures, workshops, open workspaces.

Location – Building site

Site plan


SDE Büro
Eventhalle mit Bühne
SDE Büro
Spedition Schockemöhle - Reflager
Neues Kulturzentrum
Mitter Bahnhof
Utopiastadt
Carnapplatz

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D01 ARCHITECTURE – JHS

Create a room program for the hall that takes into account its new use as a cultural center.
Design the event hall in a 3D model and derive the following drawings out of it: Floor plan, elevations and sections in 1:200, façade section 1:20. Present your design in renderings and videos.

Software: 3D Modelling Software / Rendering Software

Item	Description	Delivery date	Format
PI-0101	Site Plan	01.10.2023	PDF
PI-0102	Architectural model of existing Hall	01.10.2023	IFC
PI-0103	Structural model of existing Hall	01.10.2023	IFC
PI-0104	Reference projects	01.10.2023	PDF
PI-0105	Room program	01.10.2023	PDF
PI-0106	Enscape Tutorial	01.10.2023	PDF
Delivery Items			
DI-0101	Room Program	30.10.2023	PDF
DI-0102	Architectural Model	14.02.2024	IFC
DI-0103	Floor Plans 1:200	14.02.2024	PDF
DI-0104	Elevations 1:200	14.02.2024	PDF
DI-0105	Sections 1:200	14.02.2024	PDF
DI-0106	Renderings	14.02.2024	PDF
DI-0107	Façade Section 1:20	14.02.2024	PDF
DI-0108	Video	14.02.2024	MP4
DI-0109	Parts of BEP related to Architecture	14.02.2024	PDF

Table 03: Document Structure Discipline 01: Architecture

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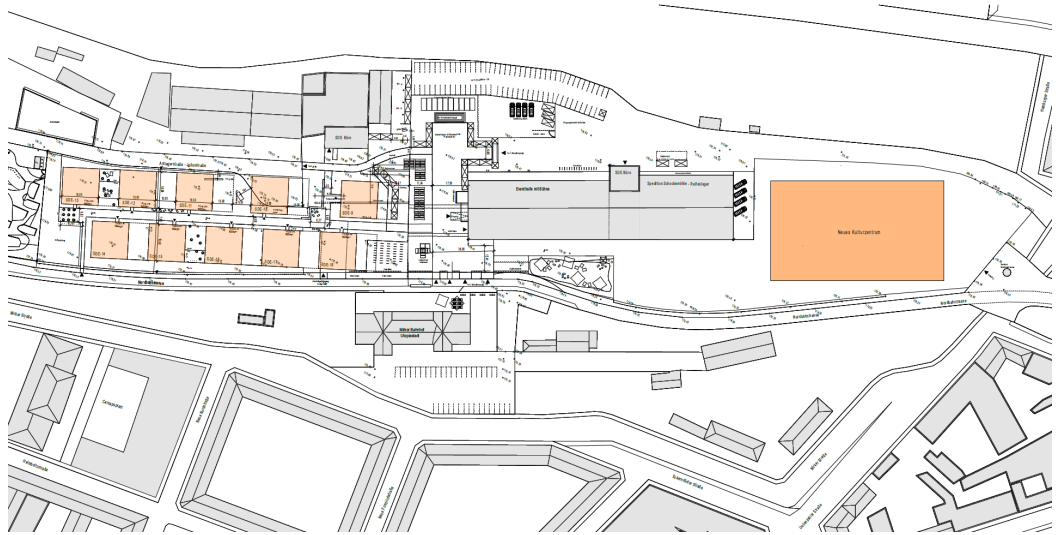

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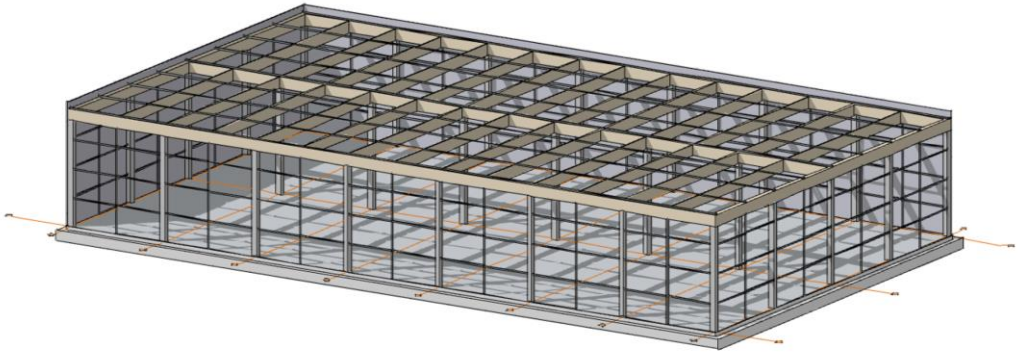

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ROOM PROGRAM

The existing hall has a floor area of about 4000 m². A minimum of 30% of the floor area has to be double-storeyed that the new cultural center can be used from the visitor from different levels.
The new cultural center will include storage for the Solar Decathlon that some of the existing pavilions can be stored or new pavilions can be built indoors. Besides the requirements create a mixed room program with a space for 500 visitors for young and old.

Mandatory uses: office, sanitary facilities, stage, storage for Solar Decathlon

Extension of the room program:

- Restaurant, café, show-cooking rooms
- Library, working rooms, painting, maker spaces
- Event hall with a stage, market hall, cinema, theater, music rooms, museum
- Climbing hall, (ice) – skating ring, swimming pool, fitness studio
- Playing basketball, football, (mini) golf, athletics, children playground
- Extension of the beach, urban gardening, urban farming, view tower
- And don't forget the ancillary uses like sanitary facilities, checkroom or lockers, cleaning room, technical space, storage areas, …

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Learning Materials

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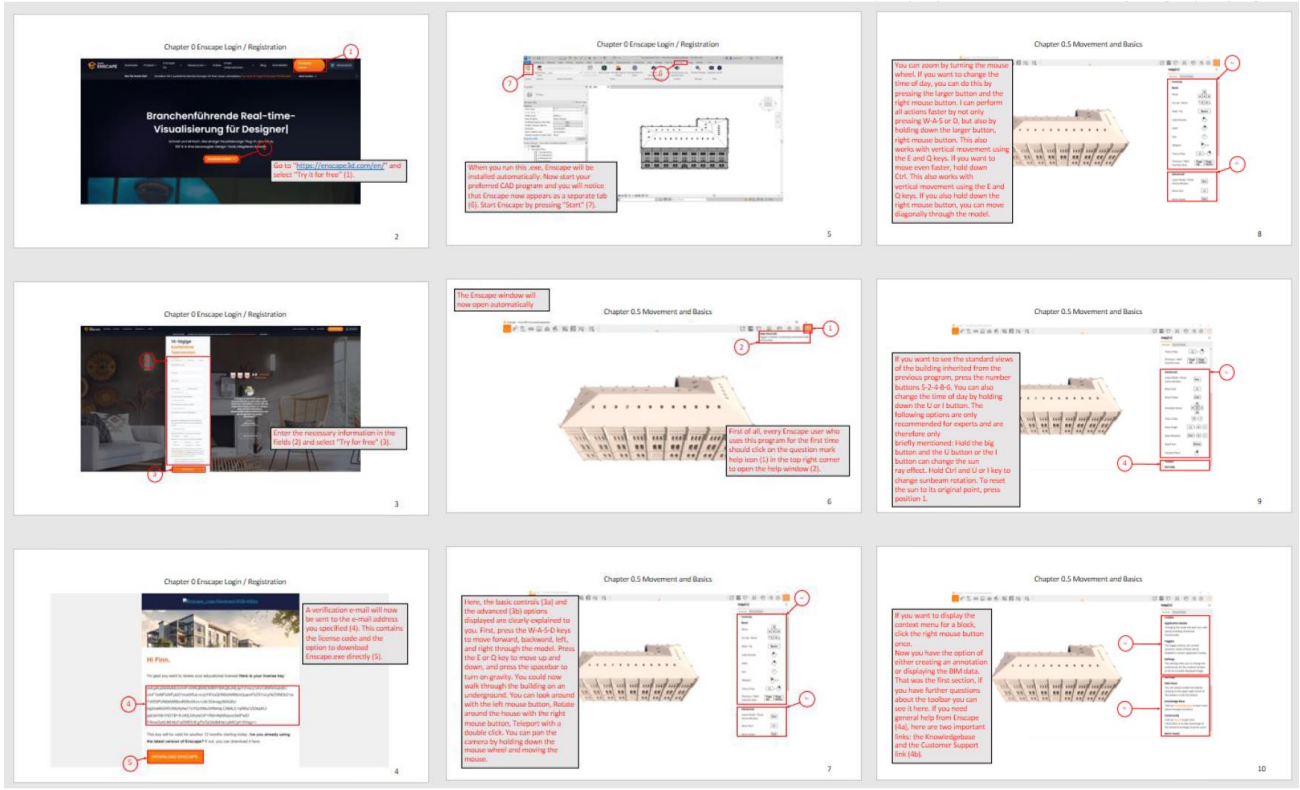
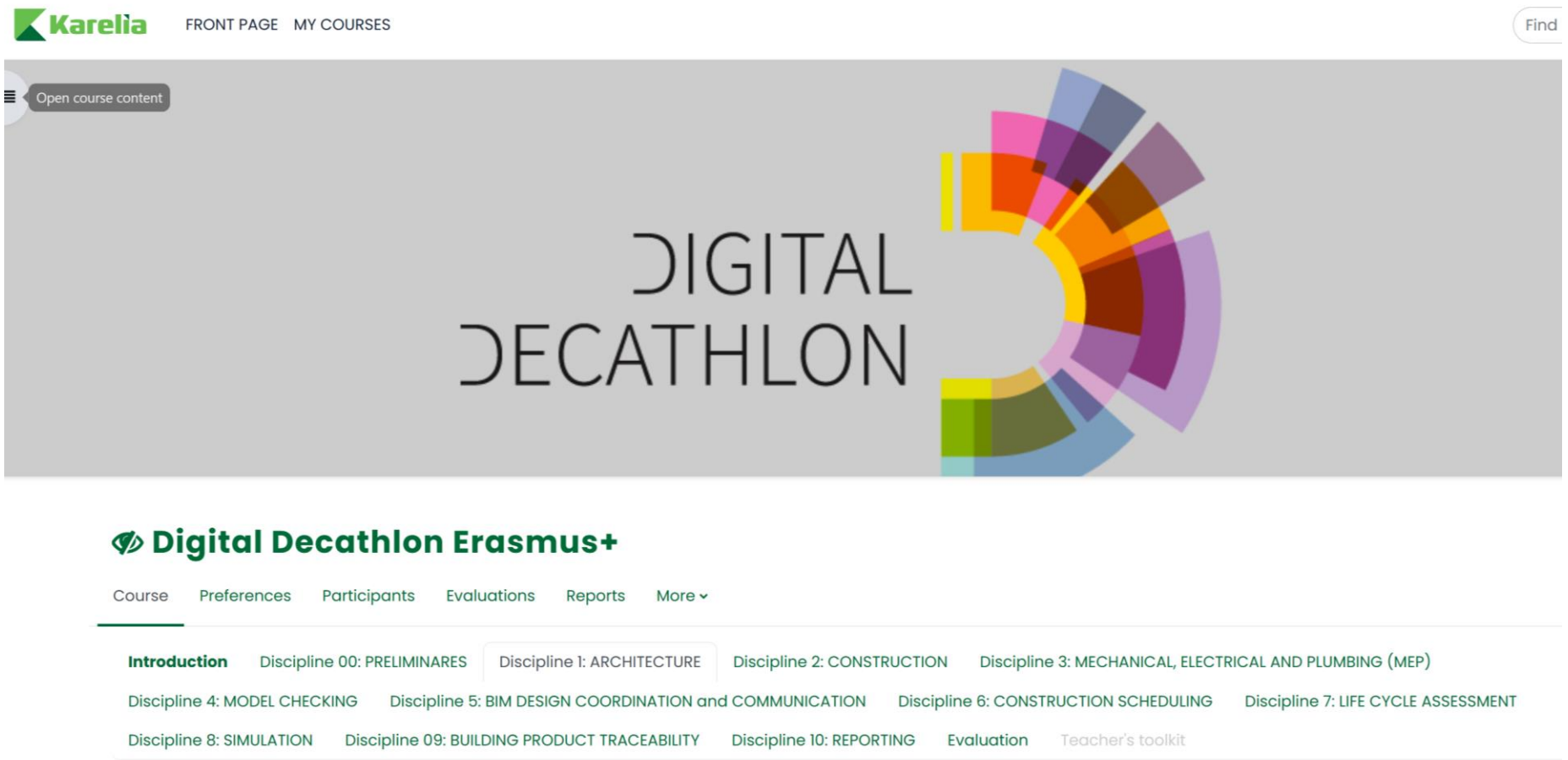


Moodle Plattform



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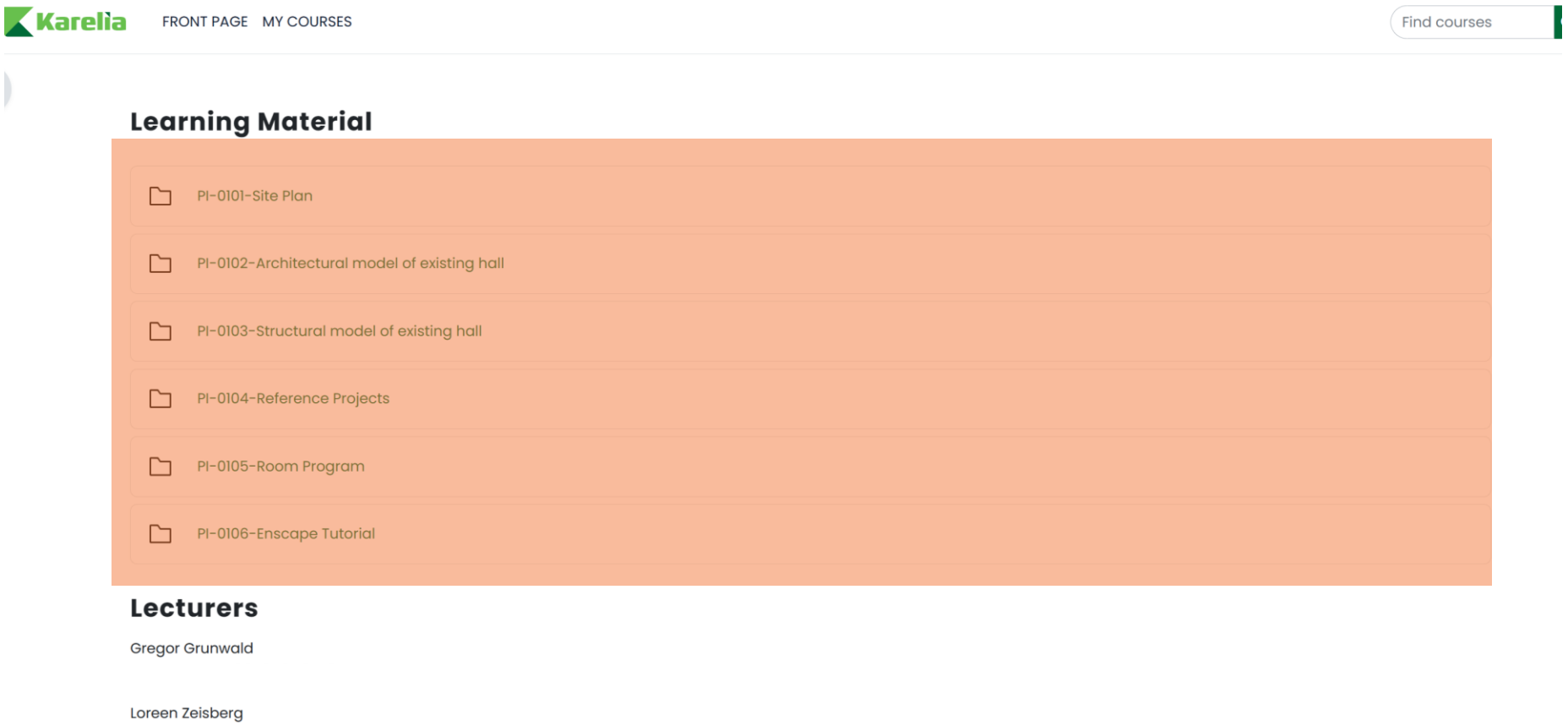
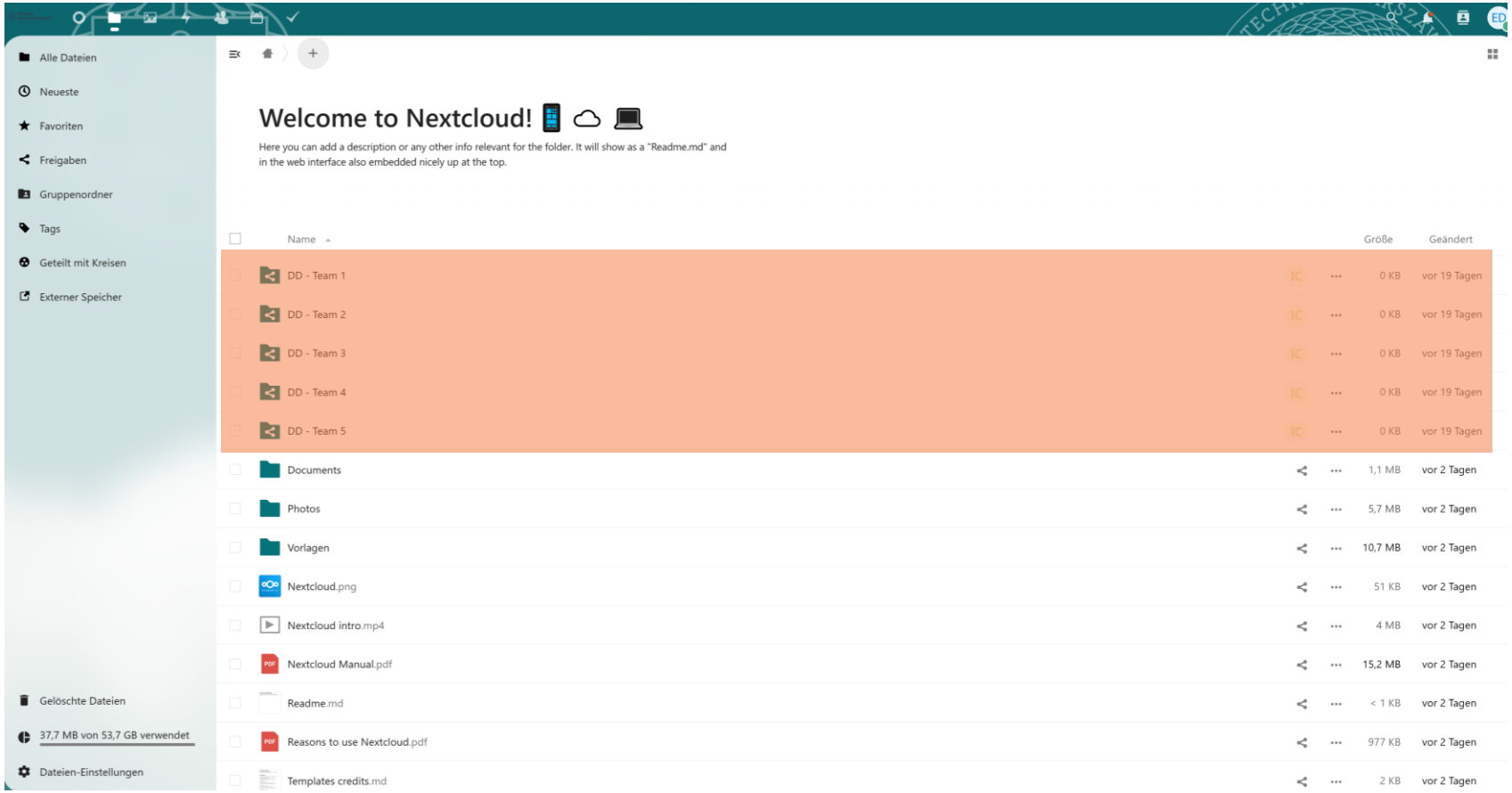
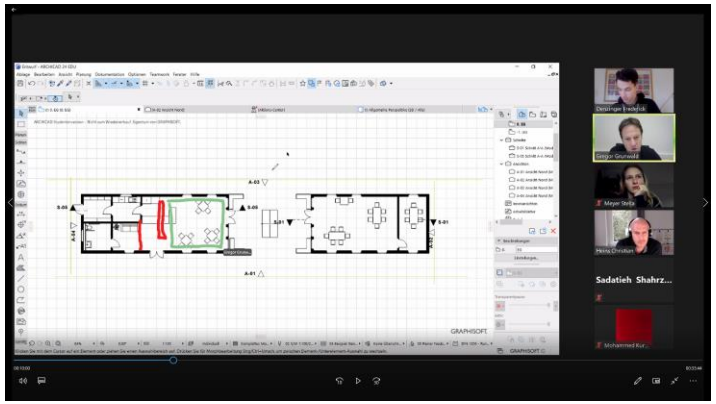


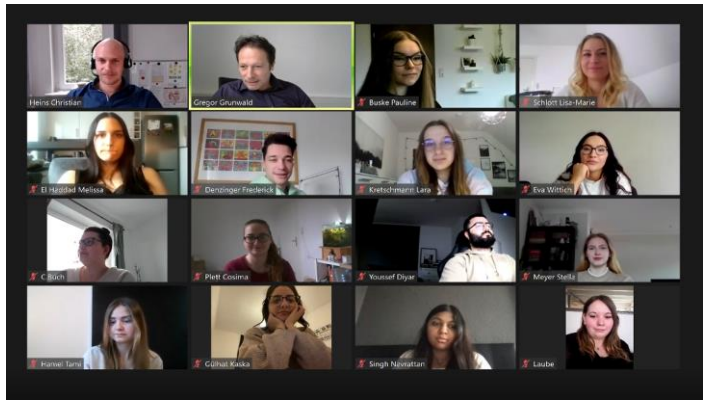
Chmura – Delivery Items

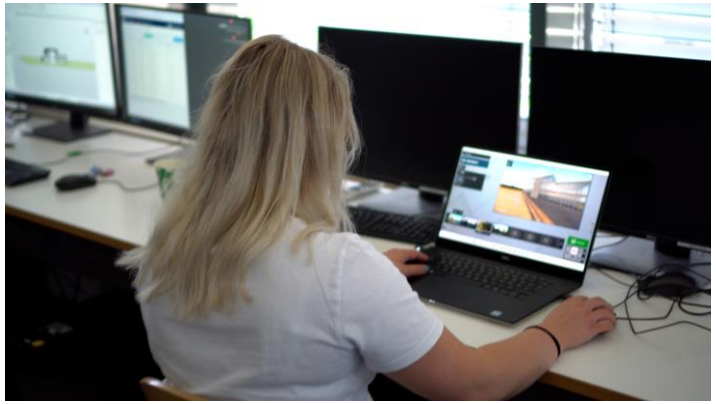


Doing

Competition phase







First Competition

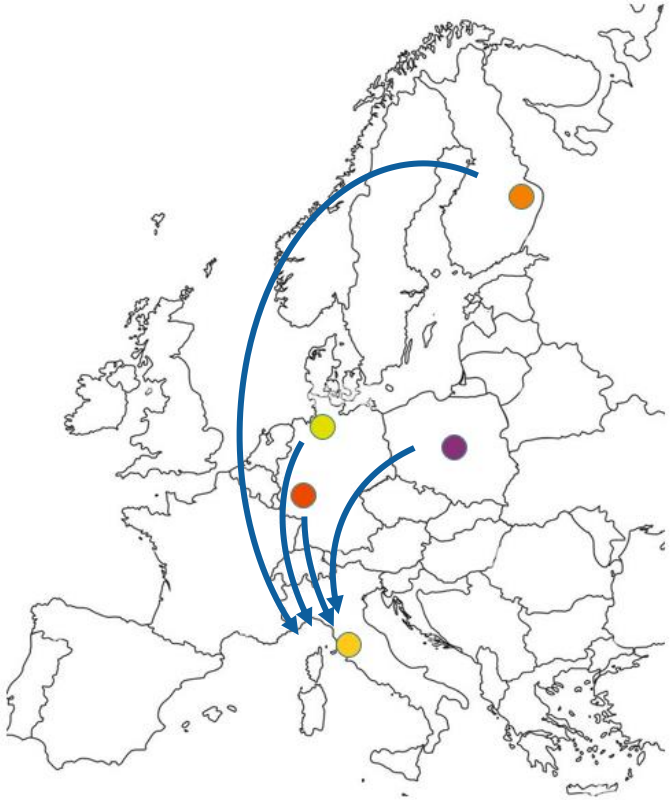
Karelia ammattikorkeakoulu

JADEHOCHSCHULE Wilhelmshaven Oldenburg Elsfleth

Politechnika Warszawska

BERGISCHE UNIVERSITÄT WUPPERTAL

UNIVERSITÀ DEGLI STUDI FIRENZE



final

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Thank you.