

Digital Building Survey – New Technologies and Cultural Heritage

This course is part of the field exercises within the bachelor's program and deals with the survey and digital recording of historic buildings. Students are introduced to the requirements of historical building documentation, the innovative technologies and methods in the emerging field of digital 3D survey and visualisation. In cooperation with the Foundation for the Preservation of Jewish Heritage in Poland the synagogue in Przysucha will be visited, explored, captured and documented as a case study.

Students will learn how to use a terrestrial laser scanner (TLS) and to apply data post-processing, including registration of scan data. This will be complemented by knowledge of the Unmanned Air Vehicles (UAV) and the application of Structure from Motion (SfM) technology. The digital data collection will be presented in-situ. The registration of the scans from TLS, the processing of the point cloud based on SfM, and subsequently the merging of data from the TLS and UAS approach will be addressed in the computer lab. Students will be concerned with the analysis of the collected data and the professional data output with integrated resources (i.a. orthophotos, cadastre plan, etc.) for further design projects and documentation of the Cultural Heritage. The students will learn to prepare comprehensive documentation data set for further Historic Building Information Modeling serving the intervention in historical build environment. The results will be used as a ground work and reference for the international, interdisciplinary intervention and design projects in cooperation with the School of Technology at Hochschule Mainz – University of Applied Sciences.

Programm

Attention: Preliminary meeting and introduction will be announced

Sunday, 22-05-2022

Attention: Transport to Przysucha has to be organised independent

0900-0930 Welcome in Przysucha (Arriving)

0930-1230 Hands-on survey on the synagogue in Przysucha (in groups TLS and UAV)

1230-1330 Lunch

1330-1800 Hands-on survey on the synagogue in Przysucha (in groups in TLS and UAV)

Monday, 23-05-2022

0900-1230 Registration of the point clouds from TLS (4h)

1400-1800 Processing of the point cloud based on SfM (4h)

Tuesday, 24-05-2022

0900-1000 Presentation of first results

1015-1230 Lecture on the Architecture of Synagogues by Elenore Bergman and discussion

1400-1800 Merging of data from the TLS and UAS

Wednesday, 25-05-2022

0900-1000 Presentation of the knowledge and resources for the documentation

1015-1230 Integration of the results (resources) in BIM supporting software

1400-1800 Documentation/Publication for further design and intervention projects in HBIM

Wednesday, 01-06-2022

Digital Data Drop (delivery) of the work (via upload of the required files)