

3rd Edition of

ARC-HEST 2024-2025

Architecture for Human Environment with Smart Technologies

스마트 기술을 이용한 인간적 환경의 건축

Swiss-Korean Academic Exchange Program:

Study of the synergy of **architectural design**, **human factors**, and **technologies** as well as their combined effects on the indoor environmental quality (IEQ) and human-building interaction in the context of the local culture and architecture *with real prototyping experiences*

Natural Environment

Climate - Landscape - Weather

Building

Architecture - Construction - Design - Envelope - Materials - Surroundings

Technology

Automation - Energy - HVAC - Machine Learning - Operation - Sensing & IoT

IEQ

Acoustics - Air Quality - Lighting - Temperature

Humans

Behaviors - Comfort - Health
Perception - Performance



The strong traditions, use of advanced technologies and direction towards a sustainable society, that Switzerland and South Korea share, pave the way to the international cooperation **ARC-HEST** between two countries to raise awareness about urbanism and related social issues and facilitate solutions inspired by different cultures and policies. Through the collaborative work of Swiss and Korean academicians and students from different disciplines, the program aims to comprehensively study the working environment in each country in conjunction with the local culture and architecture.

This **third edition** of the joint pedagogical program in the framework of two-week long Exchange Schools - a **Summer School 2024 in South Korea** and **Winter School 2025 in Switzerland**, will consist of lectures, workshops, studios and prototyping experiences. The essential part of each Exchange School is the visit of case study buildings by students and the analysis of the building design, operation, indoor comfort, occupant's satisfaction, and behaviour by different student groups. The main task of the student groups is closely associated with on-site measurement sessions, performance assessments and interviews over selected case studies.

This ARC-HEST edition focuses on **“Pojangmacha” (포장마차 in Korean, meaning ‘movable market stand / wooden wagon’)** that are frequently installed in streets in Korean cities. Based on their findings over this particular type of “tiny buildings”, the groups will develop “revisited Pojangmacha” with a special attention put to the environmental performances and occupants satisfaction for human-building interactions during the **Summer Workshop in 12 - 23 August, 2024**. During the **Winter Workshop in 3 - 16 February, 2025**, the participants will have the opportunity to build and test prototypes of their shelters projects at the smartlivinglab, Fribourg.

Each Exchange School will involve a total of selected **30 students** equally shared between 2 countries; the students *must be committed* to participating in both Exchange Schools and *have good written and spoken English skills*. Each country coordinates the selection of students that have applied at the three individual universities. However, the trans-disciplinary approach has been identified as the *fundamental element* for the generation of innovative solutions applied to the built environment within the framework of this Exchange Program. Therefore, the common selection guidance is to aim for an interdisciplinary mix of excellent students.

Targeted Outcomes:

- Establishment of the long-term cooperation programme between the partners, facilitate the exchange of ideas among students and enhance creativity.
- Increased mutual knowledge of Swiss and Korean cultures and traditions in architecture, engineering, and technology.
- Reinforced Swiss scientific and cultural presence in the fields of architecture and construction in East-Asia and vice versa.
- Dissemination of the results of the two Exchange Schools.
- Joint research topics originated from the meeting of different competencies among the academicians of the universities involved in the programme.
- Long-term research cooperation and scientific publications as a result of the joint research.

