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HAMK



SUSTAINABLE, HIGH-PERFORMANCE BUILDING SOLUTIONS IN WOOD (HiBiWood)

C2 Intensive learning course (O2 BSc/BA elective module)

University of Applied Sciences Campus Vienna, Austria

06.-17. September 2021

CONTENT AND PROJECT OBJECTIVES

WORKSHOP DESCRIPTION

During the two-week workshop, the students will learn about the practical implementation of timber and timber hybrid concepts in all project phases and will apply them using a projectbased and cross-professional learning approach. Bachelor students in architecture and civil engineering from the six partner universities will work together and solve complex problems related to timber construction. In addition to the joint project task, the workshop will also include inputs from international experts and excursions to timber construction companies.

PROJECT OBJECTIVES

- Educating and training all participants (students, instructors, companies) in the area of sustainable building and multistory timber construction.
- Developing and implementing a transdisciplinary elective module for the architecture programs of the partner universities that lives up to the future requirements of the construction industry with regard to sustainable construction.
- Developing guidelines/principles to simplify the practical implementation of sustainable construction projects (new builds or renovation, with a focus on timber construction).
- Improving the skills of students and instructors in the areas of problem solving and teamwork, innovative thinking, motivation and awareness of sustainable building through a project-based and transdisciplinary learning approach.
- Sensitizing and raising awareness among various actors at the local, national, EU and international levels concerning sustainable building processes and principles

DATE	LOCATION / TRAINING CONTENT	PRESENTER
1. Mon. 06.09.	FH Campus Wien - Favoritenstraße 226, 1100 Wien / A.-1.01	
09:00 - 10:50	2,0 Introduction Game (ice breaker), Introduction of HiBiWood and the group task	Violeta Sulciene (SCC) Martin Aichholzer
11:00 - 11:50	1,0 Global Environmental Issues. Why timber? This lecture will create an awareness of the global issues, we are facing and how we can address them by implementing sustainable timber materials: IPCC climate change report, Carbon footprint/ecological foot print (example of Co2), Greenhouse effect, Michael Green, High-rise buildings and materials past and present	Roger Howard Taylor Violeta Sulciene (SCC)
12:00 - 12:50	1,0 The Climate Fresk workshop Understanding climate change and its consequences, group work and team building part 1 (Build)	Roger Howard Taylor Violeta Sulciene (SCC)
12:50 - 14:00	1,0 LUNCH BREAK	
14:00 - 14:50	1,0 The Climate Fresk workshop Understanding climate change and its consequences, group work and team building part 2 (Create)	Roger Howard Taylor Violeta Sulciene (SCC)
15:00 - 15:50	1,0 The Climate Fresk workshop Understanding climate change and its consequences, group work and team building part 3 (Present)	Roger Howard Taylor Violeta Sulciene (SCC)
16:00 - 16:50	2,0 English Language Technical Terminology/Timber Stud Frame Building Construction Principles of environmental sustainable timber framing house construction. Timber stud frame houses, are built from the ground up, but designed from the roof down. The roof structure distributes the loads to the walls, which distributes them to the sub-floor structure and then to the foundations. The timber components must be fixed or tied down to make a ridged construction. This lecture teaches the students the English technical timber stud frame terminology, engineering theory regarding live, dead and, wind loads and transnational group work, learning by doing by constructing a two storey interactive timber stud frame house.	Roger Howard Taylor Violeta Sulciene (SCC)
2. Tue. 07.09.	FH Campus Wien - Favoritenstraße 226, 1100 Wien / P.1.11 & P.1.15	
09:00 - 10:20	1,5 Architecture - How to think in timber? Aspects to be considered when designing a wooden building	Martin Aichholzer (FHCW)
10:30 - 11:50	1,5 Forestry and Sustainable Aspects Grey Energy, Efficiency, Economy, Economic Aspects, Regional Value Creation	D.Jankauskiene (KVK) L.Kuklienė, L.Kuklys
12:00 - 13:00	1,0 SHORT PRESENTATION Preparatory task (2 groups)	TEAM FHCW1 TEAM CUT
13:00 - 14:00	1,0 LUNCH BREAK	
14:00 - 18:00	4,0 TEAM WORK Elaboration of the group task	
	SUPERVISION & QUESTIONS Architecture - Design & Sustainability	Martin Aichholzer (FHCW) Roger Taylor (SCC)

DATE	LOCATION / TRAINING CONTENT	PRESENTER
3. Wed. 08.09.	FH Campus Wien - Favoritenstraße 226, 1100 Wien / P.1.11 & P.1.15	
09:00 - 10:20	1,5 Building materials from tree to slab to "by-products" Presentation of materials produced from wood from tree logs to highly engineered materials used nowadays, and also materials that uses leftovers (MDF or OSB)	S. Kuc, Ł. Wesołowski P. Mika (CUT)
10:30 - 11:50	1,5 History of (multi-storey) timber construction Introduction to topic - terminology, scope of wooden construction. The development of technology and examples of buildings in antiquity and the Middle Ages. Evolution to the modern 19th and 20th century forms of wooden construction - the appearance of new and the disappearance of old solutions. Summary of multi-storey structures used today with their advantages and disadvantages (spans, heights, element sections).	S. Kuc, Ł. Wesołowski P. Mika (CUT)
12:00 - 13:00	1,0 Tendering, structural systems, elements Overview about the types of tendering of timber bulidings, especially in accordance to their differences due to the method of construction	Matthias Doubek (FHCW)
13:00 - 14:00	1,0 LUNCH BREAK	
14:00 - 15:00	1,0 SHORT PRESENTATION Preparatory task (2 groups)	TEAM FHCW2 TEAM HAMK
15:00 - 18:00	3,0 TEAM WORK Elaboration of the group task SUPERVISION & QUESTIONS Statics & Building Construction	Kalle Rohola (HAMK) Ł. Wesołowski (CUT)
4. Thur. 09.09.	FH Campus Wien - Favoritenstraße 226, 1100 Wien / P.1.11 & P.1.15	
09:00 - 09:50	1,0 Timber technology, construction, connections, structural systems - connection systems Rothoblaas is a multinational leader - Italian company providing materials for timber construction. A brief presentation with building site examples will show the last projects of the company and the services that could be interesting for the HiBiWood workshop. Building in wood and hybrid construction will be the future in the building industry and Rothoblaas with its wide range of products, can offer all the materials for timber construction from fixings to soundproofing solutions. Another topic will be: reaction with fire in timber structures – a comparison between steel and timber structures regarding fire resistance.	Santi Davi (Rothoblaas)
10:00 - 10:50	1,0 Timber technology, construction, connections, structural systems - connection systems Basic course in wood / timber technology (structure and properties of wood with regard to its processing); Types of wooden materials for timber constructions; Explanation of the basic building methods in timber construction and its joining technologies	Matthias Doubek (FHCW)
11:00 - 12:00	1,5 Production, interfaces, quality assurance, craft,prefabrication, details	Bernd Höfferl (Pro Holz/ FHCW)
12:00 - 13:00	1,0 LUNCH BREAK	
13:00 - 17:30	3,0 EXCURSION Production and prefabrication (factory Handler)	HANDLER

DATE	LOCATION / TRAINING CONTENT	PRESENTER
5. Fri. 10.09.	FH Campus Wien - Favoritenstraße 226, 1100 Wien / P.1.11 & P.1.15	
09:00 - 10:20	1,5 Building physics Properties of wood and timber elements as a material - fire resistance. Fire resistance requirements for building elements (load-bearing walls, ceilings, staircases, partition walls). Why can wood be considered as non-flammable in a building? Fire protection of connections between construction elements made of wood.	S. Kuc, Ł. Wesółowski P. Mika (CUT)
10:30 - 11:50	1,5 Building physics Heat / Sound / Moisture management	Kalle Rohola (HAMK) Cristina Tirteu (HAMK)
12:00 - 13:00	1,0 SHORT PRESENTATION Preparatory task (2 groups)	TEAM RBC TEAM KVK
13:00 - 14:00	1,0 LUNCH BREAK	
14:00 - 18:00	4,0 TEAM WORK Elaboration of the group task SUPERVISION & QUESTIONS Building physics	Kalle Rohola (HAMK) Ł. Wesółowski (CUT)
6. Mon. 13.09.	FH Campus Wien - Favoritenstraße 226, 1100 Wien / P.1.11 & P.1.15	
09:00 - 10:20	1,5 CLT Production, Planning, Design Company presentation - Stora Enso Wood Products	Johanna Kairi (Stora Enso)
10:30 - 12:30	2,0 Static requirements Performance of wood (load capacities, material strengths of various products) Load assumptions, vertical and horizontal load transfer in the building (Pre-) dimensioning of building components	Kamylar Tavoussi (TU Wien)
12:30 - 13:30	1,0 LUNCH BREAK	
13:30 - 18:00	4,5 TEAM WORK Elaboration of the group task SUPERVISION & QUESTIONS Building Construction	Ingars Strazdins (RBC) Roger Taylor (SCC)
7. Tue. 14.09.	FH Campus Wien - Favoritenstraße 226, 1100 Wien / P.1.11 & P.1.15	
09:00 - 10:30	1,5 4. Multi-Disciplinary Working Detailing in Sustainable Engineered Timber Buildings Engineered Timber building systems offer a sustainable and innovative solution with long-term benefits to the building and construction sector, the timber industry and decreasing greenhouse gas emissions and Climate Change. Wood is one of the most sustainable means of construction and engineered timber building systems can offer an efficient solution if all aspects are considered multidisciplinary analysed and solved in the buildings final working drawings This lecture will motivate students to solve both the external and internal environmental demands, when detailing an Engineered Timber building.	Roger Howard Taylor Vijoleta Sulciene (SCC)
10:40 - 12:00	1,5 BIM modeling, IFC and Operation and Maintenance Use case presentation	Ingars Strazdins (RBC)
12:00 - 13:00	1,0 LUNCH BREAK	
13:00 - 17:00	3,0 EXCURSION Construction Site	HANDLER

DATE	LOCATION / TRAINING CONTENT	PRESENTER
8. Wed. 15.09.	FH Campus Wien - Favoritenstraße 226, 1100 Wien / P.1.11 & P.1.15	
09:00 - 09:50	1,0 Detailing for frame timber buildings	Elina Barone (RBC)
10:00 - 10:50	1,5 Wooden facades, plaster systems Wooden facades and their technical framework conditions, substructure and constructive and / or chemical wood protection	Matthias Doubek (FHCW)
11:00 - 13:00	2,0 TEAM WORK Elaboration of the group task SUPERVISION & QUESTIONS Building Construction & Detailing	Matthias Doubek (FHCW)
13:00 - 14:00	1,0 LUNCH BREAK	
14:00 - 18:00	4,0 TEAM WORK Elaboration of the group task SUPERVISION & QUESTIONS Building Construction & Detailing	Roger Taylor (SCC) Ingars Strazdins (RBC) Dainora Jankauskienė (KVK)
9. Thur. 16.09.	FH Campus Wien - Favoritenstraße 226, 1100 Wien / P.1.11 & P.1.15	
09:00 - 13:00	4,0 TEAM WORK Elaboration of the group task SUPERVISION & QUESTIONS Final Questions	Roger Taylor (SCC) Dainora Jankauskienė (KVK)
13:00 - 14:00	1,0 LUNCH BREAK	
14:00 - 18:00	4,0 TEAM WORK Elaboration of the group task SUPERVISION & QUESTIONS Final Questions	Ingars Strazdins (RBC) Martin Aichholzer (FHCW)
10. Fri. 17.09.	FH Campus Wien - Favoritenstraße 226, 1100 Wien / P.1.11 & P.1.15	
09:00 - 13:00	4,0 FINAL PRESENTATION Presentation of the group task (6 Groups) - 40 min per group	Martin Aichholzer (FHCW) Roger Howard Taylor (SCC) Matthias Doubek (FHCW)
13:00 - 14:00	1,0 LUNCH BREAK	
14:00 - 17:00	3,0 CONCLUSION & FINAL DISCUSSION	Roger Howard Taylor (SCC) Martin Aichholzer (FHCW)

CONTACT

LOCATION

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