Wood products and processes

INTRODUCTION 26.2.2024

CHEM-E2235 5 cr

Aalto University
School of Chemical
Engineering

Welcome!

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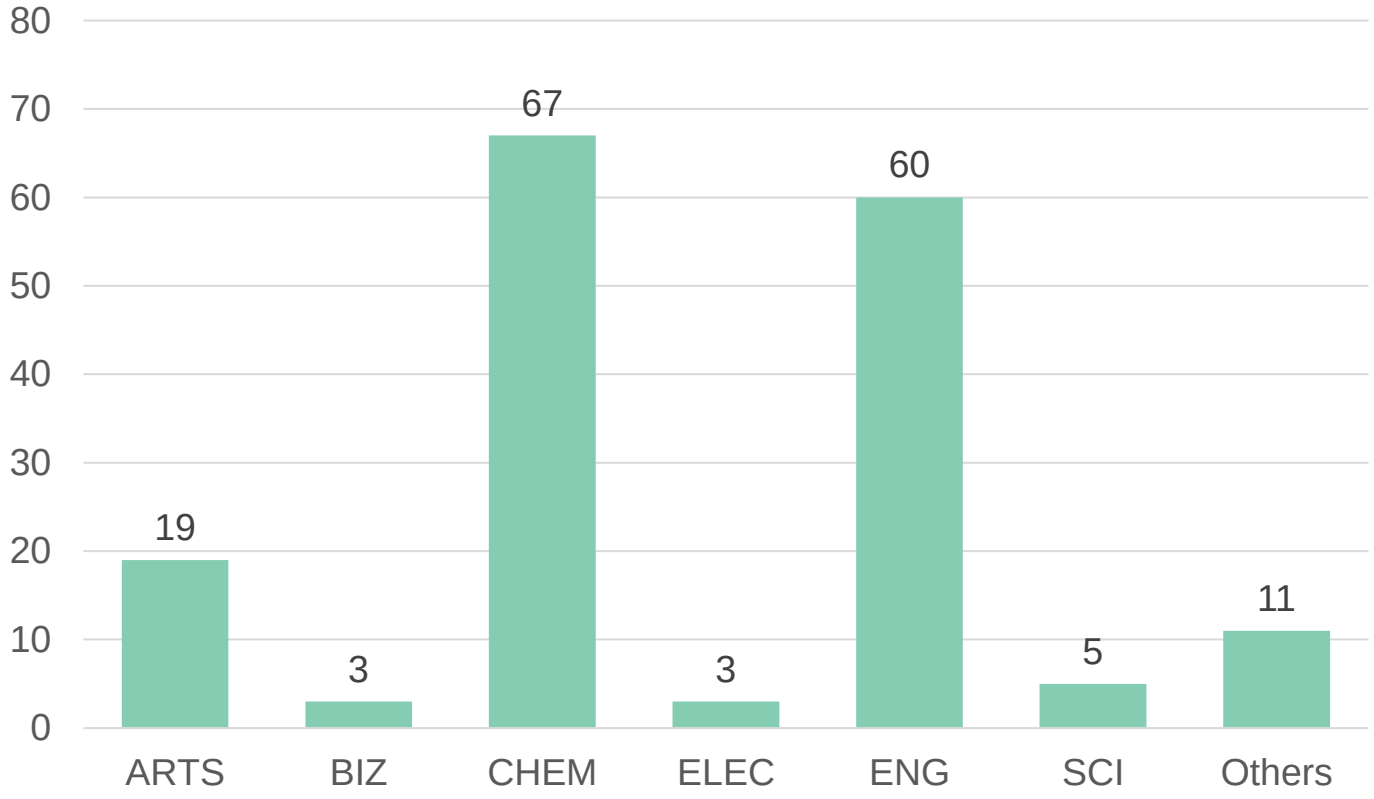
Registered students by department

25.2.2024

168 students



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CHEM-E2235 / 5 CR

Wood products and processes

ONLINE course

This course presents the production processes of selected wood products, such as plywood, cross-laminated timber, particleboards, fiberboards and modified wood products starting from raw material to the end product.

Students will learn the links between wood product properties and typical applications in the living environment.

26.2.–14.4.2024

For students in all fields
Proceed at own pace!
Registration in Sisu by 4.3.2024

Course description and registration in Sisu:

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After the course, students know…

- the most common **wood adhesive systems**, their properties and application in wood products
- the most common **wood products**, their setup and application range
- **production processes** of selected wood products, such as plywood, cross-laminated timber, particleboards, fiberboards and modified wood products starting from raw material to the end product
- how **wood material properties** (such as grain orientation and knots) **influence** the processing of wood into different products
- wood **degradation** mechanisms and preservation/modification methods to enhance the **durability** of wood

How to pass the course?

Mon 26.2.2024 at 13:15 Introduction @Zoom

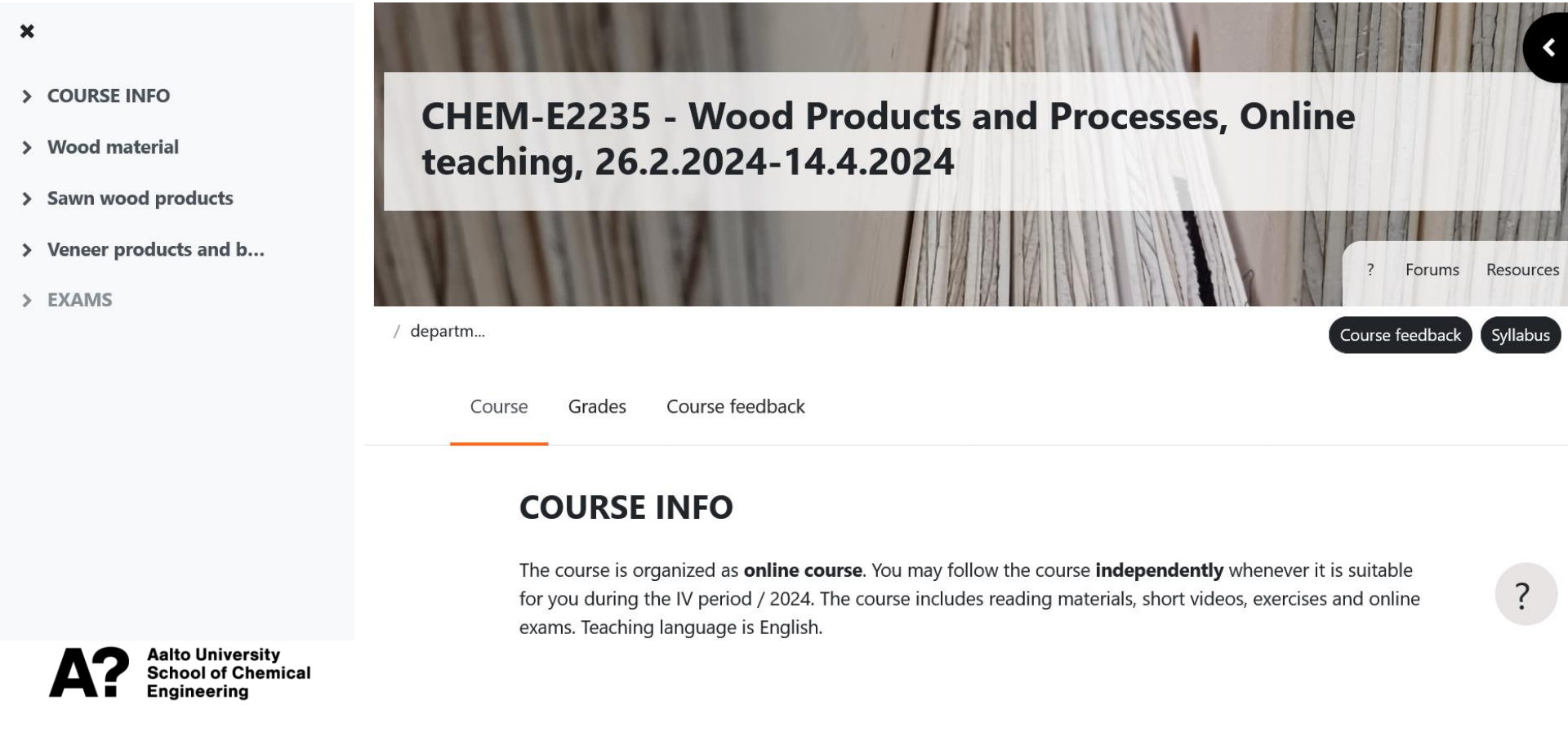
1. **Study the material at Aalto MyCourses workspace**
   - Practice with all the 9 online quizzes (100% correct)
2. **Do the 3 online exams in the workspace**
   - The exams you may do only once
3. **DL Wed 10.4.2024**
4. **Give feedback in MyCourses**

Fri 12.4.2024 at 14:15 Closing @Zoom

Participation to intro + closing sessions recommended (not compulsory)

→ Grading 0-5 (scale determined later)

Course info in MyCourses



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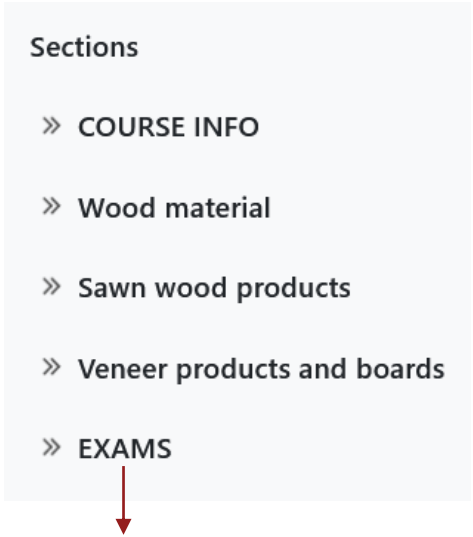
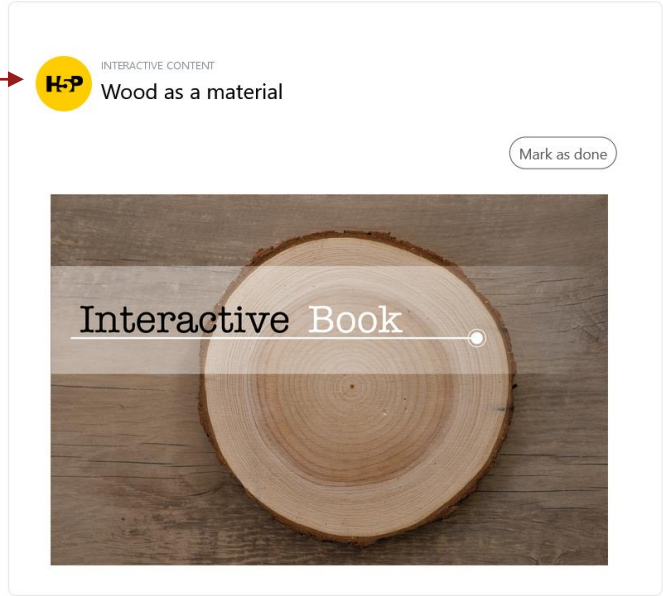
All materials in MyCourses

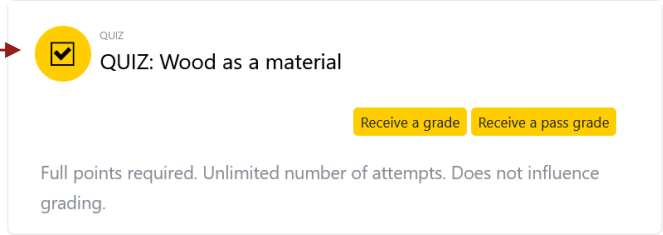


3 Exams
Influence grading
Open after the first week

“Interactive book”



“Quiz”
100% correct
unlimited attempts



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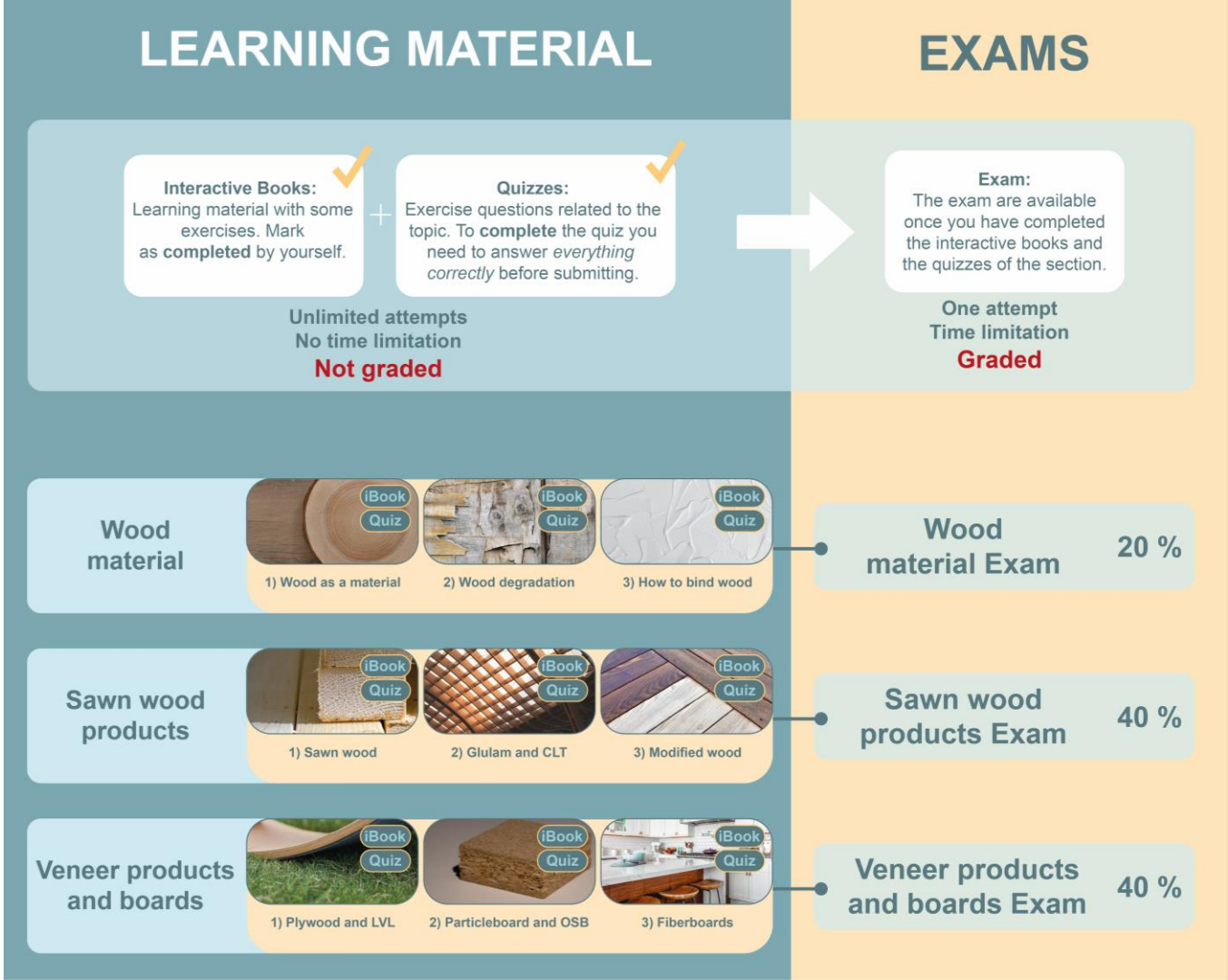
+ additional non-graded material / exercises (360 house, etc.)

Plan ahead!

- DL 10th April (23:59)
- < 7 weeks
- Make your own schedule
- Don’t leave exams at the last minute!



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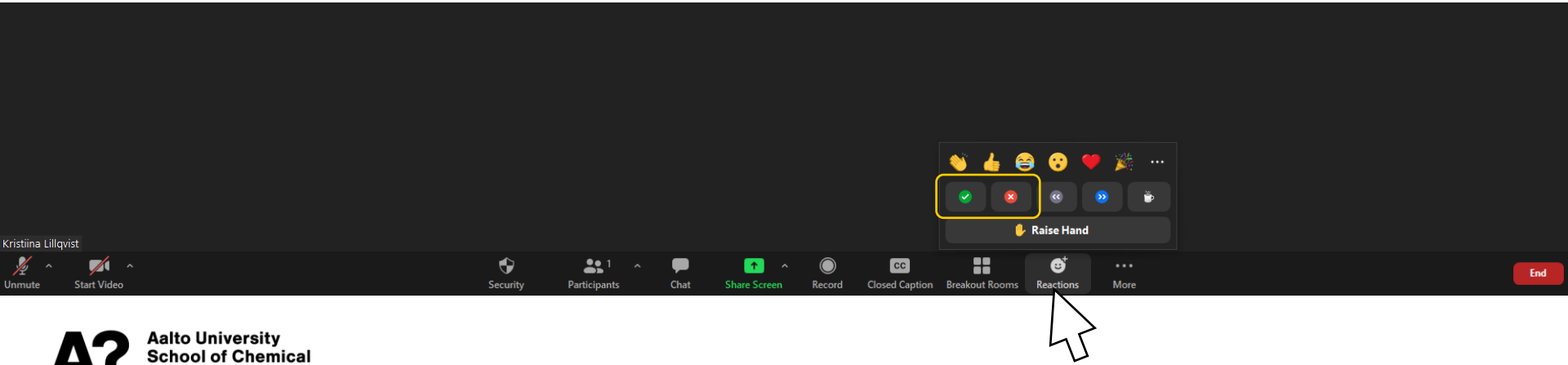
Independent learning

Tips from our study psychologist Henna Niiva

1. **Pomodoro co-study sessions**
   - Start your studies with Pomodoro | Aalto University
2. **Self study material about time-management**
   - Course: Time to Get Cracking – 3 week Self-study material on time management for students (aalto.fi)
3. **Self study material about getting things done**
   - Course: ABCs of getting things done (aalto.fi)
4. **Podcast episode about time-management**
   - Time-management - a skill everyone can learn with time
   - The Best Thing Today podcast series | Aalto University
5. **Students may also visit guidance counsellor in Starting point of wellbeing and get support for time-management.**
   - Guidance counsellor’s drop in on Thursdays at 13-15. Starting Point of Wellbeing | Aalto University

Yes / no questions!

- To start learning process
- Does not influence your grade
- Use yes / no –buttons in Zoom



Did you already take one of these online courses?

YES
I took one, or both

NO
I did not take them yet

CHEM-C2470 / 5 CR

Students will learn about the role of forests in the carbon cycle and carbon storage potential of wood products.

The basic structure of wood is presented with links to its properties such as appearance, dimensional stability, and strength.

5.9.–14.10.2022

No pre-requisites
For students in all fields
Proceed at own pace!
Registration in Sisu by 12.9.2022

Course description and registration in Sisu:

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CHEM-E2225 / 5 CR

Students will learn about the formation and structure of wood, as well as its physical and mechanical properties.

The course explains how the structure of wood affects its physical and mechanical properties, as well as describing factors that affects its durability.

10.1.–14.2.2023

For students in all fields
Proceed at own pace!
Registration in
Sisu by 16.1.2023

Course description and registration in Sisu:

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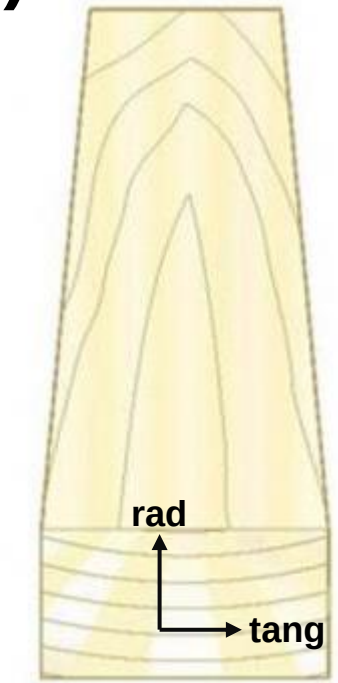
Quarter sawn timber swells and shrinks more homogenously (tang≈rad)?

YES

The tangential movement is less pronounced and orientation less prone to cupping/warping

NO

Tangential movement can be about double compared to radial movement.



Flat sawn

Quarter sawn

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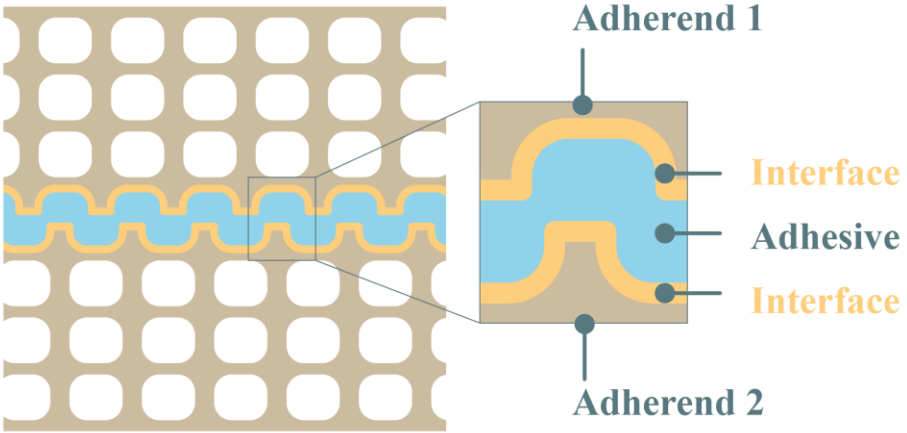
Imgae source: https://www2.canadianwoodworking.com/get-more/wood-cuts-and-where-they-come

Primary bonding mechanism for wood and adhesive is chemical bonding?

YES
Wood molecules are chemically bonded to adhesives

NO
Bonding mechanism is mechanical interlocking



Picture: Daniela Altgen

In glulam beams/posts the glued timber *layers* are oriented perpendicular to one another (cross-laminated)?

YES
They are oriented perpendicular (in 90 ° angles)

NO
They are oriented parallel.

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Picture: Adobe Stock

Logs are soaked before peeling into veneers?

YES
They are soaked.

NO
They are peeled dry.

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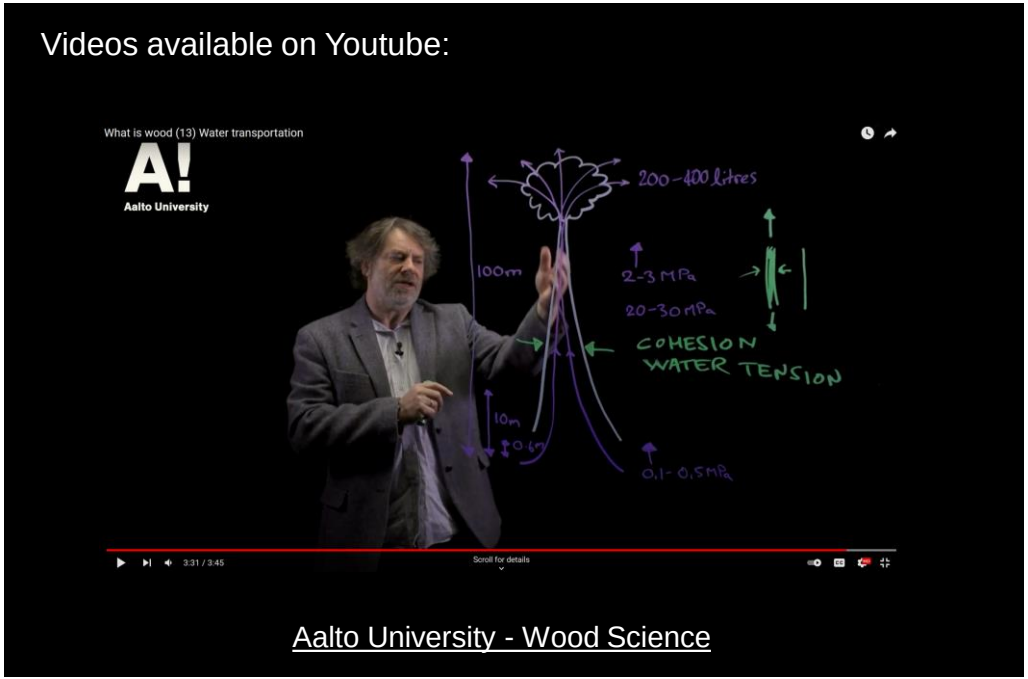
Source: https://www.raute.com/lines-and-machines/lines/veneer-peeling/

Questions / comments?

wood-teaching@aalto.fi

- Are you able to find MyCourses –page?
- Can you find and access the interactive books?

Videos available on Youtube:



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