



## Workshop on “Wood- and Polymer Composites” by Tallinn University of Technology

Based on Master’s Programme in Technology of Wood and Plastic

### Background

Estonian timber industry is innovative, well automated and capable of producing high quality products for global market. Nordic timber, such as Norway spruce (*Picea Abies*), Scots pine (*Pinus Silvestris*), and Silver birch (*Betula pendula*) has advanced mechanical properties due to slow growth in cold climate, thus the wood is close-grained and of consistent high quality. Due to the advanced processing technology, the added value in timber or wood based products (plywood, fibre-, chipboards) and furniture industry is increasing continuously. The workshop will expose students to the exciting topic of wood- and polymer composite materials and their processing technologies.

**The workshop will be held** in sessions of total 6 academic hours.

### Learning outcomes

Students will gain an understanding how to use merits and demerits of timber, wood- or plant fibre to produce sustainable composite materials for different applications (timber joinery, commodity-, furniture making, ship building, car manufacturing and building & construction industry). After the workshop, students will be inspired to make the world a cleaner and greener place with help of timber and timber based composite products to reduce CO<sub>2</sub>emission.

### Workshop content

The workshop will consist of six topics:

- Introduction to wood resources and consumption.
- Structure of soft- and hardwood; desired and undesired properties of wood and its fibres.
- Advanced materials based on cross-laminated products; their properties and applications.
- Modern and traditional wood- and polymer composite materials for furniture making industry.
- Nano cellulose and its applications in composites
- Group works: to introduce the samples of different composite materials and to discuss their manufacturing technologies.

### Target audience

The workshop is intended for bachelor and master students, preferably with technology and science background. The workshop is suitable for students and engineers involved/interested in timber-, composite- or furniture products and their processing technologies for manufacturing industry, shipbuilding and building & construction industry.

Number of participants: **25 students** for optimal results. With the consent of instructor, more participants can be accepted.

### Instructor

**Jaan Kers** is the Professor of woodworking at Tallinn University of Technology. He is the Chair of Wood Working and the head of woodworking and furniture testing laboratories. He has been involved in the R&D material technology projects with various companies from wood-, furniture-, plastic-, composite-, shipbuilding and recycling industry. Jaan has collaborated with product designers to develop new materials and products from composite and recovered materials. His research interests are related to the field of polymer composite materials and wood plastic composite materials.

**Special benefits for workshop participants**

- Diploma upon completion of the workshop
- Application fee waive for those who apply for Tallinn Tech study programs: you save 50 euro for bachelor and 100 euro for master,
- Discount of 250 euro for English Language Preparatory Year,
- Discount of 15% for the Summer School: you save 370 euro if register before 1<sup>st</sup> of May or 385 euro if register after 1<sup>st</sup> of May,
- Discount of 20% for European Innovation Academy (EIA): you save 90 euro if register one course, and 158 and 210 euro if register two and three courses respectively.

\* 1 euro = ca 8,41 yuan (based on the [Bank of China exchange rate](#) on Feb 15, 2013)

**Contact information**

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