



INTERNATIONAL DOCTORAL PROGRAMME IN BIOPRODUCTS TECHNOLOGY

### PaPSaT doctoral course

## Puu-21.6040 Unit Operations of Paper and Board Finishing and Converting (7 ECTS)

Department of Forest Products Technology  
School of Chemical Technology, Aalto University  
Lecture Hall L1 (241), Puu 1 -building, Vuorimiehentie 1, Espoo

**16-20 May, 2011**

### COURSE DESCRIPTION

The purpose of the course is to introduce the student to the various unit operations in finishing and converting of paper and board products. This includes the descriptions of the treatment and converting processes and their influence on the end product properties and functionality. A variety of most common products are studied with particular attention to their properties and end-use. Course includes a product analysis rehearsal work and a presentation based on this.

### Lecturers:

Course leader Prof. Jouni Paltakari, Aalto University  
+  
invited lecturers from Aalto University and industry

### LITERATURE

- Lecture handouts
- Papermaking Science and Technology-book series: Book 10. PAPERMAKING PART 3 FINISHING  
Updated second edition (2010), Edited by Pentti Rautiainen, Metso Paper Inc. ISBN 978-952-5216-36-3
- Papermaking Science and Technology-book series: Book 12. PAPER AND PAPERBOARD CONVERTING  
Updated Second Edition (2008), Edited by Jurkka Kuusipalo, Tampere University of Technology, ISBN 978-952-5216-28-8

### REQUIREMENTS

Lectures, assignments, exam

### REGISTRATION

Registration should be made by 29<sup>th</sup> of April: [https://eage.aalto.fi/?fs/en/TAPAHTUMA\\_44323](https://eage.aalto.fi/?fs/en/TAPAHTUMA_44323)

Course leader: Prof. Jouni Paltakari, [jouni.paltakari@aalto.fi](mailto:jouni.paltakari@aalto.fi).

Course arrangements: PaPSaT Coordinator Piia Simpanen, [piia.simpanen@aalto.fi](mailto:piia.simpanen@aalto.fi)



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**SCHEDULE**

<i>hours</i>	<b>Monday 16.5.</b>	<b>Tuesday 17.5.</b>	<b>Wednesday 18.5.</b>	<b>Thursday 19.5.</b>	<b>Friday 20.5.</b>
<b>9:15-10:00</b>		Unit operations in finishing: Reeling	Gluing rehearsal in laboratory	Impregnation	Pair work presentations (Gluing and testing)
<b>10:00-10:45</b>	Welcome and introduction	Winding	.....	Siliconization	Pair work presentations (Gluing and testing)
<b>10:45-11:30</b>	Paper and board grades	Sheeting	and testing of the samples	Metallization	Course sum-up and conversation
<b>11:30-12:15</b>	Summary of finishing and converting operations, samples for the analysis work	Roll handling	Data collection for analysis	Intelligent materials	Course sum-up and conversation
<b>12:15-13:00</b>	Lunch	Lunch	Lunch	Lunch	
<b>13:00-13:45</b>	Essential properties of converted grades (mechanical)	Unit operations in converting: Cutting and creasing	Unit processes in converting: Extrusion coating	Converted products	
<b>13:45-14:30</b>	Essential properties of converted grades (surface and barrier)	Gluing	Extrusion coating	Converted products, corrugated board	
<b>14:30-15:00</b>	Coffee break	Coffee break	Coffee break	Coffee break	
<b>15:00-15:45</b>	Bending stiffness	Embossing	Dispersion and solvent coating	Printing of converted materials and packaging	
<b>15:45-16:30</b>	Adhesion, cohesion and wetting	Pretreatments for converting	Dispersion and solvent coating	Presentations: converted product analysis	
<b>16:30-17:00</b>	Friction and static electricity	Check-point: Bending stiffness calculation results	Hot-melt and wax coating	Presentations: converted product analysis	
		Networking event at Otaniemi			