


CHEMARTS 2020

by Design Meets Cellulose
2012

Pedobak
hygiene coatings
on furniture in
spray-film



3D-printable
cellulose
garments

Semi-permanent
tattoo
(anti-mosquito)

Cellulose
bath

CELLULOSE
PAINT THAT
MAKES
BUILDING
STRONGER

winter suits
with
vitamin D,
rechargeable

place
Tastelife



Nutrition
through
clothes

GLOVE THAT
FUNCTIONS
THE
PHONE
AS A

SPORTS
CLOTHING

remaining
01a


Optical prop
in a thin
01a

for
for
se

On
MART
GUESS

all
kitchen

Toothpaste &
brush
live in
mouth



magnetic/static

Long-term collaboration between



Aalto University
School of Arts, Design
and Architecture



Aalto University
School of Chemical
Technology

SCENARIO
STORY BOARDING
OF AN IDEA
ASSORT MENU

WALL PAPER
ACQUAIRE

LUXURY
CELLULOSE

COLLABORATION
FOR
MILTO

3D-printable
cellulose
garments

1) CONTACTING PEOPLE
ORGANISATIONS/COMPANIES
GIVE INFO ABOUT YOUR
PROJECT

2) SCENARIO / STORY BOARDING
MATERIAL - "STITCHES"
LUXURY CELLULOSE

1) COLLABORATE / EMAIL VTM ABOUT THE
FOAM VILLOSE CONCEPT
↳ EXPLAIN WHY WE WANT
TO DO IT
↳ ADVANTAGES?
↳ THE IMPORTANCE
IS IN COLLABORATION
TO WORKER WITH THE
OUTCOME

2) THE 20L OF HAND CELLULOSE
↳ MIX WITH CEMENT
↳ BE WITH PLANKS
↳ SPRAY / BOTTLES
↳ MORE IDEAS ...



ADD TO
THIS SKETCH/
DODGE ANYWAY!





INTRODUCTION

Design Meets Cellulose is the inaugural multidisciplinary summer project between Aalto University's School of Arts, Design and Architecture and School of Chemical Technology. The project's primary object is to combine the two distinct disciplines of design and engineering, and thus hopefully establish a long-term collaboration between these two schools of Aalto University.

In the summer 2012 the project's main focus has been to evaluate the performance of cellulose based materials and additionally to seek for novel and advanced uses of cellulose based materials.

Even though academic collaboration within Aalto University was not one of our primary goals at the start of the project, it became increasingly important to the project team as the co-operation progressed. Consequently it was decided that the future of collaboration within Aalto should be discussed in more detail on a conceptual level.

Although there are many existing and fruitful collaboration initiatives within Aalto University, this project is in many respects a pilot venture looking at the many possible ways to integrate design and the multitude of processes and products the forest products industry entails.

In actuality the initial seed for a hopefully long-lasting collaboration within the two schools of Aalto University has already been planted with the Design Meets Cellulose project that is now concluding. This brochure that you are holding in your hands is designed to include some of our suggestions and views on keeping this novel collaboration alive and vibrant for years to come. To the six members of the Design Meets Cellulose project the summer 2012 has been innovative, unforgettable, revolutionary and most importantly an educational process like no other.

Let's build this collaboration further and help to advance it to new unprecedented heights. This way future students can enjoy it as much as we have!

Teresa Heiniö, Marianne Huotari, Kristiina Kellokoski,
Andreas Lindberg, Kaushik Sriraman and Marjaana Tantt

COLLABORATION NOW STUDENT`S POINT OF VIEW

Upcoming open offices

New campus site

Freedom of movement

Start-up support

Aalto initiatives -> Design Factory, FabLab, AddLab

ME310&PDP

Connections to the industry

Approachable staff & professors

Experimentalism

Internationality

Lack of synergy between Finnish and international students

Bureaucracy - hierarchy

Lack of "innovative" projects

Learning from others: exchange of departmental knowledge

Connection of studies to "real life"

Not enough rewarding for collaboration

Old fashioned engineering working methods

Lack of marketing & promoting

Lack of curiosity towards others

A word cloud featuring several terms in various colors and orientations. The most prominent words are 'Studies' (black, top left), 'Inspiration' (red, vertical, right side), and 'Development' (purple, bottom left). Other visible words include 'Science' (black, bottom right), 'Workshops' (red, middle left), 'Research' (teal, middle left), 'Teamwork' (black, bottom right), 'Parties' (yellow, top right), 'Pla' (red, top right), and 'P' (green, top right).

Studies

Research

Workshops

Development

Science

Teamwork

Parties

Pla

P



Marketing

Excursions

Co-creation

Inspiration

Hubs & Spaces

People

Local

Global

Tools & Methods

Industry

Success

Exchange

Transformation

Creativity

Interface

Personalities

Passion

Design

Sustainability

Technology

Projects

Excitement

Courage

Added Value

Culture

Curiosity

Promotion

STRENGTHS OF THE SCHOOLS

AALTO ARTS

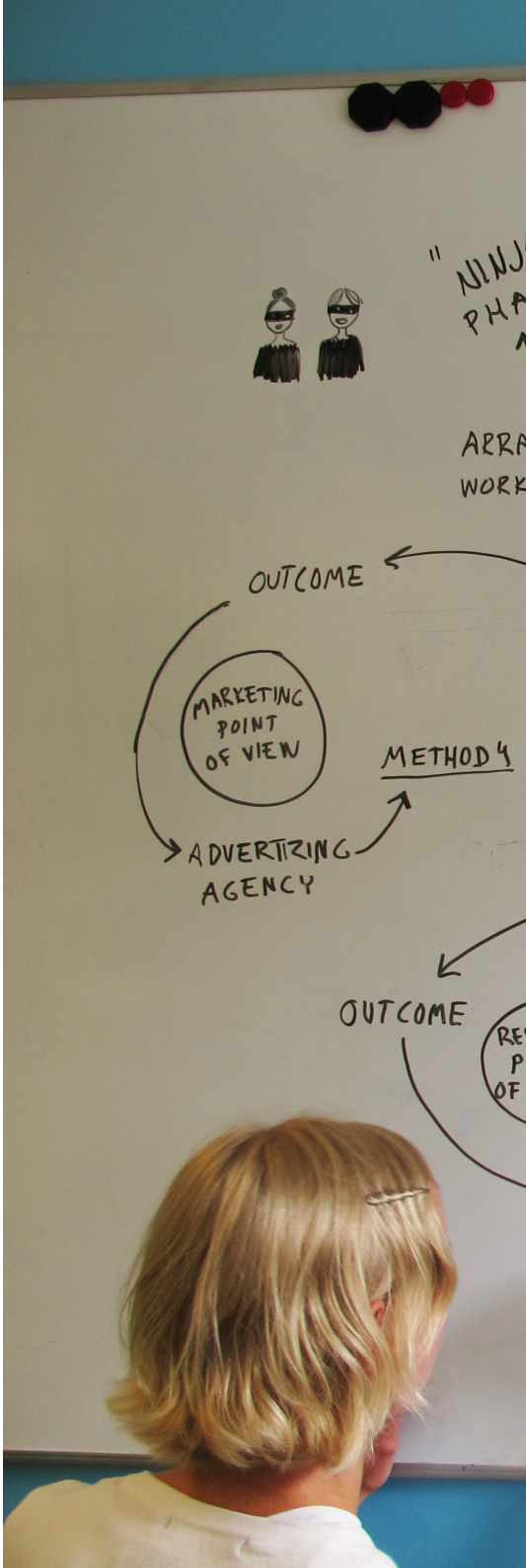
- . Flow of ideas & “free thinking”
- . Brainstorming
- . High confidence in idea sharing and presenting of ideas & concepts
- . Strong visuality through artistic expression
- . Improved group working skills through strong interaction
- . Concept building

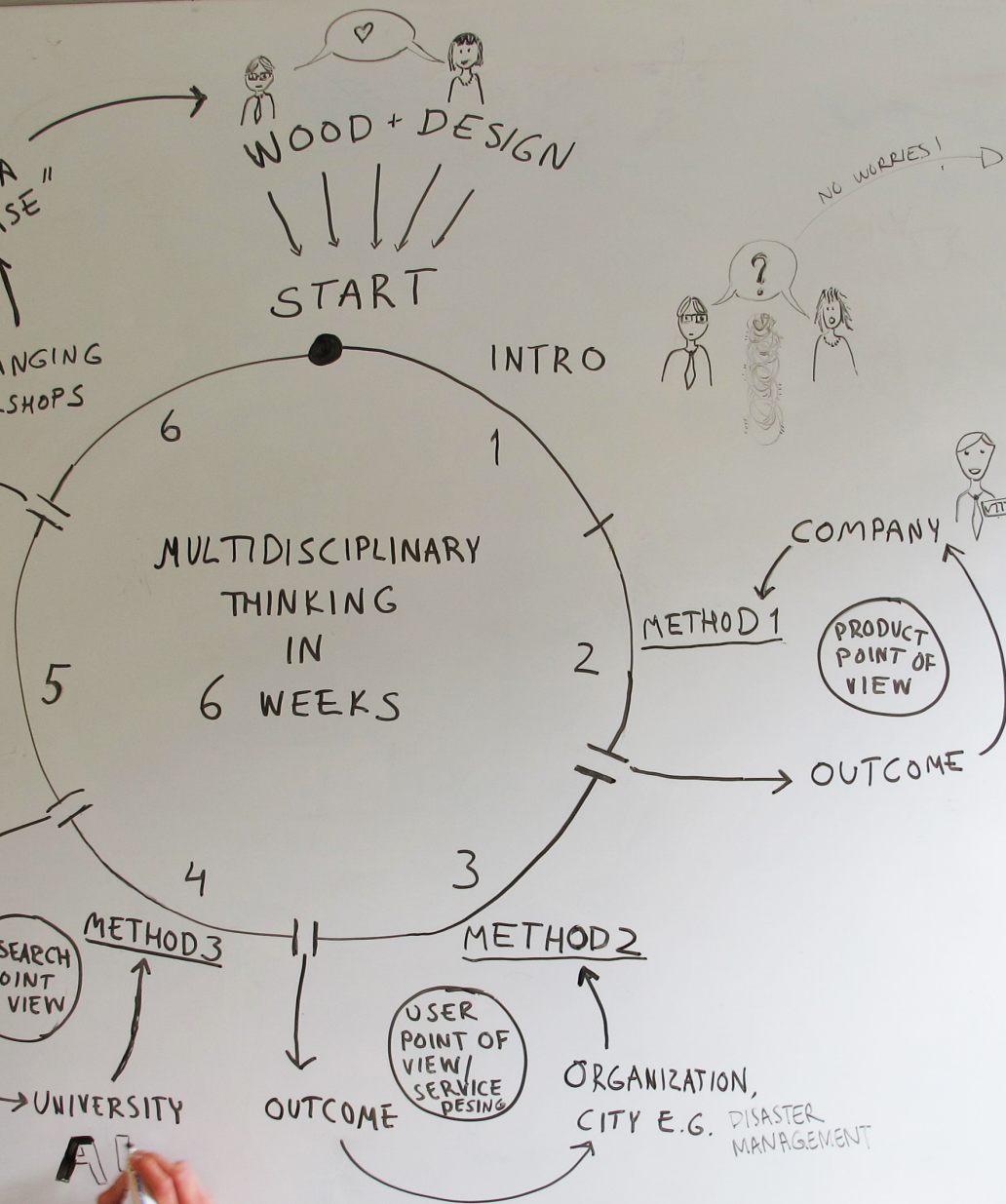
A photograph of a desk with a blue mug, several pens, and a white marker. The text is overlaid on the white marker.

AALTO CHEM

- . Core knowledge
- . Empirical research through laboratory assignments
- . Use of scientific equipment
- . Extended exposure to technology and theoretical scientific research
- . Deeply analytical way of thinking
- . High ability for problem solving
- . Strong ties to the industry

METHOD BASED LEARNING





INTRO

- getting to know each others
- basic theory
- group based learning

METHOD N

- collaborator provides the task for one week workshop
- visits
- getting to know a new method

6TH WEEK

- learn to arrange a workshop and lead other people through it
- NINJA MARKETING
 - ↓
 - NINJA LEARNING
 - ↓
 - new participants

This concept idea builds on a six week time period where intensive learning takes place. The project is divided into 6 one-week long sprints with different motives. The focus in this concept lies on learning different points of views and methods to attack problems.

In the first week the students get to know each other, exchange basic theory from their specific fields. During week 2-5 they get a glimpse of “real life”-work, as different companies, municipalities etc. are involved in giving them tasks to solve together. Students get valuable insights into different working environments and methods.

Each week has one task with one method that is based on some relative perspective. As an example of one week there would be a company that has for instance a problem based task. Students will have PD6-workshop with the company workers and then continue with other methods that are suitable for problem solving. At the end of a week students will present the solution for the company.

Team work skills increase in a short time frame, as each task is finished during one week. The sixth week differs from the previous ones; it is a so called “Ninja phase”. The target here is to arrange workshops for new prospective students to arise interest in the subject of wood and design. These workshops are planned by the project participants and they pick out interested people for an impromptu rendezvous.





For example students can be picked straight from a lecture for a one hour brainstorming session. This type of project marketing ensures that the next project participants will be enthusiastic and committed and boost the outcomes even further.

Students get to know multiple solution methods to approach different problems in their future working life. They also learn to see the big picture and study it from variable points of view.



FIMLA

Handwritten text on a white paper scrap, including "2015", "P12T", "MULTI-STEP", "MARKET", "AS E", "STUDY", "LOOKS", "PLACE", "SPINE", "7.201", and "100%".

Red, blue, and green markers.

WORKFLOW

Multidisciplinary Thinking in Six Weeks

- | | |
|---------------|---|
| Week 1 | Introductions to each other |
| Week 2 | Product point of view, case study with a company involved |
| Week 3 | User point of view/service design, case study with an organization or city involved |
| Week 4 | Research point of view, case study with Aalto University |
| Week 5 | Marketing point of view, case study with an advertising agency |
| Week 6 | Arranging workshops for new prospective participants in project |

**A YEAR-LONG
MULTI-LEARNING EXPERIENCE**

2





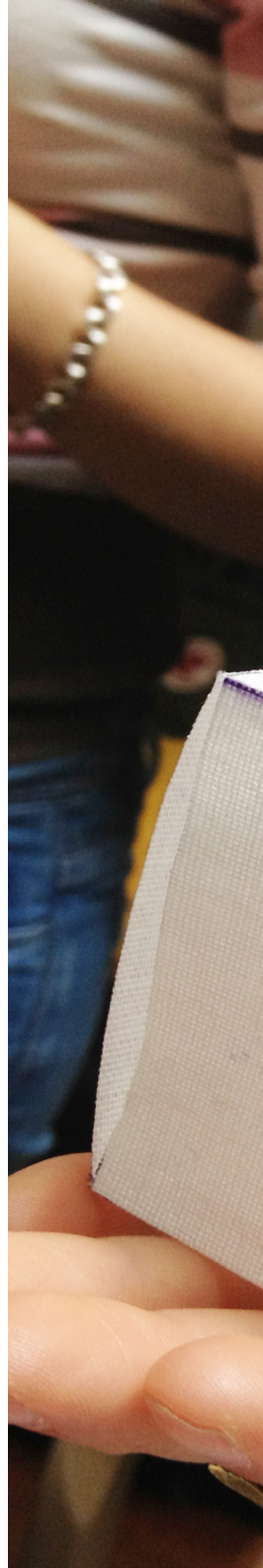
In this concept the students take a deep dive into the endless possibilities of cellulose based materials. They learn to appreciate each other's distinct strengths by a comprehensive collaboration and get real life working experience.

The year-long "cellulose sprint" starts by participating in common courses, workshops and designated case studies. The emphasis lies on introducing design students to the different aspects of cellulose based materials and in turn exposing engineering students to the world of design. In addition the engineering and design students are introduced to each other's working methods, which is an integral part of the entire collaboration.

The fundamental idea behind the year-long cellulose sprint is not to make an engineer out of a designer or vice versa, but indeed to open the students minds of the never-ending possibilities of cellulose as a raw material. After the different courses and workshops, the students have opened their minds to theory, problem solving, new working methods and learning situations resulting in improved knowledge and strong interaction skills.

POTENTIAL COURSES

**Package design
Basics of fiber sciences
Paper fashion
Temporary design solutions
Furniture design
Fiber workshops
Textile workshops
Sustainable solutions
Industrial case studies**





The year-long cellulose sprint collaboration program culminates in a revolutionary summer project. The so-called Fiber Bus Experience is a cellulose road trip, where the students take a tour around Finland engaging themselves in multidisciplinary tasks along the way.

The bus takes them to several companies within a wide array of industries such as paper & pulp, medicine & health care, textiles etc., where appropriate case studies, assigned by the companies, are conducted. The aim is to get concrete results by tackling a specific problem. The Fiber Bus Experience enables a novel laid back working atmosphere where exchange of knowledge is immersed with culture. This is a true once in a life time networking and learning experience!


On top of this the bus is heavily branded with Aalto-logos, slogans and colors so that it evokes a strong public interest. All of this is executed in strong cooperation with Aalto's vision and strategy for the future. The ambition is to get a strong Aalto-buzz going and marketing our university as a reason for pride and excitement.





THE (C₆H₁₀O₅)_n PILGRIMAGE

THE FIBER BUS
A?!

A photograph of a person's lower legs and feet standing on a checkered floor. The person is wearing green and black sneakers with white laces and white socks. The floor consists of large, light-colored and dark-colored square tiles. In the background, there are black metal legs of a table or chair and a yellow metal structure. The text "EXTENDED WEB OF STAKEHOLDERS" is overlaid on the bottom right of the image.

**EXTENDED WEB OF
STAKEHOLDERS**

A person wearing bright pink pants and white sneakers is walking on a checkered floor. The floor consists of large, light-colored tiles arranged in a grid pattern. The person is captured from the side, moving towards the left. The background is slightly blurred, showing other people and the legs of chairs.

Media
Alumni
Citizens
Government
Companies + Organizations
Staff (Researchers & Teachers)
Existing & Prospective Students
Aalto University + Other Universities

AIMS & TARGETS

DIFFERENT SCALE

- HOME
- COMMUNITY
- INDUSTRY

PROS

- + CHANGE OF MARKET
- + RECYCLING + REUSE
- + EXTENDED LIFECYCLE
- + CHANGE CONSUMERISM
- + MATERIAL THINKING
- + AWARENESS
- + LONG-TERM BENEFITS

CON

- UNEMPLOYED
- MATERIAL
- LOCAL EXPENSE
- SHORT TERM
- EFFECT ON INDUSTRY
- ENERGY CONSUMPTION
- WATER





FOR STUDENTS

- . Learning new methods
- . Enhancement of multidisciplinary communication skills
- . Learn facts about cellulosic materials and their usage
- . Learn to know stakeholders within the field
- . Possibility to customise studies

FOR THE UNIVERSITY

- . Strengthening Aalto University's image and identity
- . Increase of academic attractiveness
- . Improving communications in Aalto
- . Increased funding
- . Improved communication between departments

FOR COMPANIES

- . Increased coverage and presence in the academic world
- . New ideas with low costs
- . Testing of potential employees

FOR FINLAND

- . Strengthen existing know-how
- . Enhanced use of domestic resources
- . Novel innovations / products / processes / start-ups

FOR STUDENTS

- . Encouragement for experimental approach
- . Research point of view for design students
- . User point of view for engineering students
- . Improved skills to choose the correct approach to each project/problem
- . Valuable future contacts & networking

FOR THE UNIVERSITY

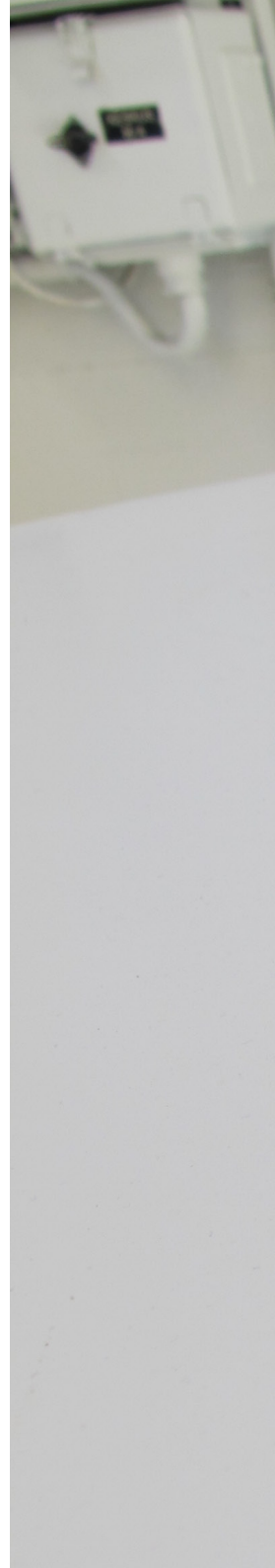
- . New knowledge on multidisciplinary collaboration
- . The visions and strategies of Aalto in action
- . Opening doors for future collaborations in Aalto
- . Increased funding
- . Increased attractiveness for both students and academics

FOR COMPANIES

- . Skilled professionals equipped with multidisciplinary perspectives and improved social & group working skills
- . Increased presence and visibility through strong collaboration

FOR FINLAND

- . Increased employment
- . Improved national economy
- . Promotion of Finnish wood products & Finnish design
- . From bulky industrial products to higher value quality products



OUTCOMES

THIS
IS
AWESOME!

SUMMARY

Since Aalto University is an amalgamation of three different academic organizations, the variety of different academic disciplines within Aalto University is very vast. Therefore the number of potential routes for students to collaborate is near endless among the different schools of Aalto University.

Design Meets Cellulose is a one of a kind joint project between very different academic disciplines within Aalto University – design and cellulosic fiber sciences. In many respects this sort of open-minded collaboration involving students of varying academic backgrounds is a prime example of Aalto University's strong vision and strategy.

The two primary suggestions of inter-school collaboration within Aalto University introduced in this brochure, are the products of a workshop looking at how in the future the entire collaborative atmosphere in Aalto University could be improved. In order to look bravely into the future as the primary educational institution of Finland, and no less than the entire world, there is always room for improvement.

The two previously presented suggestions are in no way exclusionary to each other. Design and engineering student have immense amounts of locked potential stored in each other's working methods, which are just waiting to be discovered. Exposing these two student groups to each other's working methods could produce new professionals with improved skills and modern interdisciplinary attitudes.

Furthermore the workshop produced daring future visions on how collaboration in Aalto University could improve the image of the university. With improved marketing and public presence Aalto University could be made even more interesting and desirable for prospective students, academics and the general public alike.

Additionally the role of the stakeholders was re-evaluated. A broader involvement of media and a wide array of companies of different business fields could have a very positive effect on student collaboration projects in general. Also the involvement of alumni, members of the general public and even governmental organizations could act as enrichment to collaborative projects and turn them into new heights as instruments of national and international importance.



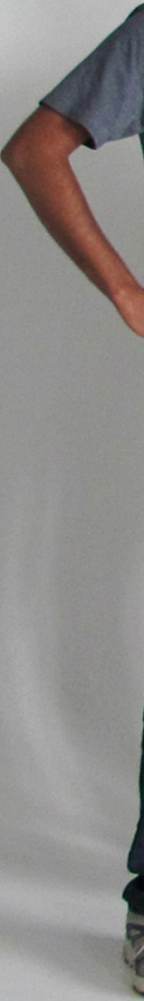
CONCLUSION

This summer has been unforgettable for us on so many levels.

It turned out to be very different from our initial expectations; many preconceptions about designers vs. engineers were erased early on in the project. The biggest revelation was to realize how rewarding working with people with different strengths and skills can be. The engineers have learnt new techniques to problem solving, working methods as well as visualization whereas the designers have learnt more analytical and technical approaches and gotten material knowledge.

Studies should prepare students for real life work situations and that is something one cannot learn in a lecture hall. Team work skills are invaluable nowadays and something Aalto University undoubtedly should invest more in. Students are capable of achieving incredible goals as long as they are trusted and encouraged to succeed.

We hope to have inspired you to believe in the possibilities of arranging new joint projects. Awesomeness is easier to achieve together rather than alone, which probably is the core lesson learnt. A lesson we would like to share with other students by continuing the collaboration between Aalto Arts and Aalto Chem.







REMOTE-CONTROL
NANO CELLULOSE
FOR SURGERY

09C

AIR BAG
CLOTHES
FOR
SENIORS

05

DRUMMING
TROUSERS

05

DEGRADABLE
UNDERWEAR
FROM
CAPSULES

03

COMPOSITE
COVERS FOR
MACBOOK / IPAD
IPHONE

04

Foam formed
Viscose

05

RE-MOLDABLE
FURNITURE

04

INTELLIGENT
INTERIORS
- CHANGE
ACCORDING
TO SEASONAL
THEME

04

FAKE LOGS/
FAKE WOOD
FOR CHILDRENS
PLAYHOUSE

04

ADVERTISEMENTS
IN
PUBLIC
TOILET
TISSUE

05

PAPER MAP
WITH "YOU ARE
HERE" DOT



Acc

WALL PAINT

A?

Aalto University

PREVENT TO
SLIPPERY
ROADS

03

IN FLOOD
SITUATION
REPAIR

TEXTILE OR
COMPOSITE
INSTRUMENT

SAVING!
STORING!
HARNESSING FROM
ENERGY THROUGH

3D-printed
spectacle frames

nano-scale
painty masks
to carry vitamins
etc. efficiently

01a

Food recycling
systems
- Packing
- Removable
- growing plants
- remove certain plants
- suitable for recycling

07

"growing"
plants
in soil
02 cellulose seeds soil

pesticide
in soil

ELECTRIC
PHYSIO
THERAPY
THERAPY
THERAPY

LEGS
OLD

CELLULOSE
NANO-LENS
& CAMERA
FOR GASTRO-
SCOPY

07C

MEDICINE
PATCHES FOR
CHILDREN

07C

CELLULOSE
FILTERS
HEALTHY
BATHING

01a