

Tervetuloa Aalto-Yliopiston Kemian tekniikan korkeakouluun !

Välkommen till Aalto-universitetet, Högskolan för kemiteknik !

Welcome to Aalto-University, School of Chemical Engineering !



Merger of three leading Finnish universities

1849

Helsinki University of Technology

1871

University of Art & Design Helsinki

1911

Helsinki School of Economics

A”

Aalto University

2010

A?

Aalto University

Towards an innovative society

The university was named in honour of **Alvar Aalto**, the famous Finnish architect.



Aalto University

– *Science* and *art* together
with *tehnology* and
business

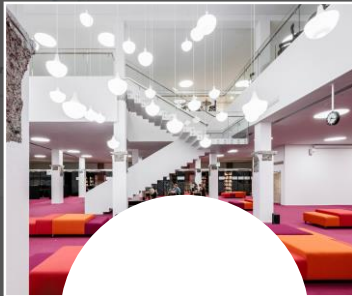


Campus



Developing campus

By 2021, all of the university's core functions will be on one campus.



2016

Learning Centre
renovated



2017

Main building
Dipoli
renovated



2018

School of Arts, Design
and Architecture and
A grid open



2019

School of
Business
opens



2020

Aalto Works
including Aalto
Studios opened,
Student Centre etc.
built

Novel Master and Bachelor programmes lead the way for future experts

Boundary breaking *teaching*
Emphasizing *working life skills*
Promoting *entrepreneurship*
Multidisciplinary *factories*

Our mission is to educate *responsible, independent experts* who have an understanding of the big picture.



Master's programmes and majors

Chemical, Biochemical and Materials Engineering

Biomass Refining

Fibre and Polymer Engineering

Biotechnology

Chemistry

Functional Materials

Sustainable Metals Processing

Chemical and Process Engineering



**Nordic Master in
Polymer Technology**

**European Mining,
Minerals and
Environmental
Programme – EMMEP**

**Environomical Pathways
for Sustainable Energy
Systems – SELECT**

Life Science Technologies

Biosystems and Biomaterials Engineering

Advanced Energy Solutions

Industrial Energy Processes and Sustainability

International Design Business Management



**Aalto University is
a multidisciplinary
community of bold
thinkers**

CHEMARTS

CHEMARTS is a long-term strategic collaboration between two Aalto University schools, CHEM and ARTS



Promoting entrepreneurship

70 to 100

companies
are founded every year
in our ecosystem

50%

of Finnish start-ups
that originate from
universities come from
the Aalto community

Entrepreneurship is
a more popular career
option than ever – in
the last four years, over

2 000

students have studied
through the Aalto
Ventures Program



Close cooperation with industry



'Made in Aalto University'

A large group of people, mostly young adults, are captured in a moment of pure joy, jumping and cheering with their arms raised high. They are wearing matching grey t-shirts with the text 'MADE IN AALTO UNIVERSITY' printed on them. The background features the iconic white dome of the Aalto University building under a clear blue sky. The scene is set outdoors on a paved area, with shadows cast on the ground, suggesting a bright, sunny day.

A total of 85000 alumni

A large number of leading personalities in Finnish industries, culture and arts

More than 40% of Finnish listed companies' CEOs are alumni of Aalto University.

A large number of international faculty and graduates

The logo consists of a large, bold, white letter 'A' followed by two quotation marks. The background of the entire image is a top-down view of various materials: a dark blue circular disc with a small piece of translucent material, a glass dish with white foam, a pile of light-colored wood shavings, a pile of white powder, a stack of white paper, and several strips of colored material (yellow, orange, green, red) and a piece of orange fabric.

Aalto University

Towards a better future

aalto.fi

Summary of key messages

- **Utilize the full offering of your university**
 - Be curious about yourself and others
 - Build networks over disciplinary borders
- **Target for entrepreneurial mindset**
 - Set meaningful targets for utilizing opportunities
 - Take responsibility on your own doing and direction
- **Be aware on your own skills development**
 - Exercise verbalizing your abilities and pitching your ideas
- **Enjoy your life!**

A!

Aalto University



Student well-being at Aalto CHEM

*Assistant Professor Päivi Laaksonen
Functional Materials master programme*

Well-being at Aalto CHEM

People who feel well, also do well!

CHEM staff is here for you

- Support your learning
- Support your career planning
- Appreciating your feedback



Aalto University Code of Conduct

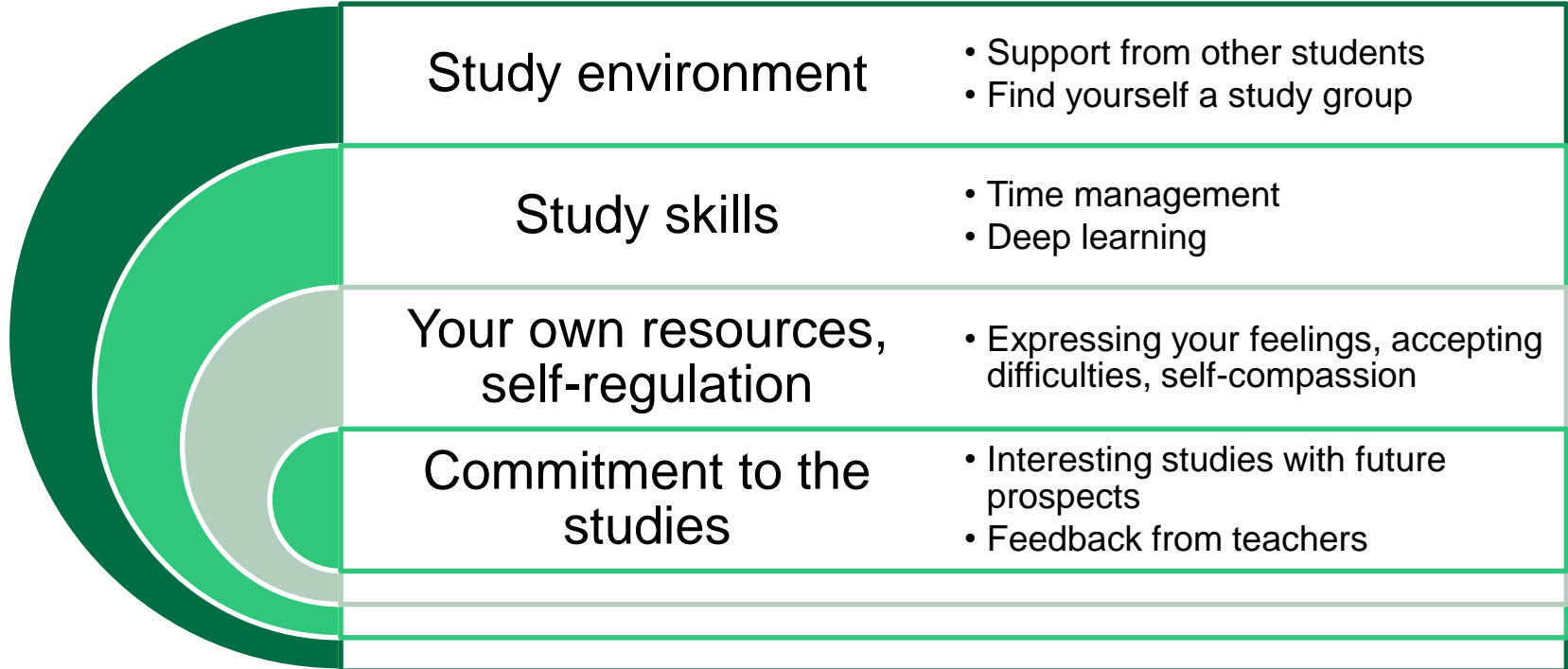
All members of the community have a responsibility for the atmosphere and well-being of the studying community.

- **Aalto University expects its staff and students to conduct themselves appropriately and respect others.**
- **Aalto University does not approve of any misconduct, bullying or sexual harassment.**

Details in Into:

<https://into.aalto.fi/display/ensaannot/Aalto+University+Code+of+Academic+Integrity+and+Handling+Violations+Thereof>

What affects well-being of students?



When things are not well...

Learning is not always easy

Develop your study skills

Talk with your academic advisor and your peers

Turn to our study psychologists

- <https://into.aalto.fi/display/enopisk/Study-+and+career+planning+psychologists>



LES Personnel

CHEM school

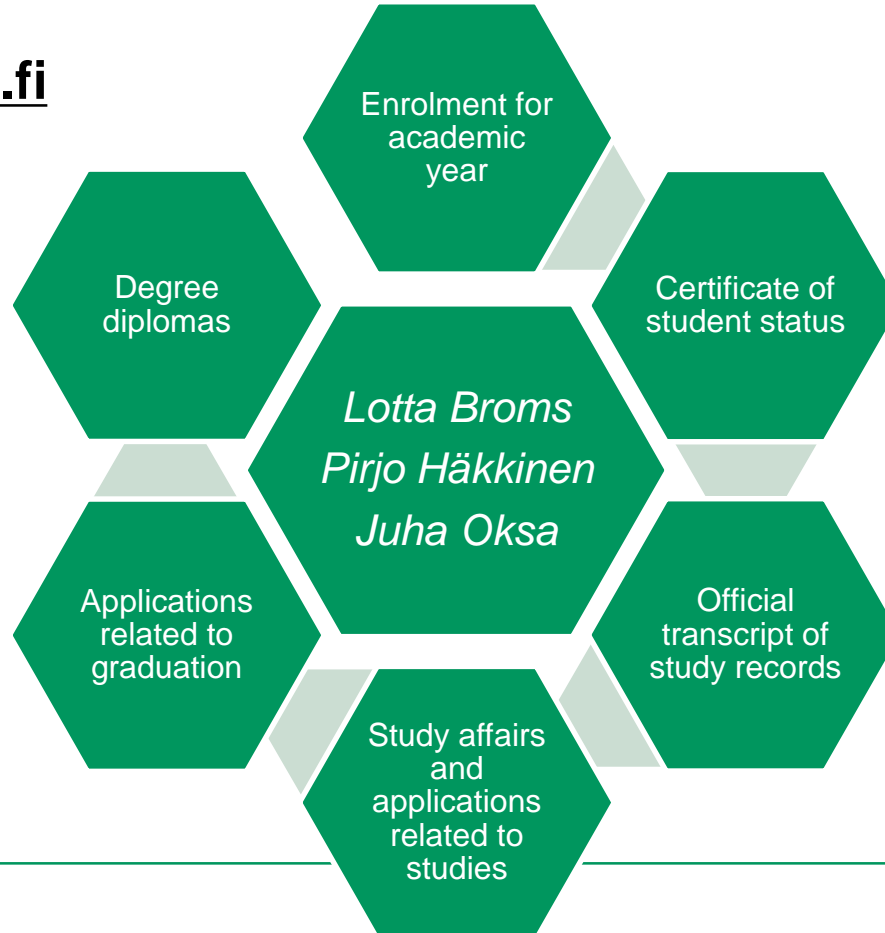
3.9.2018

Hanne Puskala

Service desk personnel

Studies-chem@aalto.fi

Room: C208



Hanne Puskala

hanne.puskala@aalto.fi

Management of Learning Services

Legal protection (evaluation of study attainments, appeals etc.)



Orientation

- Learn about CHEM studies and staff

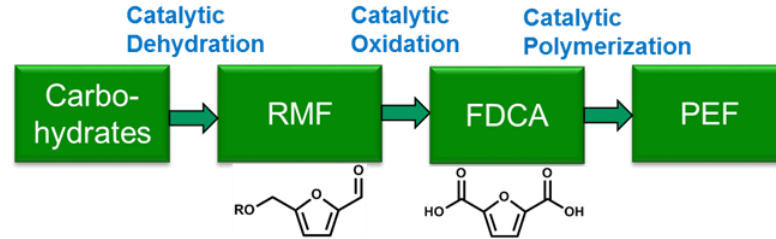
3 September, 2018
Annu Westerberg

Aalto CHEM's participation in master's level education in 2018-2019

- Master's Programme in Chemical, Biochemical and Materials Engineering (CHEM)
- Master's Programme in Advanced Energy Solutions (CHEM, ENG, ELEC)
- Master's Programme in Life Science Technologies (CHEM, SCI, ELEC)
- Master's Programme in International Design Business Management (all Aalto schools)
- Nordic Master's Programme in Polymer Technology (CHEM)
- International exchange students (CHEM)
- European Mining, Minerals and Environmental Programme – EMMEP (CHEM, ENG)
- Master's Programme in Environmental Pathways for Sustainable Energy Systems - SELECT (CHEM, ENG)

Biomass Refining

Making bioeconomy real



Chemistry and structure of biomaterials

Fractionation of biomass constituents

Manufacturing chemicals and other products from biomass

Environmental engineering

Processes utilising green chemistry

Catalysis



Biotechnology

Exploring nature's toolbox

The major combines

- Biotechnology and
- Engineering

Systematic Learning of
molecular level biological phenomena,
their modeling and application with
advanced bioprocess tools



Chemical and Process Engineering

From natural sciences to chemical process industries

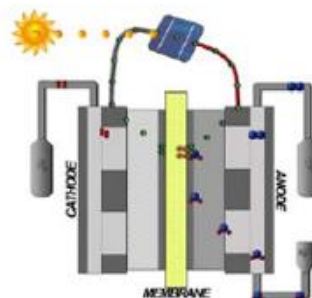


- Chemical process industry
- Process design
- Multiscale application of natural sciences
- Sustainable and profitable chemical processes

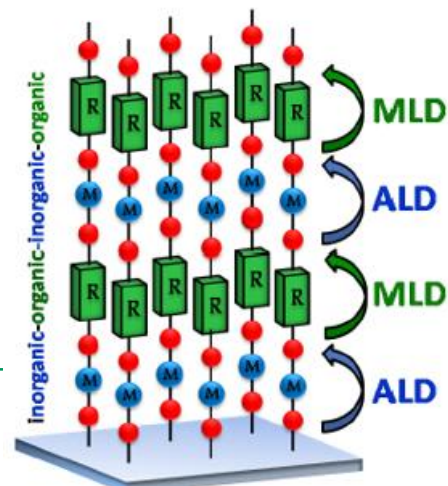
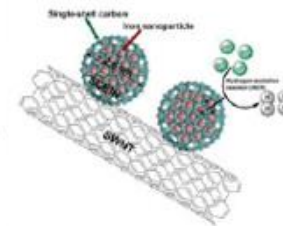
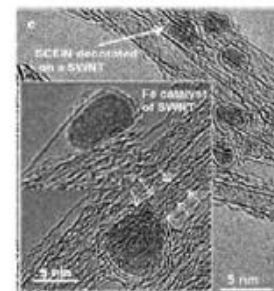
Chemistry

Discovering new molecules and materials

- Fundamental chemistry
- Synthetic organics and inorganic chemistry
- Physical and analytical chemistry
- Quantum mechanics



New catalyst for Fuel Cell



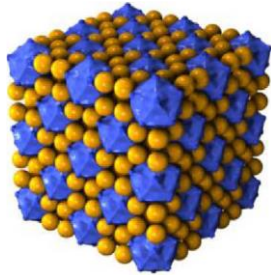
Fibre and Polymer Engineering

Fibres and polymers for a sustainable future



What is it about?

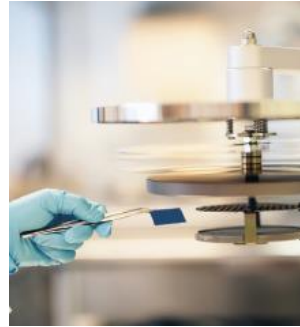
- The development of skills and expertise in fibers, polymers and composite materials for a sustainable future
- Emphasis will be on raw materials from biological origins
- Based on fundamentals



Functional Materials

Modern materials science – smart materials and devices

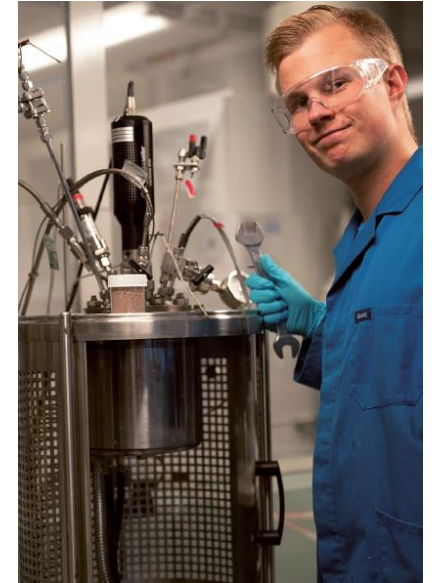
- Advanced materials
- Surfaces, films and interfaces
- Micro and nanotechnology
- Smart materials and structures



Sustainable Metals Processing - *Securing metals for the future*

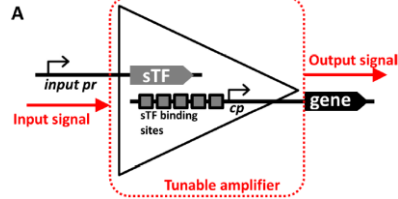
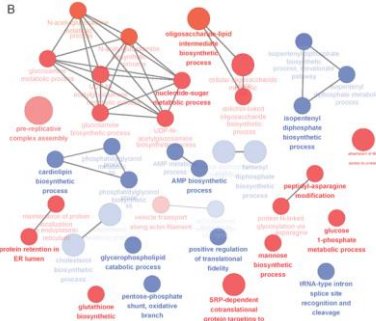
Extraction of metals and mineral products from primary and secondary sources through application of the engineering principles

- Chemical thermodynamics and kinetics
- Sustainable pyro- and hydrometallurgy
- Circular economy and resources
- Corrosion protection
- Multiphysical and chemical modeling
- Applied materials characterization
- Industrial processes development



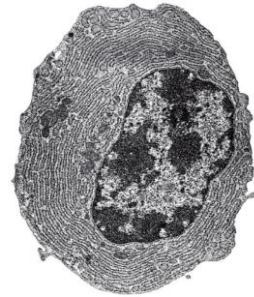
Biosystems and Biomaterials Engineering – one major – three tracks

- biological data analysis and synthetic biology

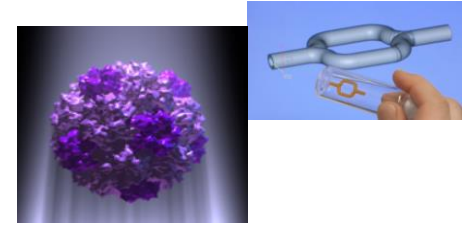


Cellular systems

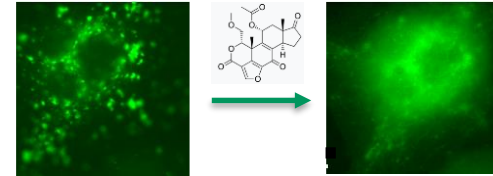
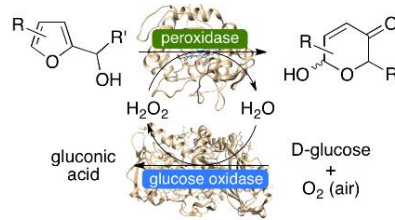
understanding at molecular and cellular level



- synthetic and natural polymers for applications in life sciences



- Small organic molecules in context of life sciences



Advanced Energy Solutions programme

Industrial energy processes
and sustainability

The major combines

- *renewable energy*
- *chemical engineering*
- *environment*



Studies:

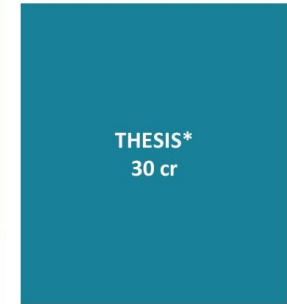
- renewable energy issues
- thermodynamics
- energy production, conversion and recycling
- modelling, simulation and automation in energy processes
- LCA of energy processes

Master's Programme in International Design Business Management (IDBM)

Brings together students from all Aalto University schools

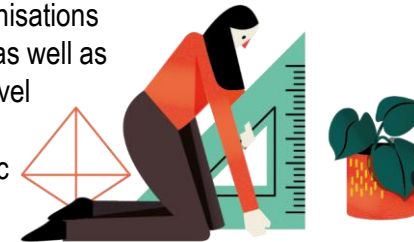


Chemical, Biochemical
and Materials Engineering



Learning objectives

- use a design approach in product, service and business development
- lead and collaborate in multi-cultural and multi-disciplinary teams, deepening and connecting one's own disciplinary expertise to a wider business context
- drive change and development activities in organisations
- communicate concepts and ideas both verbally as well as visually at an operative (tactical) and strategic level
- understand and utilise academic research in defining and approaching problems in systematic and systemic manner



Nordic Master in Polymer Technology



The students will, in excess to basic skills in polymer technology, get a broader understanding of the research in this field through the studies in two of the Nordic Five Tech universities.