Aalto-yliopisto
Aalto-universitetet
Aalto University

Kemian tekniikan akateeminen komitea
Academic Committee for Chemical Engineering
Pöytäkirja/Minutes
Kokous/Meeting 7/2023
Aika/Time: 19.12.2023 klo/at 13:00
Paikka/Venue: A303
Julkinen

9 Päätösasia/Decision item: Master's Programme in Chemical and Metallurgical Engineering: maisterikoulutusohjelman pääainetason osaamistavoitteet / Master's Programme in Chemical and Metallurgical Engineering: major level intended learning outcomes (Pauliina Ketola)

Perustelut/Justification
Kemian tekniikan korkeakoulun akateeminen komitea hyväksyi neljän uuden maisterikoulutusohjelman ohjelmatason osaamistavoitteet kokouksessaan 2/2023.

Master's Programme in Chemical and Metallurgical Engineering -maisterikoulutusohjelmassa on sittemmin työstetty myös vaadittavat pääainetason osaamistavoitteet koulutusohjelman kahdelle pääaineelle. Kemian tekniikan korkeakoulun koulutusneuvosto on kokouksessaan 12.12.2023 keskustellut ohjelman pääainetason osaamistavoitteista ja tehnyt akateemiselle komitealle esityksen (liite 6).

Academic Committee for Chemical Engineering confirmed programme level intended learning outcomes for four new master programmes in its meeting 2/2023.

Required major level intended learning outcomes have been prepared for two majors offered in the Master's Programme in Chemical and Metallurgical Engineering. The Degree Programme Committee of the School of Chemical Engineering has discussed the major level intended learning outcomes of the programme in its meeting 12 December 2023 and has provided the Academic Committee with a proposal (attachment 6).

Liitteet/Appendices
Liite/attachment 6: Chemical and Metallurgical Engineering: pääaineiden osaamistavoitteet / major level intended learning outcomes

Päätösesitys/Decision proposal
Vahvistetaan Master's Programme in Chemical and Metallurgical Engineering -maisterikoulutusohjelman kahden pääaineen osaamistavoitteet Koulutusneuvoston esityksen mukaisesti (liite 6).

Intended learning outcomes of two majors in the Master's programme in Chemical and Metallurgical Engineering will be confirmed according to the proposal by the Degree Programme Committee (attachment 6).

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Päätös/Decision

Päätettiin esityksen (liite 6) mukaisesti. / *The motion was passed as proposed (attachment 6).*

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Major-level intended-learning outcomes for the two majors of the Master's programme in Chemical and Metallurgical Engineering

1. Chemical and Process Engineering

Graduate from Chemical and Process Engineering (CPE) major is able to

- Work in groups of experts on chemical reaction engineering, polymer engineering, catalysis, unit operations, separation techniques, plant and process design, and process control
- Apply knowledge on kinetics, thermodynamics, fluid dynamics, and transport phenomena (heat and mass transfer) to model, simulate and design conversion and separation processes of single and multiphase systems
- Design and integrate process systems using knowhow from control theory, process monitoring, data analytics, and mathematical optimization for more sustainable process automation

2. Sustainable Metallurgical Engineering

Graduate from Sustainable Metallurgical Engineering (SME) major is able to:

- Apply knowledge on mineral processing, pyrometallurgy and hydrometallurgy phenomena to develop and design metals extraction and recycling processes
- Evaluate the design and performance of metallurgical processes along with their impacts on environment, economy and society
- Act as a metallurgical engineering expert in multidisciplinary groups in industry, academic and public sectors

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For information only; programme-level intended learning outcomes, approved by KTAK 2/2023

Master's programme in Chemical and Metallurgical Engineering

A graduate is able to:

- Apply engineering, natural sciences, and mathematics to solve complex problems in a chemical engineering or metallurgical engineering context
- Design sustainable industrial-scale processes
- Select and design unit operations and unit processes for industrial applications
- Aid the transition towards use and production of renewable and recyclable resources
- Make decisions based on raw materials' criticality and availability
- Demonstrate critical thinking skills in multidisciplinary groups to design economically feasible, safe, and ecological industrial processes
- Use computer-aided tools for process modelling, simulation, and control
- Follow development of field, acquire and process new scientific, technological, and societal information
- Devise and communicate strategic outcomes that meet academic, industrial, and societal requirements

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