guidelines admission process.

Start winter term 2018/19

MCI - Management Center Innsbruck
the entrepreneurial school®
Master program Environmental, Process & Energy Engineering

September 2018

table of contents.

1 introduction.

Thank you for your interest in our full-time Master program **Environmental, Processs & Energy Engineering.**

Completing our online application form, enables you to participate in our admission process. Places are allocated based on the following criteria:

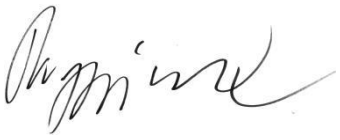
Curriculum vitae 30 %
Your personal and professional qualifications and experience will be assessed on the basis of the documents submitted with your application.

Entrance exam 20 %
An online exam will be held to assess canditates' knowledge of engineering and natural science and their competence in English.

Interview 50 %
A personal interview gives candidates an opportunity to make a personal presentation, to discuss the information provided in their application papers, and to explain their educational and professional goals.

We are looking forward to receiving your application and wish you every success for the application procedure.

Best regards,



FH-Prof. Mag. Marco Rupprich, Ph.D.

Head of Department & Studies

2 schedule for the admissions procedure.

To provide greater flexibility in meeting your needs, MCI has introduced an admissions process with sessions held on separate dates. Since we cannot predict how many applicants will present themselves for the various sessions, you are recommended to participate at the eraliest possible date so as to secure a place as soon as possible.

Please register yourself for the online admissions procedure in time.

For any further information please contact Ms. Anna Baumgartner:

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Tel.: 0043 (0)512 2070 3203

Please note the application deadline for each session (given in brackets).

Session	Available Places	Candidate's Performance	
		Above Average	Average / Below Average
(19. November 2018) 03. December 2018	All places	Early allocation of a definitive place.	Allocation of a place on the waiting list with the possibility of later acceptance.
(04. February 2019) 18. February 2019 (01. April 2019) 15. April 2019	Places not allocated in the early session.	Allocation of a definitive place.	Allocation of a place on the waiting list with the possibility of later acceptance.
(03. June 2019) 17. June 2019	Places remaining after the previous sessions.	Allocation of a definitive place.	Rejection

3 curriculum vitae.

A key element in the admissions process is an assessment of the candidate's CV on basis of the submitted documents. Due account i staken of any additional qualifications over and above the basic prerequisites such as academic performance, furhter education, work experience and periods spent abroad.

Applications can be submitted at any time, an early application is recommended.

4 entrance exam.

The written entrance exam is an online test with multiple or single choice questions. It is composed of the following parts:

- Questions from the fields of engineering (Chemical process engineering, Thermal process engineering, Mechanical process engineering and Plant & Process technology)
  Candidates are given 80 minutes in total for these questions (20 minutes for each field of engineering).
- Test of English
  Candidates are given 60 minutes for this test of English.

The written entrance exam serves to assess candidates' competence in engineering, as well as their command of English.

5 personal interview.

The interview, which is held with a panel of three, gives candidates the opportunity to present their goals, motives and competences, and permits an evaluation of their suitability for the study program.

We look forward to receiving your application!

6 sample questionnaires.

6.1 CHEMICAL PROCESS ENGINEERING (CVT)

Recommended reading

Silla: Chemical Process Engineering: Design and Economics. Marcel Dekker Inc. 2003

Jones: Elements of Chemical Process Engineering. J. Wiley 1996

Hessel: Chemical Micro Process Engineering. J. Wiley 2004

Recommended reading of the following chapters/topics

Characterization of chemical reactors

Conversion, yield and selectivity

Microkinetics of homogeneous reactions

Characterization of residence time distribution

Analysis of kinetics

Heterogeneous catalysis

Sample questionnaires

1. What is the effect of a catalyst?
   a) shift of reaction equilibrium
   b) reduction of activation energy
   c) shift of product concentration
   d) rise in temperature

2. Which statement does the Arrhenius equation describe?
   a) the reaction rate is temperature-dependent
   b) the reaction rate is not temperature-dependent
   c) the reaction rate is time-dependent
   d) the reaction rate is not time-dependent

6.2 THERMAL PROCESS ENGINEERING (TVT)

Recommended reading

Sattler: Thermal Separation Processes. Wiley 1995

Mersmann: Thermal Separation Technology. Springer 2011

Recommended reading of the following chapters/topics

Phase equilibria / Evaporation

Distillation

Rectification

Absorption

Adsorption

Extraction

Drying

Sample questionnaires

1. What means the term hygroscopic?
   a) binding of moisture
   b) rejecting of moisture
   c) reproduction of water molecules
   d) detection of water molecules

2. What is the reverse process of absorption?
   a) adsorption
   b) desorption
   c) vaporization
   d) filtration

6.3 MECHANICAL PROCESS ENGINEERING (MVT)

Recommended reading

W. Müller, Mechanische Grundoperationen und ihre Gesetzm¨aßigkeiten. M¨unchen: Oldenbourg, 2008.

M. Stiess, Mechanische Verfahrenstechnik, 3rd ed., ser. Springer-Lehrbuch. Berlin: Springer, 2009.

K. Holzer, "Naßabscheidung von Feinstäuben und Aerosolen", Chemie Ingenieur Technik, vol. 51, no. 3, pp. 200–207, 1979.

M. Zogg, Einführung in die mechanische Verfahrenstechnik, 3rd ed. Stuttgart: B. G. Teubner, 1993.

F. Löffler, Staubabscheiden, ser. Lehrbuchreihe Chemieingenieurwesen/Verfahrenstechnik. Stuttgart [Germany]: Georg Thieme Verlag, 1988.

C. Lindecke, "Strömung im Statischen Mischer," http://commons.wikimedia.org/wiki/File: Statischer Mischer.png, 2008, [Online; Zugriff 04.02.2014].

M. Kraume, Mischen und Rühren: Grundlagen und moderne Verfahren. Weinheim: Wiley-

VCH, 2005.

Recommended reading of the following chapters/topics

Fundamentals of disperse systems

Fundamentals of particle characterization techniques

Gas-particle separation techniques

Gas-liquid separation techniques

Bulk material mixing

Sample questionnaires

1. Which methods allow to quantify particle concentration AND particle size simultaneously in a gasflow?
   a) With a laser diffraction analyzer
   b) With isokinetic probe
   c) With laser doppler anemometry
   d) With extinction particle counter

2. What are the possibilities to optimize the separation performance of a cyclone at given gas-particle flow rate?
   a) Constriction of the inlet crossection.

b) Increase the vortex finder diameter.

c) Increase the wall roughness.

d) Clockwise rotation of the vortex (Southern hemisphere counter-clockwise).

6.4 PLANT AND PROCESS TECHNOLOGY (APT)

Recommended reading

K. Sattler, W. Kasper: Verfahrenstechnische Anlagen, Bd. 1. Wiley-VCH-Verlag 2000

G. Bernecker: Planung und Bau verfahrenstechnischer Anlagen. Springer-Verlag 1996.

H. G. Hirschberg: Handbuch Verfahrenstechnik und Anlagenbau. Springer-Verlag 1999.

K. H. Weber: Inbetriebnahme verfahrenstechnischer Anlagen. Springer-Verlag 1999.

Walter Wagner: Planung im Anlagenbau. Vogel Buchverlag 1998.

Walter Wagner: Regel- und Sicherheitsarmaturen. Vogel Buchverlag 2008

Recommended reading of the following chapters/topics

piping and instrumentation diagram

instrumentation

pumps

regulation valve

safety valve

pipelines

vessel

heat exchanger

Sample questionnaires

1. Mandatory information contained in p&id flow sheets?
   a) Identification of piping
   b) Design specs. Of machines and apparatus
   c) Identification of drives
   d) Identification of machines and apparatus with code letters

2. What characterisitc values are important for control valve design?
   a) Maximum control ratio
   b) Maximum volumetric flow at minimum pressure difference
   c) Minimum volumetric flow at maximum pressure difference
   d) Pressure loss at fully open position and at desired maximum volumetric flow

6.5 SOLUTIONS

CVT: 1b, 2a

TVT: 1a, 2b

MVT: 1a, b, d, 2a

APT: 1a b c d, 2 a b c d