Course 28123
Chemical/Biochemical Engineering Laboratory
4 weeks Summer University 2016 in Copenhagen for non-European university students.
July 1 – 29, 2016

The Department of Chemical Engineering at the Technical University of Denmark (DTU) invites non-European chemical engineering students to participate in an experimental course in chemical engineering/process technology. The course takes place on up-to-date pilot plant facilities in a programme, which combines detailed theoretical and practical engineering experiences with social get-together in an international student atmosphere and opportunities to discover wonderful Copenhagen and the historic and scenic countryside.

ENTRY REQUIREMENTS
The course is based on theoretical knowledge in unit operations, heat and mass balances, general process technology, reaction engineering and kinetics, process control, flow diagrams and simple chemical analytical methods. In addition ordinary university level background in inorganic, organic, thermodynamics and mathematics is required.

The students must have acceptance from their home university to attend.

CONTENT
The course is a special designed version for non-European students of the ordinary DTU course in large scale unit operations laboratory. In teams of two persons 7 exercises including reports are performed. The offered exercises include: Liquid flow in pipes, gas flow, pump systems, flow in packed columns, agitation, aeration, filtration, drying in a tunnel, spray drying, fluidization and fluidized bed drying, distillation, absorption, membrane separation, ion exchange, heat exchanging, evaporation, crystallisation, hydro cyclones, centrifugation, liquid and solid extraction, organic synthesis, fixed bed enzyme reactor, solids handling, combustion/ high temperature processes and process control.

Each practical experiment will last ½ -1 day. Preparation of reports will take appr. 2 days each. In addition every team is expected to make one oral presentation on a given non-technical subject. Reporting and presentations will be supervised by the accompanying graders. In case the university is not sending a grader, this work will be dealt with by DTU. Excursions to chemical production sites are planned.
The course is rather intensive and demanding, and report work during the weekends must be expected.

**LEARNING PHILOSOPHY**
The experimental work takes place on process equipment as close to industrial reality as possible at a university. It is the goal to put the students into situations similar to what can be expected in real industrial life. The students must update their theoretical plant and process knowledge, plan their work, take the necessary process decisions including safety measures, control and react upon events, search their information, write industrial reports – all-in-all act and think as real process engineers.

**COURSE FEE AND REGISTRATION**
The student fee amounts 3200 Euro. This covers tuition, excursions and accommodation in single rooms with access to bathroom and kitchen facilities.

The home university must approve the students participation in the course. Registrations take place using an application agreement form, which can be downloaded from our homepage (see below). The ultimate date of registration is March 18th 2016. The registration is not accepted until the payment is received.

For accompanying graders please ask for conditions.

**GENERAL INFORMATION**
The course will take place at the Department of Chemical and Biochemical Engineering, Technical University of Denmark (DTU) located in Lyngby about 15 km north of central Copenhagen.

Arrival date Friday, July 1st. In this first weekend we will take you on a bus tour and introduce you to some sights and the Danish country side. The course work will start on Monday, July 4th and be terminated on Friday 29th. During your stay other social events will be arranged. Maximum 70 students can be accepted in 2016.
FURTHER INFORMATION
See the full Summer University announcement at http://www.kt.dtu.dk/Summeruniversity

Additional information: Lars Kiorboe, e-mail: lgk@kt.dtu.dk, Anne H. Juul, e-mail: ahj@kt.dtu.dk or contact Department of Chemical and Biochemical Engineering, Technical University of Denmark, Building 229, DK-2800 Lyngby. www.kt.dtu.dk, kt@kt.dtu.dk, phone +45-45252800, fax +45-45882258.
Agreement concerning Chemical Engineering Summer University 2016 at DTU for foreign university students (course 28123).

This document concerns legal and practical agreements concerning the 4 weeks summer course for foreign students at the Department of Chemical Engineering, the Technical University of Denmark. The agreement encounter:

1. The course in Chemical Engineering Laboratory takes place in July 2016 with expected arrival date July, 1st and departure date not later than July, 31st.
2. The course concerns 7 practical experiments with reports performed in teams of 2 persons. In addition every team makes one oral presentation.
3. If the home university is not sending a grader, DTU will do the grading.
4. Credit for the course will be granted from the home university. DTU will provide documentation for successful completion of the course.
5. The fee for the course amounts to 3200 Euro which covers tuition, excursions and accommodation in single rooms with access to bath and kitchen in the Campus Village.
6. This document is also an agreement with the DTU Accomodation Office concerning renting of room in Campus Village. The Department of Chemical Engineering will take care of the practical aspects and the contact with the Accomodation Office.
7. The students agree to provide themselves with comprehensive insurance for the travel, health and medical costs, liability etc.
8. The students agree to accept the ordinary rules for working and studying at DTU.
9. This document signed by a representative from the home university is also an approval that the student fulfils the requirements for participation.

Please print the student identification data (CAPITAL LETTERS) :

<table>
<thead>
<tr>
<th>Name of home university:</th>
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</thead>
<tbody>
<tr>
<td>First name(s)</td>
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<tr>
<td>Nationality</td>
</tr>
<tr>
<td>Home address</td>
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<tr>
<td>Tel:</td>
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</tbody>
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Exact accommodation period: ___/___/_____ to ___/___/_____ (day, month, and year).

(date, month, and year)

Date:______________

Student signature:________________________

Signature of home university responsible:_________________________________
Please send the filled document by mail to: AHJ@kt.dtu.dk or by fax: +45-45882258.

In case of questions please contact the DTU responsible for the course:
Lars Kiorboe, Department of Chemical Engineering, LGK@kt.dtu.dk, phone +45-45252857
or the responsible administrative officer:
Anne H. Juul, Department of Chemical Engineering, AHJ@kt.dtu.dk, phone +45-45252957