

# UNDERGRADUATE ENGINEERING EXCHANGE PROGRAMS

ADVANCE YOUR ENGINEERING DEGREE  
WHILE STUDYING ABROAD



THAYER SCHOOL OF  
ENGINEERING  
AT DARTMOUTH

# EXCHANGE PROGRAM OVERVIEW



CHULALONGKORN UNIVERSITY  
BANGKOK, THAILAND

CHINESE UNIVERSITY OF HONG  
KONG



TECHNICAL UNIVERSITY OF DENMARK  
LYNGBY, DENMARK



# EXCHANGE PROGRAM OVERVIEW



UNIVERSITY OF AUCKLAND, NEW ZEALAND



GREEN CITY, BERLIN, GERMANY



# WHY THESE SCHOOLS?

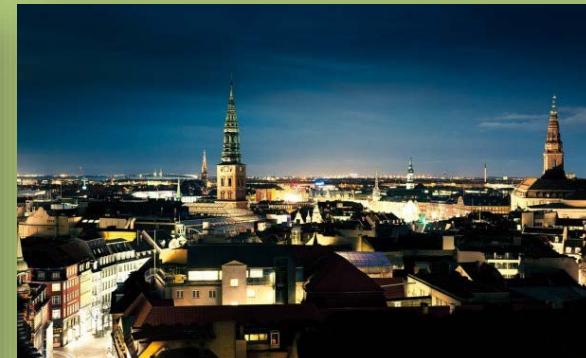


## Exchange with regions that are

- Culturally different
- Experiencing rapid technology development/growth
- Safe and interesting for students

## Exchange with schools that

- Have a high quality program and student profile
- Have native faculty teach engineering in English
- Have good support for exchange students
- Have curriculum that complements or is broader than Thayer's





# CHULALONGKORN UNIVERSITY (CHULA)

- Oldest university in Thailand and generally considered to be the most prestigious
- Named after King Chulalongkorn (Rama V)
- Located on 500+ acre campus in center of Bangkok
- Over 19,000 undergraduates and about 10,000 graduate students
- 18 faculties, including Faculty of Engineering (est. 1913)





# CHULA'S INTERNATIONAL SCHOOL OF ENGINEERING (ISE)

- English-language undergraduate engineering program
- First class admitted in 2005
- Very competitive entrance exam, with emphasis on science and math
- 200 students per class



## SPECIALIZATIONS AT ISE

- Nanoengineering
- Information and Communication Engineering
- Automotive Engineering
- Aerospace Engineering



# COURSES DARTMOUTH STUDENTS HAVE TAKEN AT CHULA

- Foundations of Biochemistry
- Science of Materials
- Aerodynamics
- Mechanical Solids
- Intro to Linear & Digital Circuits
- Computer-Aided Design
- Failure Mode and Effect Analysis
- Statistical Methods in Engineering
- Product Development Process
- Statistical Thermodynamics





# CHINESE UNIVERSITY OF HONG KONG (CUHK)

- “A forward looking comprehensive research university with a global vision and a mission to combine tradition with modernity, and to bring together China and the West.”
- >20,000 undergrad and post grads, 3000 from outside of Hong Kong
- College system with a focus on bilingualism and multiculturalism
- Eight faculties including Faculty of Engineering





# EXCHANGE PROGRAMS AT CUHK

- First Hong Kong university to have an international exchange program (1965)
- Has over 100 exchange partners
- Sends 300/receives 400 per year
- Engineering exchange program began in 2004

## ENGINEERING DEPARTMENTS



- Biomedical Engineering
- Computer Engineering
- Electronic Engineering
- Information Engineering
- Mechanical and Automation Engineering
- Systems Engineering and Engineering Management



# COURSES DARTMOUTH STUDENTS HAVE TAKEN AT CUHK

- Advanced Energy Technologies
- Control Systems
- Data Structures
- Discrete & Probabilistic Systems
- Dynamic Optimization & Applications
- Globalization and International Politics
- Introduction to Energy and Environment
- Introduction to Robotics
- Microcomputer Systems
- Microprocessors
- Principles of Communication





# TECHNICAL UNIVERSITY OF DENMARK (DTU)

- Founded in 1829
- Renowned for its business-oriented approach and its focus on sustainability
- Ranked #155 in Best Global Universities for by US News & World Report in 2020
- Approximately 10,000 students (including 2,000 international students)
- Main campus in Lyngby, 15 km south of Copenhagen





# TECHNICAL UNIVERSITY OF DENMARK ENGINEERING PROGRAM

- Approx. 500 courses taught in English
- Dartmouth students can select from BSc or MSc courses (prerequisites must be met)
- Teacher/researcher to student ratio 1:4
- Emphasis on combining theory and practice via project and lab work

## ENGINEERING DEPARTMENTS (w/courses in English)



- Civil
- Chemical
- Electrical
- Environmental
- Management
- Mechanical
- Photonics
- Also Applied Mathematics and Computer Science, Micro and Nanotechnology, Chemistry, Physics, Systems Biology and others



# COURSES DARTMOUTH STUDENTS HAVE TAKEN AT DTU

- Applied Cryptography
- Chemical Unit Operations Laboratory
- Computational Discrete Math
- Computer Architecture & Engineering
- Functional Programming
- Intro to Chemical Reaction Engineering
- Intro to Computer Games Prototyping
- Intro to Mathematical Statistics
- Mathematical Software Programming
- Plasma Physics
- Programming in C++
- Resource Engineering
- Intro to Partial Differential Equations
- Intro to Machine Learning & Data Mining



# UNIVERSITY OF AUCKLAND



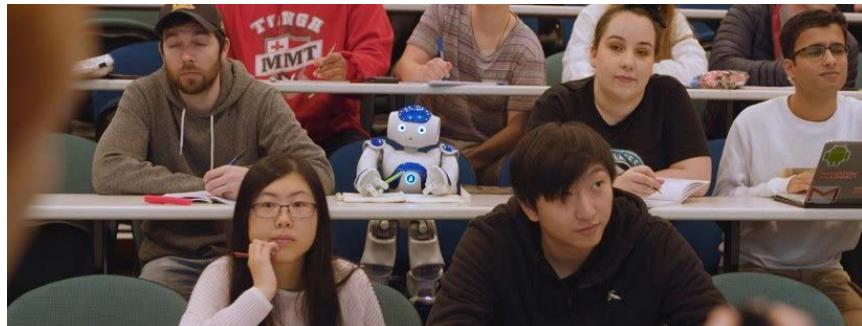
- Largest university in New Zealand and the country's most internationally recognized university.
- Located in the center of New Zealand's largest city.
- Over 40,000 students on five campuses.
- Eight faculties (Arts, Sciences, Education, Engineering, Law, Business, Creative Arts and Industry, Medicine) and numerous research institutes and centers offering some 80 degree programs.



# UNIVERSITY OF AUCKLAND

Ten Bachelor of Engineering (Honours) specializations accredited by [Engineering New Zealand](#), a signatory of the Washington Accord.  
Recognizing engineering qualification in many countries.

- Biomedical Engineering
- Chemical and Materials Engineering
- Civil Engineering
- Computer Systems Engineering
- Electrical and Electronic Engineering
- Engineering Science
- Mechanical Engineering
- Mechatronics Engineering
- Software Engineering
- Structural Engineering



The Faculty of Science has 8,324\* students.

17% international students.

6,685 undergraduate students\*

746 postgraduate taught students\*

893 postgraduate research students (masters and PhD students)\*

3,961 PhD completions (headcount 2001-current, 272 in 2019)

# BERLIN, GREEN CITY (FSP)

*Green City* is a joint foreign study program between the Department of German Studies and the Thayer School of Engineering that will be piloted in the spring 2022.

This program invites students to combine engineering coursework that focuses on “green” and sustainable engineering with a fast-track German course (GERM 2–3) that satisfies Dartmouth’s foreign language requirement.



Sanssouci Palace, Potsdam, Germany

Taking place in Berlin, Germany's self-proclaimed "capital of sustainability." It takes students to a full-immersion setting and cultural environment in which sustainability is a lived practice.

# BERLIN, GREEN CITY (FSP)

Curriculum: Students choose any three from the following four courses:

**ENGS 37:** Introduction to Environmental Engineering

**ENGS 45** (tentative number): Sustainable Cities

**GERM 2–3:** Fast-Track German

**GERM 40.01** (tentative number): Metropolis Berlin.

Taught in English with optional German major/minor credit.



Photo by Kevin Ponce '20



Berlin River Green Boats

This program has three main goals:

*Green City* not only seeks to impart concretely applicable skills in sustainable and environmental engineering as well as in the German language and culture to students; it also requires students to think about how their day-to-day experiences with sustainable living and their engineering knowledge are mediated by a foreign language and different cultural context.



# ENROLLMENT

## Chula

- Dartmouth winter term (an X-term) and spring term (an L-term)
- Corresponds to Chula's second semester (early Jan until early May)

## CUHK

- Dartmouth fall term (late summer departure)
- Corresponds to CUHK's first term (late Aug until late Dec)

## DTU

- Dartmouth fall term (late summer departure)
- Corresponds to DTU's autumn semester (late Aug until late Dec)

## Auckland

- Dartmouth winter term (an X-term) (spring and possibly summer L-terms) or Dartmouth summer term (an X-term) and fall term (L-term)
- Corresponds to Auckland's Semester 1 (mid-Feb through June) or Semester 2 (early July to mid November)

## Berlin

- Dartmouth spring term (FSP)



# COURSES AND TRANSFER CREDIT FOR EXCHANGES

## At least four courses

- Four engineering courses in English
- Option to take an additional non-transferrable course including languages
  - Chula: Thai language course, non-credit “survival Thai” 2hrs/wk for 5 wks
  - CUHK: any Chinese language course available to International students
  - DTU: a three-week intensive Danish language and cultural course and free Danish language course during the semester

## Transfer up to four course credits to Dartmouth

- Need a grade of at least C and the *course must have been approved beforehand* (term prior to enrollment)
- Four courses toward A.B. degree requirements
- Two courses used for credit towards Engineering Sciences major
- Up to four courses can be used in satisfaction of Bachelor of Engineering degree requirements



# FINANCIAL IMPLICATIONS

- No tuition paid to exchange host institution
- **Estimated Expenses:**
  - Chula - \$4400 for a semester, including room, board, books, local transportation; *plus* roundtrip transportation to Bangkok: approx. \$1200-\$1500\*
  - CUHK - \$4800 for a semester, including room, board, books, local transportation; *plus* round trip transportation to Hong Kong: approx. \$1100-\$1400\*
  - DTU- \$5000 for a semester, including room, board, books, local transportation; *plus* round trip transportation to Copenhagen: approx. \$1000-\$1400\*
  - Auckland- \$6700 for a semester, including room, board, books, local transportation; *plus* round trip transportation to Auckland: approx. \$1700-\$2000
  - Berlin- TBD
- Any scholarship aid granted by Dartmouth will continue while on exchange



# VISA, HEALTH INSURANCE, ETC.



- Need passport valid for at least three months past the end of exchange
- All exchange schools will provide necessary documentation for visa (small fees may apply)
- Student responsible for obtaining necessary visa
- Must be covered by health insurance (i.e. Dartmouth Student Health Insurance Plan)



# PHOTOS FROM AROUND CHULA





# PHOTOS FROM AROUND CUHK





# PHOTOS FROM AROUND DTU





# CONTACTS & APPLICATION PROCESS

## CONTACTS

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## HOW TO APPLY

- Dartmouth students apply by February 1 of sophomore year for an exchange term in junior year. Juniors may also apply.
- **GREEN CITY FSP-** First Year students apply by February 1 for travel sophomore year.
- Applications submitted through Guarini Institute for International Education
- Deadline – February 1, 2021 for 2021-2022 academic year
- Participating students selected by early March



QUESTIONS?