KTH Royal Institute of Technology

Master's and PhD studies

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KTH web site **Facts about KTH** **Study at KTH**

KTH Royal Institute of Technology

One of the top technical universities in Europe

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Short facts about KTH

- Established 1827 in Stockholm, Sweden
- People from more than one hundred nations
- Some numbers:
  - 13,000 full time students
  - 1,800 PhD students
  - 2,500 new students in master programs
  - 300 new PhD students each year
  - 600 members of faculty

Short facts about KTH

- QS ranking: Global World ranking 89 (2021) but many engineering areas are much stronger:

  - Electrical and Electronic Engineering: 18
  - Architecture / Built Environment: 19
  - Mechanical Engineering: 25
  - Materials Science: 38
  - Civil & Structural Engineering: 38
  - Computer Science & Info Systems: 42
  - Mathematics: 49
  - Chemical Engineering: 78
  - Physics & Astronomy: 90
  - Chemistry: 109

Is KTH a good choice for HIT students? Yes!

Comparison of QS rankings by subject 2021		
	KTH	HIT
General ranking	**89**	**236**
Electrical and Electronic Engineering	18	101-150
Architecture	19	51-100
Mechanical Engineering	25	51-100
Materials Science	38	68
Civil and Structural Engineering	38	101-150
Computer Science and Information Systems	42	151-200
Mathematics	49	126
Chemical Engineering	78	151-200
Physics and Astronomy	90	251-300
Chemistry	109	201-250
Red shading: lower rank than KTH		

The Kingdom of Sweden

- About 10 million inhabitants, ~2 million of whom live in the capital of Stockholm
- Has a pleasant climate thanks to the warm Gulf stream in the north Atlantic sea
- Combines a beautiful natural setting with modern technology and vibrant cities
- Home of the Nobel Prize, and many famous export companies, such as the examples on the next slide:

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Sweden makes a lasting impression

Swedish entrepreneurship and ingenuity has helped shape the worlds of communication, furniture, fashion, music and much more. And no matter what the industry, there always seems to be that engineering approach.

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Stockholm – a city of islands

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Stockholm: a dynamic environment, modern, historic, clean air and water

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Stockholm: an international city

- A multi-cultural European capital, communities from China, India and other countries
- A clean and safe city
- Quick access to city, campus and nature with excellent transportation: public, by bicycle or even by boat
- **Swedes speak good English**, very limited need to learn Swedish while studying in Stockholm

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Stockholm student life, part of the city

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KTH main campus

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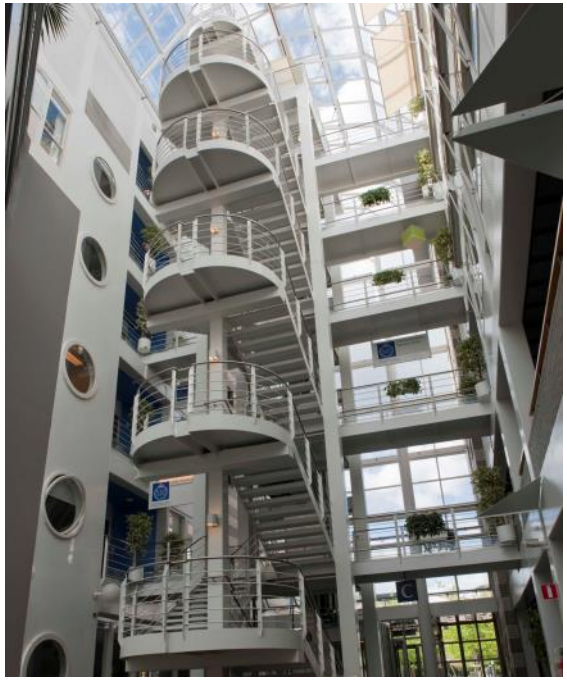
Five campuses close to industry



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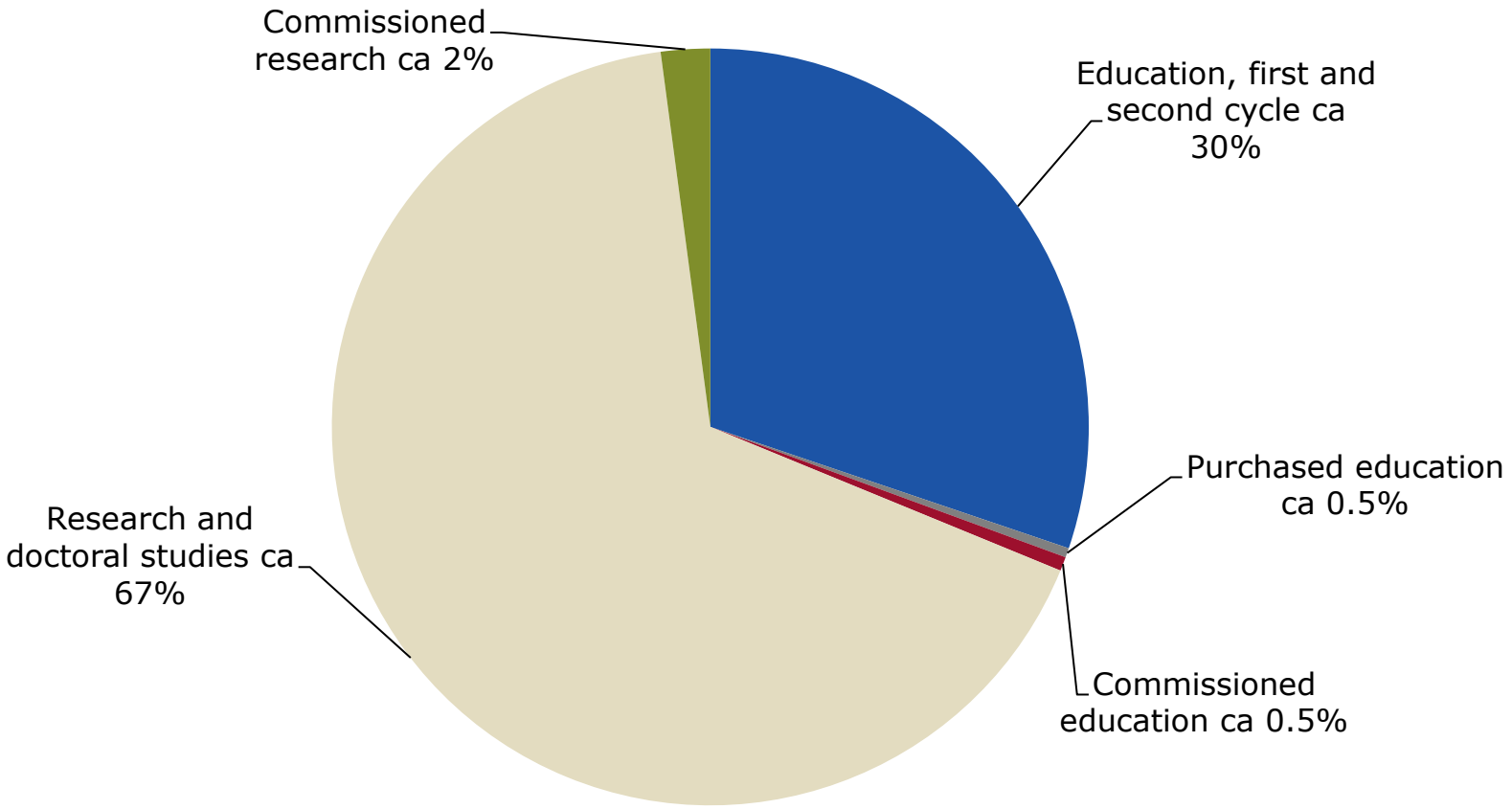
Education in close collaboration with industry

- KTH has five campuses in and around Stockholm city
- Each campus closely integrated with local industry
- Example: the campus in Kista is surrounded by the world's largest collection of ICT businesses, more than 1000 companies, such as Ericsson, IBM, Intel, Sun, Compaq, Huawei, ZTE, and many more
- Master thesis can be written at a company, often leading to the first job after graduation

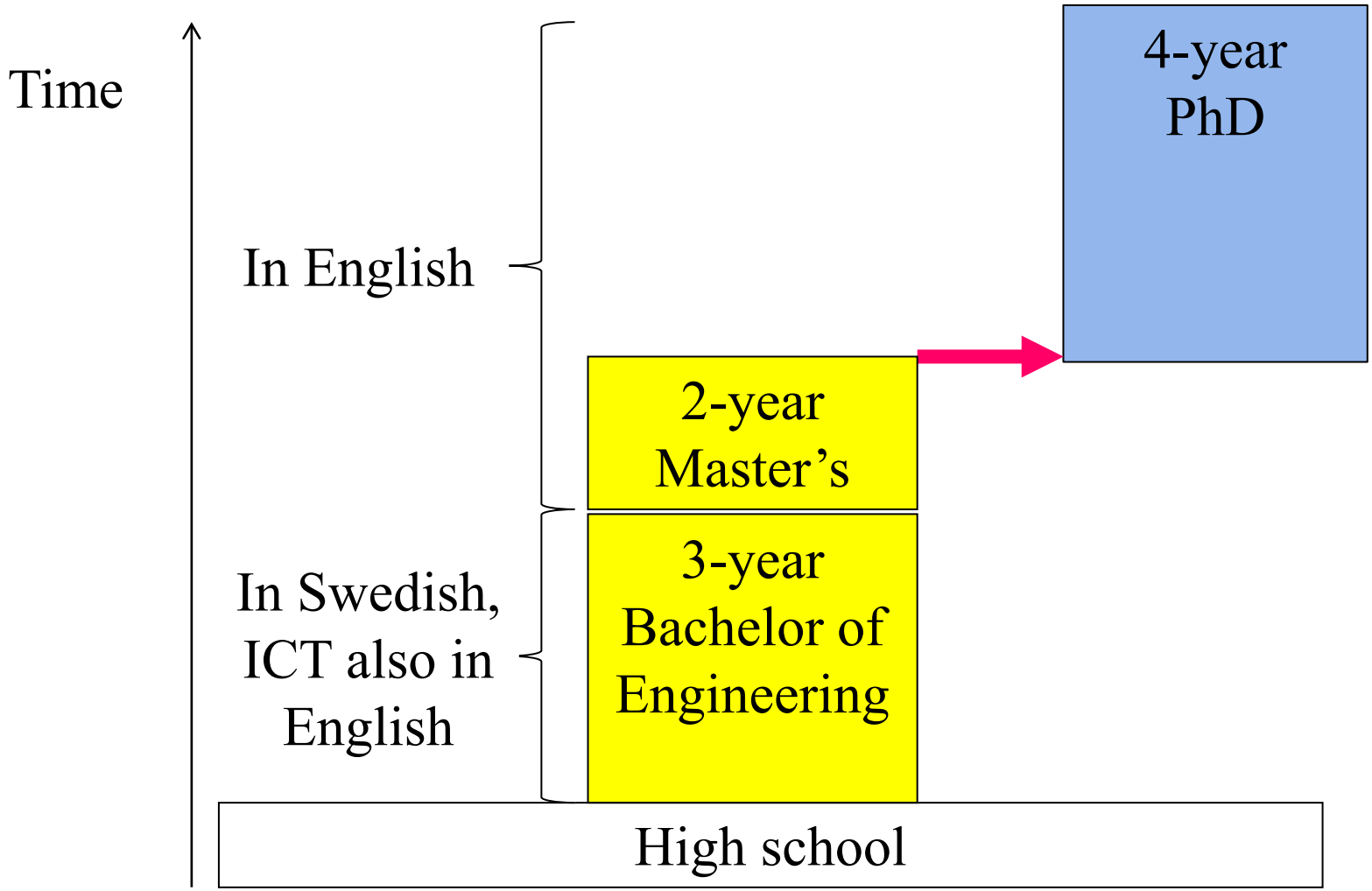
KTH - Research-based operations

- *Total Revenue SEK 4,9 billion (ca RMB 3,8 billion)**

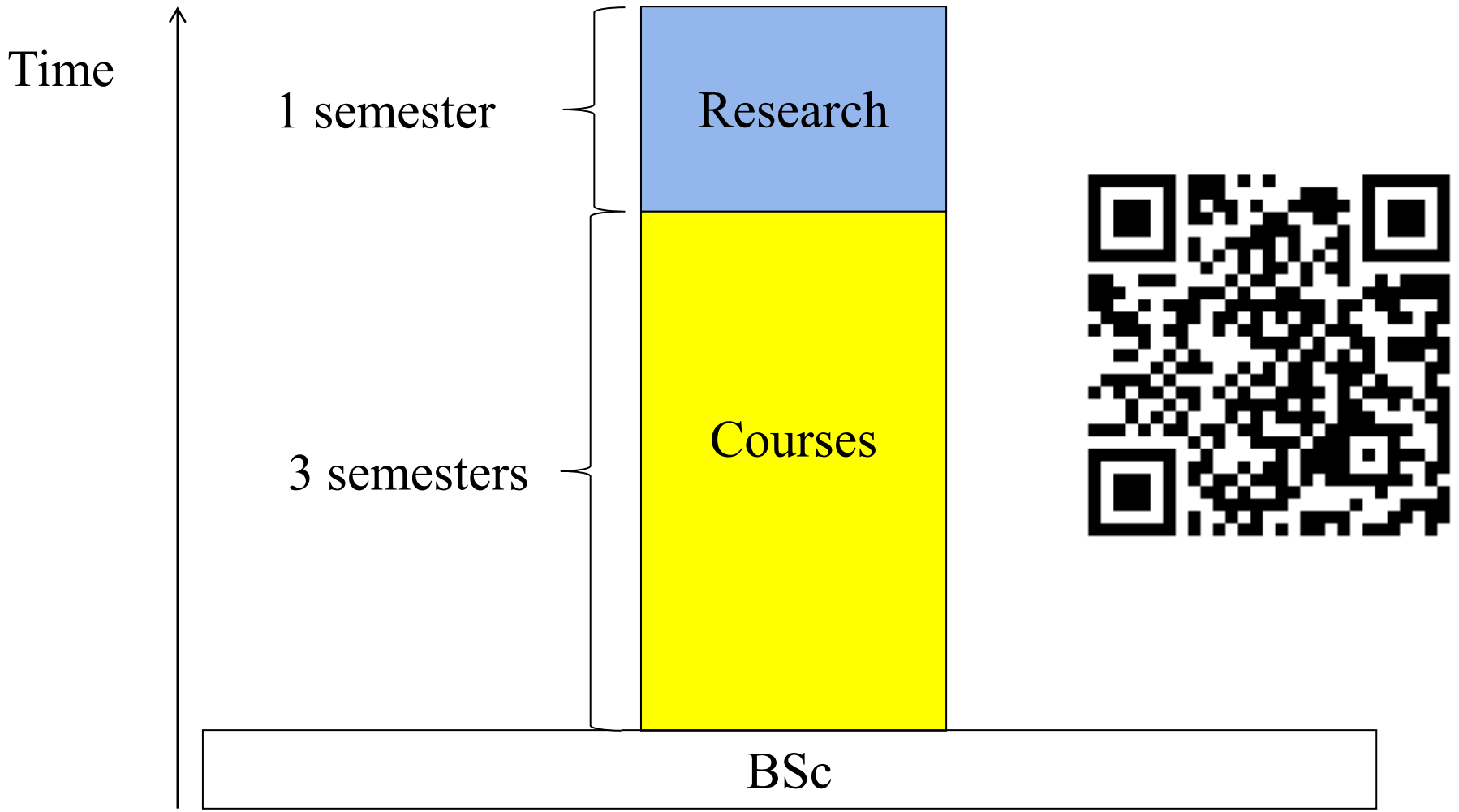


- Figure for 2016, exchange rate 1RMB = 1.3 SEK

Structure of education at KTH



Structure of MSc education at KTH



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MSc programmes for entry in 2022

More than 60 programmes in several subject areas:

- Architecture and the Built Environment
- Computer Science
- Electrical Engineering
- Engineering Physics and Mathematics
- Energy and Sustainable Development
- Industrial Management and Innovation
- Information and Communication Technology
- Life Science Technology, Chemistry and Chemical Engineering
- Materials Science and Engineering
- Mechanical Engineering

Fees and Scholarships

There are application and tuition fees for non-EU/EEA/Swiss citizens for 1st and 2nd cycle studies (bachelor and master)

The tuition fee is SEK155k (about RMB120k*) for one year of full-time master's study, architecture 70% higher and bachelor 20% lower

Scholarships are available, for example:

- KTH Scholarship (covering the tuition fee)
- SI: the Swedish Institute
- Joint programs: Erasmus Mundus and EIT (European Institute of Innovation and Technology)

* Assuming exchange rate RMB 1.0 = SEK 1.3

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Living in Sweden

When applying for a residence permit, you must prove to the Swedish Migration Board that you will have a guaranteed sum of money at your disposal throughout the entire period of your studies. The amount is SEK 8568, about RMB 6550*, per month for ten months of the year.

Breakdown of budget per month, approximately:

- Food: RMB 1700
- Accommodation: RMB 3000
- Local travel: RMB 500
- Phone/internet: RMB 350
- Other: RMB 1000

* Assuming exchange rate RMB 1.0 = SEK 1.3

Joint MSc programs: two degrees from European universities

European Institute of Innovation and Technology (EIT)

- Combines education, research and business
- Master programs in ICT, energy and electrical systems
- Studies in two European countries
- Scholarships available

Erasmus+

- EU program at master and PhD levels
- Studies in (at least) two European countries
- Scholarships available

Nordic Five Tech

- Studies in two Nordic countries

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Application requirements and process

- Completed Bachelor's degree is required except for 3+2 applicants, see following slides for terms
- English proficiency has to be shown (TOEFL 90 with writing 20, IELTS 6.5 with no subscore below 5.5 etc)
- There are programme-specific requirements (see www.kth.se/en/studies/master)
- Apply at www.universityadmissions.se
- Online application period: October 18 to January 17
- Results of admission distributed on April 7

Application for KTH scholarship

- Applications for KTH scholarships are open from December 1 to January 15 (preliminary dates)
- Applications are entered via the KTH web page:
  - Go to master studies: www.kth.se/en/studies/master/
  - Select “Scholarships” in the left menu and then “KTH scholarship”
- Scholarship opportunities:

KTH Scholarship:

Application for KTH scholarship

An assessment of applicants for the scholarship is made based on the following criteria:

- The applicant's grades (GPA or equivalent)
- The ranking of the university where the applicant studied at bachelor level
- An overall assessment of the application by the professor in charge of the master program based on aspects relevant for the program. See “entry requirements; specific documents” for each master program.
- The applicant’s motivation how a future master degree from KTH will contribute to the sustainable development goals

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Application for KTH scholarship

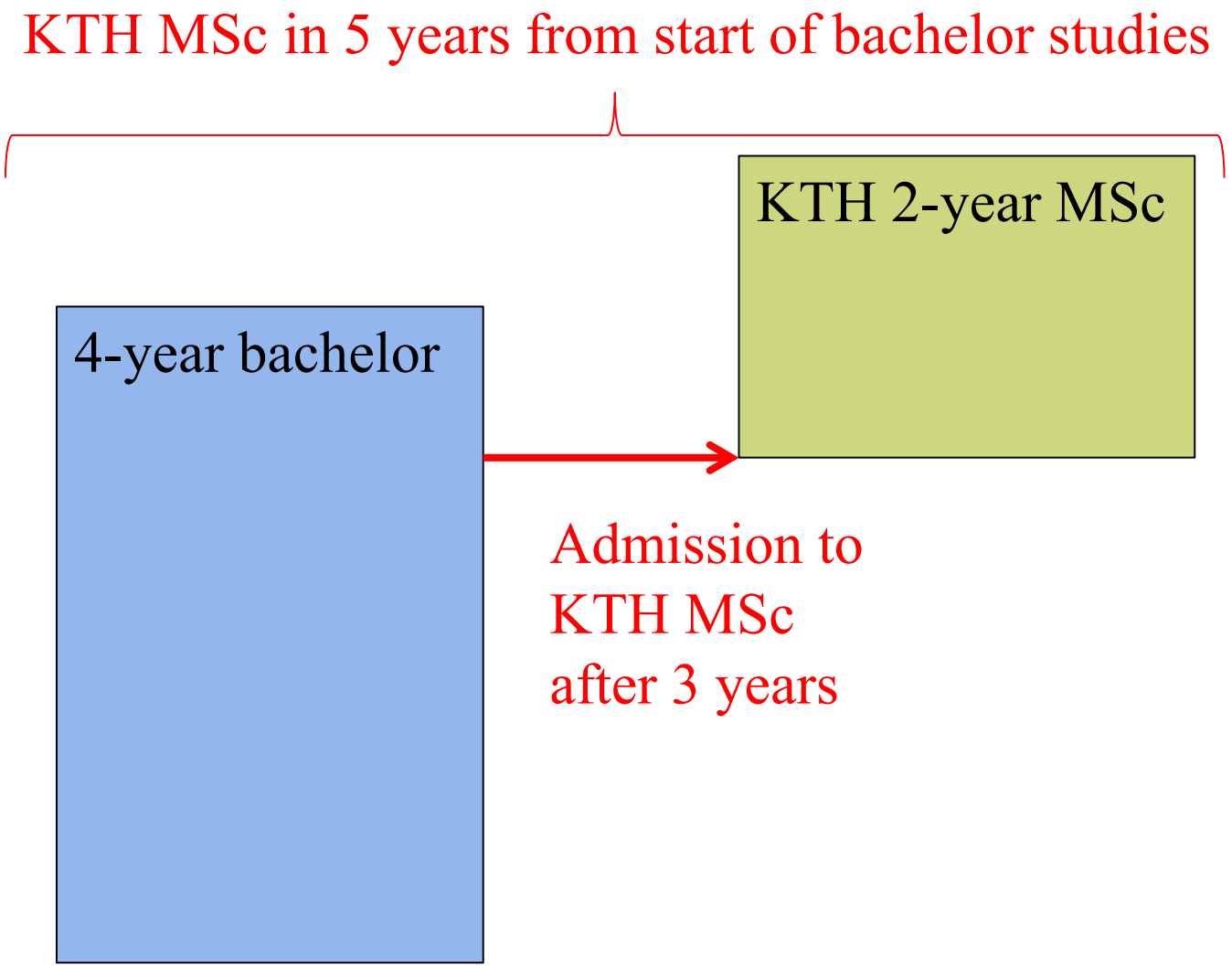
- Sustainable development goals

Application for KTH scholarship

- The motivation on sustainable development should at least show that the applicant has read the information on sustainability found in each master program description on the KTH web site. Example from a program: (scroll down to “Sustainable development”):

- Do NOT copy&paste from anything on the web! The motivation will be checked for plagiarism.

3+2 program


KTH MSc in 5 years from start of bachelor studies
KTH 2-year MSc
4-year bachelor
Admission to
KTH MSc
after 3 years

3+2 program

KTH and HIT has a very successful 3+2 agreement since 2012

Students can apply during the 3rd year of 4-year bachelor studies. These applicants **must contact their home university administration**

Applications **should follow the mapping** agreed between bachelor majors and master programs. Applications outside of the mapping have a low likelihood of admission.

Applications are made at universityadmissions.se , deadline January 17, 2022

3+2 applications

Include a table of this type in your application, including what courses you will take during the 6th semester, example for KTH master program in Engineering Physics:

KTH master program prerequisites, see "Entry requirements"	**Corresponding bachelor level courses at your home university**
Physics (including classical mechanics, thermodynamics, electromagnetism, waves, geometrical optics and quantum mechanics) equivalent to at least 45 ECTS	List courses and briefly describe contents
Mathematics (including differential and integral calculus, linear algebra, differential equations and transforms, and statistics) equivalent to at least 35 ECTS	List courses and briefly describe contents

60 ECTS credits is one full academic year of studies. At bachelor level, the credits from a Chinese university can usually be multiplied by 1,5 to get the corresponding number of ECTS credits, i.e. 1 credit at a Chinese university corresponds to approximately 1,5 ECTS credits

ECTS= European Credit Transfer System

3+2 applications

Example for KTH master program in Computer Science:

KTH master program prerequisites, see ”Entry requirements”	Corresponding bachelor level courses at your home university
Mathematics equivalent to at least 22,5 ECTS, there must be: 1. a course in one-variable calculus, 2. a course in linear algebra and 3. a course in discrete structures	List courses and briefly describe contents: 1. ... 2. ... 3. ...
Computer Science/Information Technology equivalent to at least 22,5 ECTS, there must be 1. a course in object oriented programming, 2. a course in algorithms and data structures and 3. a course in computational complexity	List courses and briefly describe contents: 1. ... 2. ... 3. ...

60 ECTS credits is one full academic year of studies. At bachelor level, the credits from a Chinese university can usually be multiplied by 1,5 to get the corresponding number of ECTS credits, i.e. 1 credit at a Chinese university corresponds to approximately 1,5 ECTS credits

ECTS= European Credit Transfer System

3+2 applications for admission 2022

The mapping in the following tables have been developed for students from HIT Harbin campus

Students from HIT Shenzhen and Weihai campuses can follow the same mapping but are advised to be very careful when filling out the table with master program entry requirements and courses during semesters 1 to 6 in their bachelor majors since there may be small differences between Harbin, Weihai and Shenzhen for the same major

Applications outside of the mapping may be considered but have a lower likelihood of acceptance

HIT – KTH 3+2 mapping
Possible transitions (Harbin campus)

HIT Applied Chemistry HIT Applied Physics	KTH Macromolecular Materials KTH Nuclear Energy Engineering KTH Engineering Physics
HIT Bridge Engineering	KTH Civil and Architectural Engineering
HIT Communication Engineering	KTH Information and Network Engineering KTH Communication Systems
HIT Computer Science and Technology	KTH Transport and Geoinformation Technology KTH Communication Systems KTH Computer Science KTH Interactive Media Technology KTH Machine Learning KTH Media Management KTH Embedded SYstems
HIT Electrical Engineering and Automation	KTH Electromagnetics, Fusion and Space Engineering KTH Electric Power Engineering (Maximum of 5 students) KTH Systems, Control and Robotics (Maximum of 3 students) KTH Embedded Systems (For eligibility to track Embedded Control students must have a course in mechanics including statics, the dynamics of particles, as well as basic principles) KTH Nuclear Energy Engineering

HIT – KTH 3+2 mapping
Possible transitions (Harbin campus)

HIT Environmental Engineering	KTH Environmental Engineering and Sustainable Infrastructure KTH Sustainable Technology
HIT Information and Computation Science	KTH Applied and Computational Mathematics
HIT Materials Chemistry	KTH Macromolecular Materials
HIT Materials Forming and Control Engineering	KTH Engineering Materials Science (Students only eligible to track: Materials Design)
HIT Materials Physics	KTH Nanotechnology KTH Engineering Materials Science (Students only eligible to track: Materials Design)
HIT Materials Science and Engineering	KTH Macromolecular Materials KTH Nanotechnology KTH Engineering Materials Science (Students only eligible to track: Industrial materials)
HIT Mathematics and Applied Mathematics	KTH Applied and Computational Mathematics

HIT – KTH 3+2 mapping
Possible transitions (Harbin campus)

HIT Mechanical Engineering and Automation	KTH Sustainable Technology KTH Sustainable Energy Engineering (Students must have completed course in Applied Thermodynamics or equivalent) KTH Production Engineering and Management KTH Engineering Design KTH Integrated Product Design (students ony eligble to track: Innovation Management and Product Development-IPDE) KTH Engineering Materials Science (Students only eligible to track: Materials Design) KTH Vehicle Engineering KTH Naval Architecture KTH Nuclear Energy Engineering
HIT Nuclear Chemical and Nuclear Fuel Engineering	KTH Macromolecular Materials KTH Nuclear Energy Engineering
HIT Nuclear Physics	KTH Nuclear Energy Engineering KTH Engineering Physics
HIT Optoelectronic Information Science	KTH Engineering Physics
HIT Road Engineering	KTH Civil and Architectural Engineering

HIT – KTH 3+2 mapping
Possible transitions (Harbin campus)

HIT Road Materials and Engineering	KTH Civil and Architectural Engineering
HIT Traffic Engineering	KTH Transport and Geoinformation Technology
HIT Transport Equipment and Control Engineering	KTH Transport and Geoinformation Technology
HIT Welding Science and Technology	KTH Engineering Materials Science (Students only eligible to track: Industrial materials)

HIT – KTH 3+2 mapping
Possible transitions (Shenzhen campus)

HITSZ Civil Engineering	KTH Civil and Architectural Engineering

HIT – KTH 3+2 mapping
Possible transitions (Weihai campus)

HITWH Electromagnetic and Wireless Technology	KTH Electromagnetics, Fusion and Space Engineering

KTH exchange program

Partner university students can apply for exchange studies at KTH. Deadlines: April 15 and October 15, see: **KTH** (www.kth.se/en/) **/ Study at KTH / Exchange studies**

Students can study for up to 1 year and do not have to pay tuition fees for exchange studies which do not result in a degree

During or after exchange studies, it is possible to apply, in competition, for admission to a KTH master program which results in a degree

Contact your study administration for details

After graduation with master degree

- After a KTH master degree: 1 year residence permit to look for a job or a PhD student position
  - KTH PhD student positions are publically announced at the web site, KTH MSc students may have an advantage
  - Many former KTH MSc students from enrol as KTH PhD students
- After a KTH PhD degree: permanent residence permit in Sweden
- KTH graduates find positions all over the world

Career prospects after a KTH degree

- Statistics for master's programmes:
  - 50% had a job even before graduation
  - >90% had a job within 6 months of graduation
  - >30% became PhD students

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PhD studies

- Three years of full-time research, one year of courses
- Engages around 2,000 people
- A large proportion international PhD students
- A candidate has to apply for a position
- All PhD student positions are announced on the KTH web site:

https://www.kth.se/en/studies/phd

- Employment with a salary if admitted, but competition for positions

Things you can do after finishing education at KTH…

Thermal design engineer at Zhejiang Dahua Technology Co. Ltd, China, 2018

- Master in Sustainable Energy Engineering KTH, Sweden, 2017
- Bachelor in Energy and Environment System Engineering (KTH-ZJU 3+2) Zhejiang University, 2016

Things you can do after finishing education at KTH…

- Ph.D. student at the Division of Decision and Control Systems, KTH, since July 2018
- M.Sc. degree in Embedded systems from KTH in 2018
- B.E. degree in Control Science and Engineering from the Honors School, Harbin Institute of Technology (Harbin, China), 2017

Things you can do after finishing education at KTH…

- PhD Candidate in Dam foundation grouting, KTH
- Master in Civil & Architectural Engineering
  KTH, 2017-2019
- Bachelor in Civil Engineering
  Southeast University, 2013-2017

Things you can do after research at KTH…

-Associate Professor, Chongqing University, China, from Nov 2020

-Post doctor, KTH Royal Institute of Technology, Sweden, 2018-2020

-PhD in Materials Science and Engineering, KTH, Sweden, 2014-2018 (partly supported by CSC)

-PhD in Metallurgical Engineering, Chongqing University, China, 2012-2016

Things you can do after finishing education at KTH... go into space!

Professor Christer Fuglesang
Professor in Space Physics, KTH

- Mission crew STS-116 & STS-128 Shuttle Discovery, NASA-ESA 2006 & 2009
- Astronaut at European Space Agency 1992-present

- PhD in Experimental Particle Physics Stockholm University, 1986
- Master in Engineering Physics KTH, 1981

Things you can do after research at KTH… collect the Nobel prize!

Professor Hannes Alfvén

- Nobel Prize in Physics, 1970
  for Magnetohydrodynamics
- Professor in Electrical Engineering
  University of California, 1967-1991
- Professor in Electromagnetic Theory
  and Electrical Measurements
  KTH, 1940-1991
- PhD in Electromagnetic Waves
  Uppsala University, 1934

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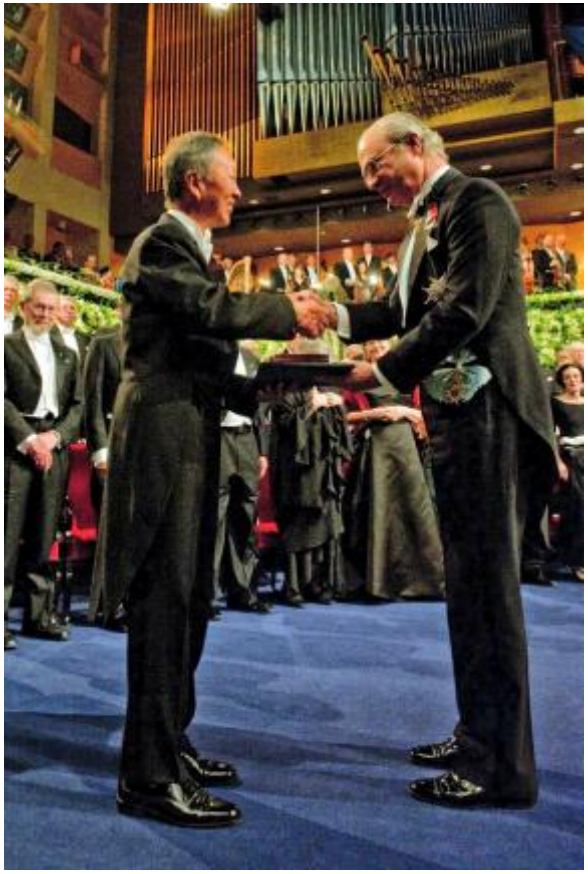
Nobel Prize ceremony in Stockholm on December 10 every year



... may take a few years after graduation...

The Nobel Banquett

International students from KTH attended the Nobel Banquett in, the Stockholm City Hall, dressed in traditional costumes.

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Welcome to KTH: launch your career!