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About KTH

KTH accounts for one third of Sweden’s capacity for engineering research at the higher education level and is the country’s largest provider of technical education at this level. KTH education and research cover a broad spectrum, from natural sciences to all areas of engineering as well as architecture, industrial economics, urban planning and learning. In addition to the research carried out at KTH schools, there are a number of KTH competence centres. A number of research programmes at KTH are financed by national research foundations.

At KTH you can study programmes for Master of Architecture, Master of Science in Engineering, Bachelor of Science in Engineering, Bachelor’s Degree, Master’s Degree (one or two years), Licentiate or PhD. KTH also trains subject teachers for upper secondary school and for grades 7–9 in compulsory school. Technical Preparatory programmes are arranged, as well as commissioned education and continuing professional development. In total there are more than 12,000 FYS (full year students) in first and second cycle, 1,900 in third cycle (at least 50 per cent of full time) and just over 5,100 employees, corresponding to almost 3,700 full time equivalent.

KTH was founded in 1827 and its central Campus is at Norra Djurgården in central Stockholm. KTH and Stockholm University (SU) run education and research in biotechnology and physics at AlbaNova, close to Roslagstull. KTH also runs courses at other campuses in the Greater Stockholm area. The Science for Life Laboratory (SciLifeLab) is in the Karolinska Institutet Science Park in Solna, which is operated jointly with Karolinska Institutet (ki), Stockholm University (SU) and Uppsala University. The School of Information and Communication Technology is located in Kista in northern Stockholm. South of Stockholm, the School of Architecture and the Built Environment and the School of Technology and Health (STH) run courses in Haninge. STH collaborates with Karolinska Institutet in Flemingsberg, and the School of Industrial Engineering and Management has some of its courses in Södertälje. In 2014 a major project in Södertälje was launched with government funding in collaboration with Scania, Astra Zeneca and Södertälje municipality.

KTH carries out extensive international research and has educational exchanges with universities and university colleges, primarily in Europe, USA and Asia. KTH participates actively in different EU research programmes and organises collaboration with Swedish and international development agencies.

A substantial level of collaboration is underway with Swedish companies, government agencies and organisations. Strategic collaboration agreements have been signed with several major companies, the City of Stockholm and Stockholm County Council.

KTH in figures 2014

Educational activities

- Master of Architecture and 15 Master of Science in Engineering programmes
- Master of Science in Engineering combined with Degree in Education
- 8 Bachelor of Science in Engineering programmes
- Subject teacher programmes grades 7–9
- Master’s programmes (one and two year)
- Bachelor’s programmes and two-year university diplomas
- Further education, technical preparatory programme
- 12,424 full time students, of which 32 per cent are women and 68 per cent men (including fee-paying students)
- 10,564 annual performance equivalents (including fee-paying students)
- 1,902 active research students (at least 50 per cent activity), of which 30 per cent are women and 70 per cent men
- 2,634 new students on the first year of Master of Science in Engineering, Master of Architecture and Bachelor of Science in Engineering programmes of which 32 per cent are women and 68 per cent men
- 894 admitted to the Technical Preparatory Programme, of which 33 per cent are women and 67 per cent men
- 2,039 new students on one and two-year Master’s programmes, 33 per cent women and 67 per cent men, of whom 1,043 students previously on Master of Science in Engineering studies programmes and 996 students studying on a one or two-year Master’s programme at KTH
- 305 newly-admitted students to doctoral studies programmes, of which 29 per cent are women and 71 per cent men
- 100 Master of Architecture, 49 per cent to women and 51 per cent to men
- 1,341 Master of Science in Engineering degrees, 30 per cent to women and 70 per cent to men
- 353 Bachelor of Science in Engineering degrees, 27 per cent to women and 73 per cent to men
- 1,164 Master/Master of Science (one and two-year) degrees, 31 per cent to women and 69 per cent to men
- 279 PhDs, 26 per cent to women and 74 per cent to men
- 125 licentiate degrees, 30 per cent to women and 70 per cent to men

Research

Primary responsibility for five national strategic research areas;
- E-science
- IT and mobile communication
- Transport research
- Production engineering
- Molecular biosciences (Science for Life Laboratory)
- Partner in another five areas
- Lead partner in two programme areas within the European Institute of Innovation and Technology (EIT);
- InnoEnergy
- ICT Labs

Financial situation

- MSEK 4,637 in total turnover (of which MSEK 394 transfers)
- Government grants (excluding transfers); MSEK 1,063 First and second level (undergraduate) educational programmes
- MSEK 1,064 research/doctoral studies

External financing (excluding transfers)

- MSEK 327 the Swedish Research Council
- MSEK 298 EU
- MSEK 149 Vinnova
- MSEK 131 Wallenberg Foundations
- MSEK 337 other government agencies
- MSEK 298 other external financing including private funds

Employees

- 5,357 employees, the equivalent of 3,672 full time positions, of which 1,360 are women and 2,312 men of which; 311 professors, 47 women and 263 men (including visiting and adjunct professors) 258 associate professors, 52 women and 205 men

Floor Space

- 264,000 m²
KTH educational and research activities are organised in different schools. Under these come departments and centres. Schools report directly to the President. Each school is headed by a Dean and a Vice-Dean with the help of a management group. There is also a school strategic council that acts as an advisory body to the Dean on certain issues.

The University Board supervises all KTH activities and is responsible for ensuring that tasks are carried out properly. The Board consists of 15 members: the President, eight external members, three teacher representatives and three student representatives.

The President leads operations and reports to the University Board. The Deputy President acts as the President’s Deputy. The President’s group deals with the strategic issues of research, education and quality and consists of the President, Deputy President, Dean and Vice Dean of the faculty, Vice President for research, Vice President for collaboration, the University Director and one student representative. The KTH management group deals with matters concerning all KTH schools and consists of the President, Deputy President, Vice Presidents, Dean of Faculty, Vice Dean of Faculty, University Director, Head of Communications, all Deans of Schools and student representatives.

The Faculty Council represents the whole faculty and bears overall responsibility for issues concerning quality in education, research and collaboration. The Faculty Council is also an advisory body to the President. In order to facilitate and improve faculty access to information and influence over processes and decisions, there is also a Faculty Advisory Board. The Faculty Advisory Board has the main task of gaining acceptance for and communicating particularly important issues with the KTH faculty. The Faculty Council’s Education Committee has three main tasks: overall sizing of educational programmes offered at first, second and third cycle, the preparation of KTH work concerning quality and follow-up of education, and the preparation of the general KTH development work concerning regulations and guidelines on education. The Faculty Council’s Employment Committee has three main functions: preparation and decisions regarding cases of promotion, preparation and decisions regarding cases of recruitment of teachers, and preparation of KTH work on quality development and follow-up concerning teaching positions. The Faculty Council also has a Resource Allocation Committee and Appointments Committees.

KTH Schools with operating areas

### School of Architecture and the Built Environment (ABE)
- Architecture
- Civil and Architectural Engineering
- Real Estate and Construction Management
- Philosophy and the History of Technology
- Sustainable Development, Environmental Science and Engineering
- Urban Planning and Development
- Transport and Economics

### School of Biotechnology (BIO)
- Genetic Technology
- Glycoscience
- Industrial Biotechnology
- Protein Technology
- Proteomics and Nanobiotechnology
- Theoretical Chemistry and Biology

### School of Computer Science and Communication (CSC)
- Computational Biology
- Computer Vision and Active Perception
- High Performance Computing and Visualization
- Media Technology and Interaction Design
- Centre for Parallel Computers
- Speech, Music and Hearing
- Theoretical Computer Science

### School of Electrical Engineering (EES)
- Electrical Engineering
- Fusion and Space Plasma Physics
- Information and Communication Technology
- Medical Engineering and Micro Systems

### School of Industrial Engineering and Management (ITM)
- Energy Technology
- Industrial Economics and Management
- Production Engineering
- Machine Design
- Materials Science and Engineering
- Applied Mechanical Engineering

### School of Information and Communication Technology (ICT)
- Electronic Systems
- Integrated Devices and Circuits
- Communications Systems
- Materials and Nano Physics
- Software Engineering and Computer Systems

### School of Chemical Science and Engineering (CHE)
- Fibre and Polymer Technology
- Chemistry
- Chemical Engineering

### School of Technology and Health (STH)
- Health Systems Engineering
- Medical Engineering
- Basic Science and Biomedicine

### School of Engineering Science (SCI)
- Aeronautical and Vehicle Engineering
- Physics
- Solid Mechanics
- Mathematics
- Mechanics
- Theoretical Physics
- Applied Physics

### School of Education and Communication in Engineering Science (ECE)
- Library Services, KTH Education
- Learning, Language and Communications
President’s preface

KTH continues to grow and develop. Among the most positive signals is the clear increase in the number of degrees awarded. The number of Master of Science in Engineering degrees increased from 908 in 2013 to 1,141 in 2014. There is also an almost 10 per cent increase in the number of Bachelor of Science in Engineering degrees. KTH has worked intensively in recent years to improve its throughput. It is very gratifying to report that these efforts have given results.

In addition to Master of Science in Engineering and Master of Architecture, KTH has also awarded Master of Science degrees to 744 students at KTH. They have taken first education at different universities in Europe or in other parts of the world. The number of degrees awarded in 2014 was almost 2,000, coming from the three categories of Master of Science in Engineering, Master of Architecture, and Master with first education from another university. It is an impressive figure and makes a strong contribution to the supply of skills in Sweden.

Third cycle degrees also increased by more than 10 per cent to 279 in 2014. KTH has never produced so many PhDs. The explanation lies in the strong growth of research in recent years.

The number of applicants for Master of Science in Engineering, Bachelor of Science in Engineering and Master of Architecture programmes are still at roughly the same level as the last two years, despite the decreasing demographic trend in that age group. In comparison with figures six or seven years ago, there are many more applicants. It is also inspiring to see that the proportion of women among new admissions is rising, both for master's and bachelor's degrees in engineering. Gender equality is a high priority at KTH and there are a number of schemes in progress to speed up change in that area.

The internationalisation of education is developing well. The number of paying non-European students and European students starting on master's programmes at KTH has increased strongly, from 683 in 2013 to 877 in 2014. Regarding exchange students, we have taken further steps toward balancing incoming and outgoing students.

The building of student accommodation at the main KTH Campus at Valhallavägen has intensified over the last few years. The decision was finally made in 2014 for a permit to construct 600 student apartments in different locations on the Campus.

Research related to the SciLifeLab is currently the fastest-growing research area at KTH. As a result of the government bill on research in autumn 2012, a national centre for financing and operation of national infrastructure, as well as pharmaceutical research, was started. The Centre is a partnership between KTH, Karolinska Institutet, Stockholm University and Uppsala University, with KTH as the host university.

Among the major research investments from external funders in 2014 are SEK 200 million from the Knut and Alice Wallenberg Foundation for sequencing the human genome, SEK 90 million from the Erling-Persson Foundation for research in the field of clinical proteomics, and SEK 50 million from Scania for the construction of the Integrated Transport Research Lab (ITRL). During autumn 2014 the University Board decided to organise twelve assistant professorships in a broad range of subject areas. The positions are well-funded and we expect many applications. The first assistant professors should start in autumn 2015.

Fundraising work during the year resulted in a number of concrete schemes. In autumn 2014 the work was made more public through its launch on the KTH website and articles in the media. The key message was the need for long-term external financing.

The decision was made in 2014 to invest SEK 170 million in a new supercomputer for KTH. The main project funders were the Swedish National Infrastructure for Computing (SNIC) and KTH. In addition, an agreement was signed with Scania on the use of the computer.

Great news came at the end of 2014: the two applications for KIC InnoLife and KIC RawMatTERS had been approved as new projects by EIT (European Institute of Innovation and Technology). Alongside our participation in the ongoing KICs – InnoEnergy and ICT Labs – KTH is likely to be the university in Europe with the largest involvement in EIT.

During spring 2014, Scania, Astra Zeneca, Södertälje municipality and the government all supported a new investment in Södertälje and KTH’s activities there. Planning is now ongoing for developments in Södertälje, including new university programmes, twice the number of students, a new faculty and research facilities.

The work to support KTH’s crucial interaction with society has continued at a high level during the year. Strategic partnerships have been signed with nine partners so far. New partners in 2014 included Sandvik and the City of Stockholm.

There was a comprehensive evaluation of administration at KTH in 2014 called the Administrative Assessment Exercise (AAE). The administration was appraised on three aspects: skills, service and cost. A final report was presented in December 2014.

KTH is still growing, though at a lower rate than three or four years ago. The financial outcome was slightly better than the forecasts presented during the year. This is positive, and contributes to making KTH’s position even stronger.

KTH has a solid base on which to stand and has good potential for making further progress vis-à-vis international competition in the coming years.

Peter Gudmundson
Education

Education at first and second cycle

Recruitment of students for KTH programmes, starting at first cycle

Objectives of the programme
The overall objective for recruitment work is to interest young people in the programmes available at KTH. Target groups are primarily young people at upper secondary schools, adult education students and people who have started their careers. KTH also works in the long term with teenagers in compulsory schools. KTH has established a communication platform aimed at promoting and broadening the KTH student recruitment base. This platform underlies what KTH should be communicating to potential students and it forms the basis of the activities and measures planned or underway, aimed at achieving goals such as: better gender balance, less socially biased recruitment and the stimulation of ethnic diversity.

Activities carried out
Personal contact between KTH representatives and potential students has been given priority in recruitment activities. KTH has an intensive collaboration programme with upper secondary schools. These activities are mainly carried out by about 45 student ambassadors, who are KTH’s representatives in contact with aspiring students. The student ambassadors represent most programmes at KTH and its different campuses. They are selected very carefully for their ability to inspire young people. The student ambassadors reflect the diversity at KTH in terms of gender, geographical origin, ethnicity and social background. All student ambassadors undergo a wide-ranging course that includes young people’s communication, presentation skills, recruiting message, target group information and individual coaching.

The website has proven to be the most important channel of communication for KTH, together with other digital channels such as social media and student blogs. It is one way to make KTH accessible to more aspiring students, regardless of where they live. A major effort was started in 2014 to change and improve KTH’s national and international educational websites. It involves changes to both structure and content and is based on the systematic analysis of the target group and traffic data. KTH will continue to focus on educational websites as a communication channel to reach prospective students, nationally and internationally.

During two days in March each year, KTH arranges an Open House to inform the public about its programmes on-site in its own special educational environment. The 2014 Open House arrangement attracted around 1,600 visitors.

Collaboration with upper secondary schools
Each year, the student recruiting group draws up a list of a hundred or so high-priority upper secondary schools, with a view to visiting more pupils in KTH’s target group. The student ambassadors visited 67 per cent of the schools on the priority list in 2013–2014.

The House of Science is run jointly by KTH and Stockholm University with the City of Stockholm as a long-term partner, and has the primary aim of encouraging awareness and interest in engineering, science and mathematics among young people. School pupils, from pre-school to upper secondary, visit the AlbaNova University Center or the Bergius Botanical Gardens and try out experiments and hands-on activities in biology, physics, chemistry, mathematics and engineering. Further training courses for teachers are also offered in these subjects. The House of Science is also host to many other initiatives aimed at increasing knowledge and interest in engineering, science and mathematics. Examples are Teknikåttan, ForskarFredag, First Lego League and Mathcoach on-line. The House of Science welcomes over 45,000 visitors per year.

KTH and tuition fees
Since Swedish Parliament passed the government bill on tuition fees for non-European students, recruitment activities at KTH has a new, broader mission. According to the 2013–2016 KTH Strategic Plan, the target is 1,000 fee-paying students by the autumn term of 2016. The goal is to achieve the same number of non-European students as before the fees were introduced. KTH has given priority to a number of selected regions for focused treatment. These priority regions are China, India, South-east Asia and Brazil. For each region, a member of the faculty is given the job of increasing student exchanges with the best universities in their region, to disseminate the KTH brand and to create opportunities for recruiting Master’s students. China continues to be a special priority case, largely due to technical and communication barriers that take time to improve. In order to reach prospective fee-paying Chinese students, KTH has set up a Chinese website and started a strong presence in Chinese social media, such as Weibo and RenRen. More on this can be found in the section under Internationalisation.

Work with student ambassadors in the form of international Master’s students has been intensified in 2014. One of the functions of these ambassadors is to act as a contact for aspiring international Master’s students, keep an active presence in various digital marketing activities, act as hosts during visits to KTH and take part in activities whose aim is to attract fee-paying students.

High demand for KTH programmes
Demand for KTH programmes starting at first cycle continues to be high. The number of first-choice applicants for these courses in 2014 was 5,800 (5,729). The number of places planned was 2,360 (2,360). In its Strategic Plan 2013–2016, KTH’s target was to have at least 4,000 first-choice applicants for its Master of Science in Engineering programme and 1,000 first-choice applicants for the Bachelor of Science in Engineering programme. The real figures in 2014 were 3,422 and 973 respectively in 2014.

During the autumn term KTH launched its first English-taught course at first cycle, a Bachelor’s programme in ICT
(Information and Communication Technologies). The programme attracted 143 first-choice applicants for the planned 30 places, which shows a big interest in English-taught programmes at first cycle.

The qualifying Technical Preparatory Year and Technical Preparatory Semester had 2,097 (2,062) first-choice applicants in 2014. The programmes start in the spring term as well as the autumn term. The one-year preparatory programme at KTH Campus, starting in the autumn term, had 1,212 (937) first-choice applicants, making it the most popular programme at KTH. The number of applications for the KTH Master’s and one-year Master’s programmes is increasing. The number of applicants decreased drastically in connection with the introduction of tuition fees in 2011, but since 2011 it has steadily increased from about 5,000 to 6,000 applicants in 2014. Of 8,153 (6,886) web applications for the English-taught courses at second cycle for the autumn term of 2014, 5,858 (4,488) were fee-paying, of which 2,715 (2,185) paid the registration fee. For the Swedish-taught one-year master’s programmes there were 153 (201) first-choice applicants for three courses.

As well as admissions to KTH’s own programmes, KTH coordinates five master’s programmes within Erasmus Mundus Action 1, and this means that KTH administers the entire recruitment process for these programmes. KTH also coordinates admissions to the umbrella programmes with eight different tracks in the KIC ICT Labs within the framework of the European Institute of Innovation and Technology (EIT). Of those admitted, some students start their studies at a university other than KTH and some do not study at KTH at all, but at one of the partner universities. There were 1,697 (1,792) applications for Erasmus Mundus and 1,688 (2,030) for the EIT programme.

**Alternative selection, mathematics and physics test**

Since 2011 KTH has used a mathematics and physics test (MaFy) for admissions to the Master of Science programmes in Engineering Physics and in Vehicle Engineering. The Bachelor programme in Simulation Engineering and Virtual Design has used the test since 2012 and in 2013 the Master of Science programme in Electrical Engineering started using it. The test is given in cooperation with Chalmers, where the test has been used as a selection model for admissions since 2007.

The idea is to study whether the MaFy test can be used as a selection instrument for KTH to identify prospective students with good chances of academic success. A maximum of one third of the places on these programmes may be awarded to candidates who pass the MaFy test. A minimum result is required for admission via the MaFy test.

An assessment of the mathematics and physics test was carried out in 2014 at KTH. The evaluation was mainly carried out for the Master of Science in Engineering Physics, since that programme has the highest admissions from the test. Just over half of those admitted from the MaFy group would probably not have been accepted if they have not achieved a good score on the test. The MaFy admissions group has more students who start the programme and fewer that break off their studies than in the other admissions groups. In their studies they perform slightly worse than those admitted on school grades, but better than other selection groups (Swedish Scholastic Aptitude Test and technical preparatory programme). One negative aspect of the test is a gender imbalance. Of those admitted from the MaFy group, only 6 per cent are women, while the proportion of women starting the Master of Science Programme in Engineering Physics is considerably higher at 15–16 per cent between 2011 and 2014.

In the autumn term 2014, 43 applicants were admitted on the Engineering Physics programme, two on Vehicle Engineering, and four on Electrical Engineering through the MaFy test.

**Beginners**

In 2014 a total of 2,634 (2,566) beginners started year 1 studies on KTH’s traditional programmes that lead to vocational degrees, of which 1,939 (1,892) on the Master of Architecture and Master of Science in Engineering programmes and 715 (674) on Bachelor of Science in Engineering programmes. See Figure 1 for details.

The number of beginners on the Master’s programmes was 1,920 (1,652). Of these, 877 (683) were new students on KTH master’s programme while 1,043 (969) were previously students on a Master of Engineering programme. The two final years of a Master of Engineering programme are at the same time a Master’s programme, meaning that Master of Engineering students are registered as new students on a Master’s programme when they start the fourth year of their engineering programme. One-year Master’s programmes had 119 (146) beginners.

In addition to the admission of beginners in year 1, there were 179 (311) new students who started the later years of a KTH Master of Engineering programme in 2014. There is also an option of starting the later years of a Master’s program, which 98 (119) students did.

Of the total number of beginners at KTH in 2014, 33 per cent were women and 67 per cent were men. The target for 2016 is that the proportion of women beginners on Master of Engineering programmes and Bachelor of Engineering programmes should be at least 35 per cent and 25 per cent respectively. Out of the beginners on Master of Engineering programmes, a total of 33 per cent (31) were women and 67 per cent (69) were men. Out of the beginners on Bachelor of Engineering programmes in 2014, a total of 25 per cent (52) were women and 75 per cent (78) were men, which is in line with the objectives in the strategy plan. The proportion of men and women, however, differs considerably between the various programmes at KTH. See Figure 1 for gender proportions and programmes, as well as Figure 2 for trends in the last 10 years.

The median age for beginners on Master of Architecture and Master of Engineering programmes in 2014 was 20, for both women and men. For beginners on Bachelor of Engineering programmes the median age was 22 for women and
### Figure 1
Total number of new students 2011–2014

<table>
<thead>
<tr>
<th>Master of Science in Engineering and Master of Architecture, Degree Programme 300 HE credits</th>
<th>2014</th>
<th>2013</th>
<th>2012</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>Total Proportion (%) of women/men</td>
<td>Total</td>
<td>Total Proportion (%) of women/men</td>
<td>Total</td>
</tr>
<tr>
<td>Architecture</td>
<td>110</td>
<td>64/36</td>
<td>112</td>
<td>65/35</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>70</td>
<td>56/44</td>
<td>64</td>
<td>52/48</td>
</tr>
<tr>
<td>Engineering and Education</td>
<td>57</td>
<td>51/49</td>
<td>49</td>
<td>45/55</td>
</tr>
<tr>
<td>Computer Science and Engineering</td>
<td>190</td>
<td>16/84</td>
<td>192</td>
<td>11/89</td>
</tr>
<tr>
<td>Design and Product Realisation</td>
<td>120</td>
<td>51/49</td>
<td>117</td>
<td>51/49</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>82</td>
<td>13/87</td>
<td>79</td>
<td>8/92</td>
</tr>
<tr>
<td>Energy and Environment</td>
<td>84</td>
<td>55/45</td>
<td>81</td>
<td>49/51</td>
</tr>
<tr>
<td>Vehicle Engineering</td>
<td>110</td>
<td>9/91</td>
<td>107</td>
<td>17/83</td>
</tr>
<tr>
<td>Industrial Engineering and Management</td>
<td>170</td>
<td>33/67</td>
<td>173</td>
<td>36/64</td>
</tr>
<tr>
<td>Information and Communication Technology</td>
<td>70</td>
<td>24/76</td>
<td>77</td>
<td>16/84</td>
</tr>
<tr>
<td>Chemical Science and Engineering/Engineering Chemistry</td>
<td>80</td>
<td>45/55</td>
<td>71</td>
<td>52/48</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>157</td>
<td>22/78</td>
<td>157</td>
<td>27/73</td>
</tr>
<tr>
<td>Materials Design and Engineering</td>
<td>50</td>
<td>50/50</td>
<td>47</td>
<td>28/72</td>
</tr>
<tr>
<td>Medical Engineering</td>
<td>57</td>
<td>44/56</td>
<td>56</td>
<td>61/39</td>
</tr>
<tr>
<td>Media Technology</td>
<td>70</td>
<td>30/70</td>
<td>69</td>
<td>51/49</td>
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<tr>
<td>Microelectronics</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Civil Engineering and Urban Management</td>
<td>173</td>
<td>49/51</td>
<td>162</td>
<td>40/60</td>
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<tr>
<td>Engineering Physics</td>
<td>130</td>
<td>16/84</td>
<td>142</td>
<td>13/87</td>
</tr>
<tr>
<td>Open entrance</td>
<td>139</td>
<td>37/63</td>
<td>137</td>
<td>28/72</td>
</tr>
<tr>
<td>Sub-total</td>
<td>1,919</td>
<td>35/65</td>
<td>1,892</td>
<td>33/67</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bachelor of Science in Engineering, Degree programme 180 HE credits</th>
<th>2014</th>
<th>2013</th>
<th>2012</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>Total Proportion (%) of women/men</td>
<td>Total</td>
<td>Total Proportion (%) of women/men</td>
<td>Total</td>
</tr>
<tr>
<td>Constructional Engineering and Design</td>
<td>173</td>
<td>42/58</td>
<td>167</td>
<td>35/65</td>
</tr>
<tr>
<td>Computer Engineering</td>
<td>135</td>
<td>13/87</td>
<td>136</td>
<td>7/93</td>
</tr>
<tr>
<td>Electronics and Computer Engineering</td>
<td>49</td>
<td>4/96</td>
<td>34</td>
<td>21/79</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>45</td>
<td>7/93</td>
<td>39</td>
<td>8/92</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>48</td>
<td>56/44</td>
<td>48</td>
<td>42/58</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>129</td>
<td>11/89</td>
<td>121</td>
<td>10/90</td>
</tr>
<tr>
<td>Medical Engineering</td>
<td>54</td>
<td>31/69</td>
<td>46</td>
<td>35/65</td>
</tr>
<tr>
<td>Engineering and Economics</td>
<td>82</td>
<td>32/68</td>
<td>83</td>
<td>29/71</td>
</tr>
<tr>
<td>Sub-total</td>
<td>715</td>
<td>25/75</td>
<td>674</td>
<td>22/78</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Masters programmes</th>
<th>2014</th>
<th>2013</th>
<th>2012</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>Total Proportion (%) of women/men</td>
<td>Total</td>
<td>Total Proportion (%) of women/men</td>
<td>Total</td>
</tr>
<tr>
<td>Masters programmes 120 HE credits</td>
<td>1,920</td>
<td>33/67</td>
<td>1,652</td>
<td>30/70</td>
</tr>
<tr>
<td>of which within Master of Science in Engineering programmes</td>
<td>1,043</td>
<td>33/67</td>
<td>969</td>
<td>30/70</td>
</tr>
<tr>
<td>Masters programmes 60 HE credits</td>
<td>119</td>
<td>43/57</td>
<td>146</td>
<td>49/51</td>
</tr>
<tr>
<td>Sub-total</td>
<td>2,039</td>
<td>33/67</td>
<td>1,798</td>
<td>31/69</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>Total Proportion (%) of women/men</td>
<td>Total</td>
<td>Total Proportion (%) of women/men</td>
<td>Total</td>
</tr>
<tr>
<td>Technical Preparatory Year, Technical Preparatory Semester</td>
<td>894</td>
<td>33/67</td>
<td>818</td>
<td>30/70</td>
</tr>
<tr>
<td>Total</td>
<td>5,757</td>
<td>33/67</td>
<td>5,397</td>
<td>31/69</td>
</tr>
</tbody>
</table>

Source: Ladok
21 for men. The median age for both women and men on the Master’s and one-year Master’s programmes was 24. Students on the Technical Preparatory programmes had a median age of 21 in both sexes. These are essentially the same figures as in 2013.

**Degrees**
The KTH Strategic Plan for 2013–2016 states the targets for degrees as 4,120 Master of Science in Engineering, 380 Master of Architecture, 1,750 Master’s degrees without previous studies on the Master of Science in Engineering programme at KTH and 1,110 Bachelor of Science in Engineering degrees during the period. In 2014, KTH issued a total of 1,411 (908) Master of Science in Engineering degrees, 100 (83) Master of Architecture degrees, 744 (859) Master’s degrees without previous studies on the Master of Science in Engineering programme at KTH and 353 (328) Bachelor of Science in Engineering degrees. This means that KTH has good chances of achieving the objectives for degrees awarded, if the number of degrees in the next two years is the same as in 2014.

In total there were 1,237 (1,287) Master of Science degrees awarded, and 102 (103) Master of Science degrees with 60 ECTS in 2014. Of the students who received Master’s degrees, 493 were also awarded a Master of Science in Engineering in 2014. The number of students awarded a Bachelor of Science degree continued to increase from the previous year. Of the 757 (559) Bachelor of Science degrees awarded, 594 (432) were gained by students on the Master of Science in Engineering programmes and 82 (67) by students on the Master of Architecture programme.

The figures above show that many students at KTH choose to take several degrees based on the same studies. The most common combination is a Master of Science in Engineering with a Master of Science degree or a Bachelor of Science degree. More than 40 per cent of those who took a Master of Science in Engineering in 2014 also took one or two other degrees based on the same studies. This requires more administrative resources, of course.

The proportion of women graduating as Master of Science in Engineering was 30 per cent (31) and the proportion of men 70 per cent (69), while for Master of Architecture women made up 49 per cent (54) and men 51 per cent (46). Refer to Figure 3 for the gender distribution in programme types and programmes.

KTH jointly awards Master’s degrees with other universities. The number of Master’s degrees awarded jointly with other universities was 7 in 2014. The degrees awarded were based on collaboration within Erasmus Mundus. Work is underway to establish more educational collaboration that leads to jointly awarded degrees. The assessment is that the number of such degrees will increase in the future.

**Attendance and Performance**
In first and second cycle education in 2014 there were a total of 12,004 state-funded, full year students (FYS) starting courses, and 10,207 full year performance (FYF) students who had gained credits on their courses. In 2013, the figures for both of these categories were lower. There are two main reasons for this. One reason for the decrease in performance (FYF) in 2013 was a planned reduction in educational volume to meet the funding cap cutback in 2013. The second reason is that from the academic year 2013/2014 onwards, KTH reorganised the academic calendar so that most of the autumn term examinations took place in January instead of December, as previously. As a result, in 2013 a large proportion of examination figures for one term were missing. A certain proportion of the examinations for the autumn term will continue to be held in late December. For the 2014 figures, this means that 358 FYF that were registered in January 2014 relate to the examinations which took place in December 2013.

Of the total number of FYS, 93 per cent were studying engineering or natural science subjects. KTH can receive funds for a maximum of 123 FYS and FYF in the subject area of design. The design area, however, had 349 FYS and 330 FYF in 2014. The FYS and FYF over and above 123 are counted in the education area of technology.

The performance rate for KTH first and second cycle studies is 85 per cent (78) calculated as the attendance/performance ratio, i.e. FYF/FYS.

In addition to state-funded FYF, paying students generated 420 FYS and 357 FYF in 2014.

The proportion of women FYS is 32 per cent and has remained at the same level over the last few years. In Master of Engineering and Architecture programmes, the proportion of women is 33 per cent and in the Bachelor of Engineering programmes it is 23 per cent. The Master’s programmes have 32 per cent women and 68 per cent men.

**Preparatory courses between upper secondary school and university**
KTH offered web-based preparatory courses in 2014 for applicants to technical and scientific programmes between upper secondary school and university. The courses are aimed at...
### Figure 3
First degrees 2011–2014

<table>
<thead>
<tr>
<th>Degree of Master of Architecture 270/300 HE credits</th>
<th>2014</th>
<th>2013</th>
<th>2012</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>100</td>
<td>85</td>
<td>82</td>
<td>78</td>
</tr>
<tr>
<td>Total of women/men</td>
<td>49/51</td>
<td>54/46</td>
<td>52/48</td>
<td>67/33</td>
</tr>
<tr>
<td>Degree of Master of Science in Engineering 270/300 HE credits</td>
<td>1,141</td>
<td>908</td>
<td>838</td>
<td>850</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>36</td>
<td>28</td>
<td>51</td>
<td>43</td>
</tr>
<tr>
<td>Engineering and Education</td>
<td>27</td>
<td>21</td>
<td>19</td>
<td>26</td>
</tr>
<tr>
<td>Computer Science and Engineering</td>
<td>87</td>
<td>70</td>
<td>68</td>
<td>56</td>
</tr>
<tr>
<td>Design and Product Realisation</td>
<td>84</td>
<td>93</td>
<td>62</td>
<td>55</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>76</td>
<td>44</td>
<td>54</td>
<td>67</td>
</tr>
<tr>
<td>Vehicle Engineering</td>
<td>102</td>
<td>62</td>
<td>84</td>
<td>64</td>
</tr>
<tr>
<td>Industrial Engineering and Management</td>
<td>141</td>
<td>102</td>
<td>70</td>
<td>76</td>
</tr>
<tr>
<td>Information and Communication Technology</td>
<td>24</td>
<td>37</td>
<td>19</td>
<td>28</td>
</tr>
<tr>
<td>Chemistry and Chemical Engineering/Chemical Science and Engineering</td>
<td>55</td>
<td>39</td>
<td>54</td>
<td>51</td>
</tr>
<tr>
<td>Surveying</td>
<td>8</td>
<td>12</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>127</td>
<td>89</td>
<td>79</td>
<td>85</td>
</tr>
<tr>
<td>Materials Design and Engineering</td>
<td>44</td>
<td>29</td>
<td>23</td>
<td>19</td>
</tr>
<tr>
<td>Materials Engineering</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Medical Engineering</td>
<td>15</td>
<td>15</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Media Technology</td>
<td>38</td>
<td>42</td>
<td>19</td>
<td>48</td>
</tr>
<tr>
<td>Microelectronics</td>
<td>21</td>
<td>9</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Civil Engineering and Urban Management</td>
<td>123</td>
<td>123</td>
<td>130</td>
<td>125</td>
</tr>
<tr>
<td>Engineering Physics</td>
<td>119</td>
<td>83</td>
<td>76</td>
<td>73</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>7</td>
<td>8</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>Not within programme/specialisation</td>
<td>7</td>
<td>1</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Degree of Bachelor of Science in Engineering 180 HE credits</td>
<td>353</td>
<td>325</td>
<td>321</td>
<td>250</td>
</tr>
<tr>
<td>Degree of Master of Science 120 HE credits</td>
<td>1,237</td>
<td>1,287</td>
<td>1,056</td>
<td>708</td>
</tr>
<tr>
<td>of which also graduated as a Master of Science in Engineering</td>
<td>493</td>
<td>428</td>
<td>156</td>
<td>12</td>
</tr>
<tr>
<td>Degree of Master of Science, joint degree 120 HE credits</td>
<td>7</td>
<td>15</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Degree of Master of Science 60 HE credits</td>
<td>102</td>
<td>103</td>
<td>83</td>
<td>123</td>
</tr>
<tr>
<td>Degree of Master of Science 240 HE credits</td>
<td>16</td>
<td>18</td>
<td>33</td>
<td>43</td>
</tr>
<tr>
<td>Master Degree 90 HE credits</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Degree of Bachelor of Science 180 HE credits</td>
<td>757</td>
<td>559</td>
<td>347</td>
<td>233</td>
</tr>
<tr>
<td>University Diploma 120 HE credits</td>
<td>29</td>
<td>66</td>
<td>68</td>
<td>34</td>
</tr>
</tbody>
</table>

1) This year and earlier  
2) According to older regulations

Source: Ladok
supporting new students and facilitating the transition from upper secondary school to university.

KTH is also cooperating with several other university colleges and universities in preparatory mathematics courses. Students are registered and take examinations at the university colleges and universities they apply to. The courses in mathematics had a total of 2,740 (3,174) participants.

### Technical Preparatory Programme

The Technical Preparatory Year is a one-year qualifying course aimed at students who did not fully achieve the qualifications required for KTH programmes while at upper secondary school. The Technical Preparatory Year is run over two terms and provides additional studies at upper secondary school level in mathematics, physics and chemistry. It is also possible to apply for only the second term (Technical Preparatory Semester) of the preparatory programme. This is suitable for students who took the technical programme at upper secondary school. Passing the Technical Preparatory Year or Technical Preparatory Semester guarantees the student a place on one of KTH’s Master or Bachelor of Science in Engineering programmes. 2014 was the last year that KTH ran a Technical Preparatory Semester in combination with the programmes Bachelor of Science in Engineering specialising in Medical Engineering and Bachelor of Science in Engineering in combination with Economics.

894 students started on these courses in 2014, as compared to 818 the previous year. Of these new students, 33 per cent (30) were women and 67 per cent (70) were men. Results for 2014 were 666 (580) FYS and 440 (396) FPFS.

Of those who started the Technical Preparatory Programme in the autumn term of 2013 or the spring term of 2014, 44 per cent (44) or a total of 376 (349) students (30 per cent women, 70 per cent men) continued to take a Master of Science in Engineering programme or a Bachelor of Science in Engineering programme in 2014. The majority, 78 per cent, of those who continue at KTH join a Master of Science in Engineering programme.

### Student influence at KTH

The University Board took a decision in 2013 that Tekniska Högskolans Studentkår (THS) would be awarded continued status as the student union for the entire university from 1 July 2013 until 30 July 2016. KTH and THS have a long history of cooperation and KTH students are represented in all decision-making bodies and in almost all drafting committees and working groups such as the University Board, the Faculty Council, the KTH Management Group, the President’s Group, the Education Committee, the Employment Committee, the Disciplinary Board, the School Strategic Councils, the Appointments Committees and working groups for various investigations. THS appoints representatives to these various bodies and groups. THS’s experience is that THS selects students representing different parts of KTH and also, as far as possible, reflecting the university’s social, ethnic and cultural diversity.

An important student activity for KTH and THS is the reception of new students. This is organised by senior students and the staff in charge. Reception activities are conducted in collaboration with the students in the student union sections. In recent years, special efforts have been made to arrange reception activities adapted to international students.

### Careers

Activities at KTH Career focus on two areas. One is to support KTH schools in providing career development for their students during first and second cycle studies. The second is for KTH Career to offer career development in the form of education, personal development and meetings with professionals. The work in clarifying the focus and continuing professional development of the schools’ study counsellors continued in 2014. KTH Career has the goal of working with the schools’ study counsellors to integrate career development in KTH’s programmes. The study counsellors are being offered further training in the area as one step in the process.

### E-learning

One goal stated in the KTH Strategic Plan 2013–2016 is that e-learning should become an integral part of KTH programmes. Rapid developments are underway in this field. A vision for e-learning at KTH by 2016 has been developed by the Steering Committee for KTH Common Learning Environments. The KTH Strategic Plan specifically identifies the link between educational development and Internet-based learning as an aid to student learning.

As part of global competition for the best students, courses or parts of courses must be made available on the Internet, which requires knowledge and development of the learning methodology needed. KTH has been very active in e-learning for many years and this will continue. KTH is working hard at implementing e-learning in education programmes, and is also investing in the necessary infrastructure. KTH established an administrative unit in 2014 that organises support for e-learning. Development work in this area must be an integral part of the education methodology programmes now drawn up at KTH. Improved quality of educational programmes must be the focus, and digital resources must be useful and easy for students to use.

### Sfinx

The course called Swedish for Engineers in Stockholm County (Sfinx) started in project form in 2008 and is now a joint programme included in standard courses. Sfinx is a joint venture with KTH, Järfälla Municipality, City of Stockholm and Stockholm County Administrative Board. For 18 months, engineers study Swedish from the
immigrant course level through to upper secondary level, as well as English and technology. They also learn about Swedish industry and the Swedish labour market.

The overall goal of the course is to make it easier for students to get into the Swedish labour market by applying a parallel study process. While they are studying, students also have the opportunity of participating in a mentor programme run by the Swedish Association of Graduate Engineers, and to attend lectures or gain credits on courses in their engineering areas at KTH.

In 2014 Sfinx widened its collaboration with industry. Meetings have been arranged at KTH for Sfinx students where Boliden and Sandvik have participated, among others. Another new trend in 2014 was that payers in trade and industry started to contact Sfinx to recruit people with the relevant skills. One reason for this may be that Sfinx is now well-established as a concept after being run for six years. Approximately 120 students participate in the programme each year, and the grand total now stands at 650 over the years. As in 2013, students in 2014 have mainly made classroom observation visits at first and second cycle rather than taking whole courses. Reporting was in the form of written accounts integrated into the Swedish course, and contributed to students’ Swedish grades.

After completing the programme, approximately 45 per cent of the participants in the latest group found employment in engineering-related areas.

### Fig 4
**Full year students 2011–2014**

<table>
<thead>
<tr>
<th>Programme</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master of Architecture, Master of Science in Engineering</td>
<td>5,819</td>
<td>5,404</td>
<td>5,837</td>
<td>6,386</td>
</tr>
<tr>
<td>Bachelor of Science in Engineering 180 HE credits</td>
<td>1,754</td>
<td>1,460</td>
<td>1,550</td>
<td>1,445</td>
</tr>
<tr>
<td>Masters Programmes 200 HE credits</td>
<td>2,643</td>
<td>2,269</td>
<td>2,295</td>
<td>2,386</td>
</tr>
<tr>
<td>Masters Programmes 60/90 HE credits</td>
<td>102</td>
<td>110</td>
<td>118</td>
<td>131</td>
</tr>
<tr>
<td>Subject Teacher Education in Technology, Secondary Education, 270 HE credits</td>
<td>4</td>
<td>52/48</td>
<td>25/75</td>
<td>-</td>
</tr>
<tr>
<td>Bachelors Programmes 180 HE credits</td>
<td>336</td>
<td>331</td>
<td>332</td>
<td>316</td>
</tr>
<tr>
<td>University Diploma 120 HE credits, Applied Technology</td>
<td>72</td>
<td>67</td>
<td>105</td>
<td>153</td>
</tr>
<tr>
<td>Technical Preparatory Year, Technical Preparatory Semester</td>
<td>661</td>
<td>580</td>
<td>634</td>
<td>596</td>
</tr>
<tr>
<td>Exchange students arriving at KTH</td>
<td>609</td>
<td>707</td>
<td>1,134</td>
<td>1,167</td>
</tr>
<tr>
<td>Further Education</td>
<td>207</td>
<td>221</td>
<td>379</td>
<td>506</td>
</tr>
<tr>
<td>Other</td>
<td>19</td>
<td>26</td>
<td>14</td>
<td>212</td>
</tr>
<tr>
<td>Total</td>
<td>12,004</td>
<td>11,143</td>
<td>12,377</td>
<td>13,296</td>
</tr>
</tbody>
</table>

Source: Ladok

### Fig 5
**Full year students and performance rate, fee-paying students 2011-2014**

<table>
<thead>
<tr>
<th>Programme</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master of Architecture, Master of Science in Engineering</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bachelor of Science in Engineering 180 HE credits</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Masters Programmes 200 HE credits</td>
<td>389</td>
<td>306</td>
<td>221</td>
<td>88</td>
</tr>
<tr>
<td>Masters Programmes 60 HE credits</td>
<td>12</td>
<td>14</td>
<td>14</td>
<td>9</td>
</tr>
<tr>
<td>Further Education</td>
<td>0</td>
<td>9</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Science without Borders</td>
<td>18</td>
<td>6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>420</td>
<td>330</td>
<td>239</td>
<td>89</td>
</tr>
</tbody>
</table>

Source: Ladok
Doctoral Studies

Recruitment
There is great interest in doctoral student positions at KTH, which means that many people apply for the positions advertised. High competition for places is good for the quality of education. In 2014, KTH carried out coordinated advertising of research places in daily newspapers on five different occasions, the latest being in December. The aim of such coordinated advertising is to give KTH a high profile and increase interest in the university as a place for work or study.

During the advertising periods in February, April, June and September 2014, a total of 150 jobs for doctoral students were advertised. 7,318 people applied for these positions. In 2013 a total of 143 doctoral positions were advertised and the total number of applicants was 7,894. In December 2014 an additional 47 doctoral positions were advertised. Recruitment for these has not yet been completed. In 2013 and 2014 KTH chose to gather data on applicants in a way that does not distinguish between men and women applicants.

Recruitment for doctoral education also takes place without prior advertising. This applies doctoral students funded via scholarships, partnerships with industry and so on, as well as doctoral students in collaboration with other universities.

Admissions
According to the KTH Strategic Plan 2013–2016, a total of 1,750 doctoral students will be admitted during the period. In 2014 there were 305 (316) doctoral students admitted. The proportion of women among new admissions in 2014 was 29 per cent (30) and the proportion of men was 71 per cent (70). Of the first-year doctoral students, 13 per cent were admitted to take a Degree of Licentiate, and of these 23 per cent were women and 77 per cent were men. A total of 41 (51) of the new doctoral students, 22 per cent women and 78 per cent men, have their primary work outside the university and are taking their doctorates within the framework of their employment (industrial doctoral students). The employer may be private or public.

Of those who were admitted to third cycle studies in 2014, 40 per cent (35) or 120 (110) held a KTH degree. The most common group among them was Master of Science in Engineering. Of those newly admitted with a KTH degree, 36 per cent (48) held a Master’s or one-year Master’s degree and 62 per cent (51) held a Master of Science in Engineering. Of newly admitted students in 2014, 41 per cent (45) held a degree from a country other than Sweden.

The number of newly admitted doctoral students dropped, which is not in line with the KTH Strategic Plan. There are several probable reasons for this. One is the increased costs for financing studies, since KTH no longer arranges study grants. KTH has significantly fewer students on Master’s programmes without previous admission to the Master of Science in Engineering programme since tuition fees were introduced. The number of new doctoral students with a Master’s or one-year Master’s degree from KTH has decreased from 90 in 2012 to 45 in 2014. The delayed advertising round in December 2014 for vacant doctoral positions may also have played a role.

Financing of studies
Of a total of 2,168 registered doctoral students at KTH in 2014, 1,902 have worked at least 50 per cent of full time, and 2,144 have worked at least 10 per cent.

In 2014, employment as a doctoral student continued to be the predominant form of financing studies. At the end of the year, 1,217 or 63 per cent (60) of KTH doctoral students had this form of financing on a full or part-time basis. Of those who had doctoral employment, 30 per cent were (29) women and 70 per cent (71) were men.

Funding through study grants is in the process of being phased out. At the end of 2014 only nine doctoral students had this form of financing on a full or part-time basis. Other third cycle students at KTH are funded in different ways: 13 per cent have paid employment related to their studies (industrial doctoral students), 5 per cent have other work within the university and 14 per cent are funded via scholarships on a full or part-time basis. Another 7 per cent finance their studies, full or part-time, in other ways.

KTH doctoral programmes and collaboration within third cycle education
Doctoral programmes were established at KTH in 2011 and there are now 31 of them. All new doctoral students are admitted to a doctoral programme or a programme that KTH provides in collaboration with one or more other parties. The purpose of the doctoral programmes is to ensure the quality of education through an organised study structure. In order
to be permitted to set up doctoral programmes, a number of quality requirements must be fulfilled with respect to purpose, target group, content etc. In 2014 a doctoral studies scheme was started at KTH to analyse whether, and if so how, the introduction of doctoral programmes affected education at KTH in general. No doctoral students have yet been awarded a degree after studying at a doctoral programme.

KTH has started a short postgraduate licentiate degree programme in close collaboration with industry. These activities will be conducted as a research school, using a model developed in the Netherlands. In 2014 the Blekinge Institute of Technology and the University of Örebro were added as partners. The Professional Licentiate of Engineering School is primarily aimed at professionals who want to train for leadership positions in research and development. The KF Foundation has granted financing for a first pilot round of the programme, which started in November 2014. There are eleven participants in total, of which seven will be admitted to KTH. The participants are employed at different companies and will spend two thirds of their working hours studying at the research school.

**Degrees**

The KTH Strategic Plan for 2013–2016 states the target for the number of doctoral degrees awarded during the period is 1,000. In 2014, 279 (529) doctoral degrees and 125 (133) licentiate degrees were awarded. Of the doctorates, 26 per cent (25) were women and 74 per cent (75) were men. For the licentiate degrees, the gender balance was 30 per cent (27) women and 70 per cent (73) men.

A licentiate degree is the first step of doctoral studies, and provides a natural check of studies to date. This form of degree is common at KTH. Of those awarded a doctoral degree in 2014, 38 per cent (46) had previously been awarded a licentiate degree. This degree is also extremely relevant for employment within industry.

Calculations of the study period for students who are awarded third cycle degrees show that the net study period for a doctoral degree was 4.3 years in 2014 and 2.6 years for a licentiate degree; the same net study period as the previous year.

**Collaborations in education**

**Conditions for educational collaborations**

It is stated in the KTH Strategic Plan 2013–2016 that KTH will develop structures for educational collaboration. KTH has developed internal regulations for educational collaborations that will lead to joint degree. With the regulatory framework there are support documents and order of procedures. KTH has set up a committee for educational collaborations and the committee will also review the regulatory framework for educational collaborations in general.

**Master of Science in Engineering and Education**

The programme at KTH is provided in close cooperation with Stockholm University (SU). The Master of Science in Engineering and Education programme leads to both a Master of Science in Engineering degree and an Education degree for upper secondary school in maths and physics, chemistry or technology.

Student recruitment to this programme has been stable and in 2014 the programme had 87 first choice applicants. In the autumn term of 2014, 57 (49) students started on this programme. Women made up 51 per cent of new admissions and men 49 per cent. In 2014, 27 (21) students graduated from the programme. Since 2010 KTH has been authorised to issue degrees in education for subject teachers in secondary schools.

**Subject teacher education**

KTH’s Strategic Plan for 2013–2016 emphasises the technology teacher’s role in making technical subjects interesting for young people. Since 2010 KTH has been authorised to issue degrees in education for technology subject teachers in grades 7–9 at compulsory school. Thus, in autumn 2013 KTH started a new educational programme in collaboration with Stockholm University aimed at training grade 7–9 teachers at compulsory schools in the subjects of technology, maths and one subject out of physics, chemistry or English. Recruitment for the programme is now increasing from an initially very low level. In autumn 2014 there were 12 first-choice applicants, and 11 students started the programme. Of these, 55 per cent were women and 45 per cent men. The programme is still in the establishment phase and many courses are taken together with students on the Master of Science in Engineering and Education programme, as well as other engineering programmes. Students can choose to have a Bachelor of Science degree after three years of study.

**Cooperation with the University College of Arts, Crafts and Design**

The KTH Strategic Plan 2013–2016 states that cooperation will be developed with artistically-oriented universities, in particular the University College of Arts, Crafts and Design. In 2011, a declaration of intent was signed concerning extended cooperation within education and research between KTH and the University College of Arts, Crafts and Design. In 2013 a doctoral programme was established at KTH in which the University College of Arts, Crafts and Design is responsible for a considerable part of the teaching.

The programme focuses on the intersection of art, technology and design. The first doctoral students were admitted in 2014. Deeper collaboration in education at first and second cycle has also started. In order to provide doctoral students, supervisors and researchers with a good shared environment, a research centre is also planned in collaboration between KTH, the University College of Arts, Crafts and Design and other arts universities.
### Figure 7

**Newly admitted and registered research students 2011–2014**

<table>
<thead>
<tr>
<th>New students per research field</th>
<th>2014 Total</th>
<th>Proportion (%) of women/men</th>
<th>2013 Total</th>
<th>Proportion (%) of women/men</th>
<th>2012 Total</th>
<th>Proportion (%) of women/men</th>
<th>2011 Total</th>
<th>Proportion (%) of women/men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological Sciences</td>
<td>1</td>
<td>0/100</td>
<td>1</td>
<td>0/100</td>
<td>8</td>
<td>62/38</td>
<td>9</td>
<td>33/67</td>
</tr>
<tr>
<td>Computer and Information Science</td>
<td>35</td>
<td>14/86</td>
<td>49</td>
<td>20/80</td>
<td>49</td>
<td>27/73</td>
<td>38</td>
<td>21/79</td>
</tr>
<tr>
<td>Economics and Business</td>
<td>12</td>
<td>58/42</td>
<td>12</td>
<td>33/67</td>
<td>38</td>
<td>47/53</td>
<td>18</td>
<td>56/44</td>
</tr>
<tr>
<td>Electrical Engineering, Electronic Engineering</td>
<td>41</td>
<td>12/88</td>
<td>62</td>
<td>23/77</td>
<td>53</td>
<td>26/74</td>
<td>31</td>
<td>19/81</td>
</tr>
<tr>
<td>Philosophy, Ethics and Religion</td>
<td>1</td>
<td>0/100</td>
<td>1</td>
<td>0/100</td>
<td>3</td>
<td>0/100</td>
<td>2</td>
<td>50/50</td>
</tr>
<tr>
<td>Physical Sciences</td>
<td>28</td>
<td>7/93</td>
<td>31</td>
<td>16/84</td>
<td>21</td>
<td>33/67</td>
<td>22</td>
<td>23/77</td>
</tr>
<tr>
<td>History and Archaeology</td>
<td>0</td>
<td>0/0</td>
<td>4</td>
<td>75/25</td>
<td>0</td>
<td>0/0</td>
<td>2</td>
<td>0/100</td>
</tr>
<tr>
<td>Health Sciences</td>
<td>3</td>
<td>100/0</td>
<td>2</td>
<td>50/50</td>
<td>8</td>
<td>38/66</td>
<td>2</td>
<td>0/100</td>
</tr>
<tr>
<td>Industrial Biotechnology</td>
<td>20</td>
<td>50/50</td>
<td>14</td>
<td>57/43</td>
<td>15</td>
<td>53/47</td>
<td>18</td>
<td>44/56</td>
</tr>
<tr>
<td>Chemical Sciences</td>
<td>9</td>
<td>44/56</td>
<td>7</td>
<td>57/43</td>
<td>24</td>
<td>42/58</td>
<td>29</td>
<td>52/48</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>34</td>
<td>32/68</td>
<td>20</td>
<td>35/65</td>
<td>30</td>
<td>60/40</td>
<td>19</td>
<td>42/58</td>
</tr>
<tr>
<td>Arts</td>
<td>4</td>
<td>75/25</td>
<td>1</td>
<td>100/0</td>
<td>4</td>
<td>75/25</td>
<td>1</td>
<td>100/0</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>34</td>
<td>29/71</td>
<td>28</td>
<td>18/82</td>
<td>41</td>
<td>22/78</td>
<td>49</td>
<td>20/80</td>
</tr>
<tr>
<td>Mathematics</td>
<td>12</td>
<td>25/75</td>
<td>6</td>
<td>67/33</td>
<td>7</td>
<td>14/86</td>
<td>7</td>
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</tr>
<tr>
<td>Materials Engineering</td>
<td>25</td>
<td>20/80</td>
<td>35</td>
<td>34/66</td>
<td>51</td>
<td>25/75</td>
<td>54</td>
<td>26/74</td>
</tr>
<tr>
<td>Medical Engineering</td>
<td>3</td>
<td>0/100</td>
<td>2</td>
<td>100/0</td>
<td>5</td>
<td>20/80</td>
<td>4</td>
<td>0/100</td>
</tr>
<tr>
<td>Environmental Engineering</td>
<td>6</td>
<td>33/67</td>
<td>4</td>
<td>75/25</td>
<td>13</td>
<td>23/77</td>
<td>8</td>
<td>25/75</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>33</td>
<td>42/58</td>
<td>33</td>
<td>39/61</td>
<td>38</td>
<td>26/74</td>
<td>32</td>
<td>28/72</td>
</tr>
<tr>
<td>Educational Sciences</td>
<td>4</td>
<td>75/25</td>
<td>0</td>
<td>0/0</td>
<td>8</td>
<td>62/38</td>
<td>0</td>
<td>0/0</td>
</tr>
<tr>
<td>Other Engineering Technologies</td>
<td>0</td>
<td>0/0</td>
<td>4</td>
<td>0/100</td>
<td>4</td>
<td>25/75</td>
<td>5</td>
<td>20/80</td>
</tr>
<tr>
<td><strong>Total new research students</strong></td>
<td><strong>305</strong></td>
<td><strong>29/71</strong></td>
<td><strong>316</strong></td>
<td><strong>30/70</strong></td>
<td><strong>420</strong></td>
<td><strong>34/66</strong></td>
<td><strong>350</strong></td>
<td><strong>29/71</strong></td>
</tr>
<tr>
<td><strong>Total number of students registered</strong></td>
<td><strong>2,168</strong></td>
<td><strong>30/70</strong></td>
<td><strong>2,184</strong></td>
<td><strong>30/70</strong></td>
<td><strong>2,160</strong></td>
<td><strong>29/71</strong></td>
<td><strong>1,968</strong></td>
<td><strong>29/71</strong></td>
</tr>
</tbody>
</table>

Source: Ladok

### Other collaboration projects

In 2012, KTH and Stockholm University signed an agreement on a joint programme at the Master’s level in mathematics, leading to joint degree. In autumn 2014, 16 students started on the programme. A three-party collaboration project between KTH, Karolinska Institutet and Stockholm University has been started around the Science for Life Laboratory (SciLifeLab) in Stockholm. The collaboration project is taking place within the framework of a Master’s programme, leading to a joint degree. The planning is now finished and the first students will be admitted in autumn 2015. In January 2011, KTH and Mid Sweden University signed an agreement to collaborate on strengthening the Master of Science in Engineering programmes. This agreement runs until 2017, and means that students can continue on certain Master’s programmes at KTH after the first three years of an engineering programme at Mid Sweden University. There were 14 students from Mid Sweden University who started on Master’s programmes at KTH in autumn 2014.
### Figure 8

**Licentiate and doctorate degrees 2011–2014**

#### Licentiate degrees per research field

<table>
<thead>
<tr>
<th>Research Field</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological Sciences</td>
<td>4/50</td>
<td>4/50</td>
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<td>4/0/0</td>
</tr>
<tr>
<td>Computer and Information Science</td>
<td>12/25</td>
<td>12/50</td>
<td>2/0/0</td>
<td>2/0/0</td>
</tr>
<tr>
<td>Electrical Engineering, Electronic Engineering, Information Engineering</td>
<td>18/36</td>
<td>12/50</td>
<td>0/0/0</td>
<td>0/0/0</td>
</tr>
<tr>
<td>Philosophy, Ethics and Religion</td>
<td>3/0/0</td>
<td>2/0/0</td>
<td>1/100</td>
<td>1/100</td>
</tr>
<tr>
<td>Physical Sciences</td>
<td>5/40</td>
<td>4/50</td>
<td>5/0/0</td>
<td>6/100</td>
</tr>
<tr>
<td>History and Archaeology</td>
<td>1/0/0</td>
<td>0/0/0</td>
<td>0/0/0</td>
<td>0/0/0</td>
</tr>
<tr>
<td>Health Sciences</td>
<td>4/0/0</td>
<td>3/33</td>
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</tr>
<tr>
<td>Industrial Biotechnology</td>
<td>2/0/0</td>
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<td>3/0/0</td>
</tr>
<tr>
<td>Chemical Sciences</td>
<td>3/67</td>
<td>2/50</td>
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<td>1/0/0</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>8/0/0</td>
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<td>0/0/0</td>
</tr>
<tr>
<td>Arts</td>
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<td>2/0/0</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>13/13</td>
<td>17/27</td>
<td>27/6/19</td>
<td>18/11/89</td>
</tr>
<tr>
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<td>3/33/67</td>
</tr>
<tr>
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<td>25/25</td>
<td>27/15/85</td>
<td>23/13/87</td>
<td>31/29/71</td>
</tr>
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</tr>
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<td>5/0/0</td>
</tr>
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<td>25/36/64</td>
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<td>2/0/0</td>
<td>0/0/0</td>
<td>0/0/0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>125</strong></td>
<td><strong>30/70</strong></td>
<td><strong>135</strong></td>
<td><strong>27/73</strong></td>
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</table>

#### Doctorate degrees per research field

<table>
<thead>
<tr>
<th>Research Field</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological Sciences</td>
<td>2/0/0</td>
<td>1/0/0</td>
<td>2/0/0</td>
<td>2/0/0</td>
</tr>
<tr>
<td>Computer and Information Science</td>
<td>33/33</td>
<td>16/6/94</td>
<td>13/38/62</td>
<td>10/0/100</td>
</tr>
<tr>
<td>Economics and Business</td>
<td>7/43</td>
<td>5/80/20</td>
<td>2/0/0</td>
<td>4/25/75</td>
</tr>
<tr>
<td>Electrical Engineering, Electronic Engineering, Information Engineering</td>
<td>53/9</td>
<td>53/19/81</td>
<td>39/10/90</td>
<td>41/5/95</td>
</tr>
<tr>
<td>Philosophy, Ethics and Religion</td>
<td>2/0/0</td>
<td>1/100/0</td>
<td>2/0/0</td>
<td>2/0/0</td>
</tr>
<tr>
<td>Physical Sciences</td>
<td>17/24</td>
<td>13/15/85</td>
<td>14/29/71</td>
<td>10/20/80</td>
</tr>
<tr>
<td>History and Archaeology</td>
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<td>4/25/75</td>
<td>0/0/0</td>
<td>1/0/0</td>
</tr>
<tr>
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<td>6/33/67</td>
<td>2/50/50</td>
</tr>
<tr>
<td>Industrial Biotechnology</td>
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<td>13/23/77</td>
<td>13/31/69</td>
<td>22/50/50</td>
</tr>
<tr>
<td>Chemical Sciences</td>
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<td>20/40/60</td>
<td>19/32/68</td>
</tr>
<tr>
<td>Chemical Engineering</td>
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<td>15/40/60</td>
<td>18/33/67</td>
</tr>
<tr>
<td>Arts</td>
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<td>1/0/0</td>
<td>4/50/50</td>
<td>3/33/67</td>
</tr>
<tr>
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<td>24/8/92</td>
<td>30/23/77</td>
<td>26/23/77</td>
</tr>
<tr>
<td>Mathematics</td>
<td>10/30</td>
<td>8/25/75</td>
<td>10/10/90</td>
<td>9/11/89</td>
</tr>
<tr>
<td>Materials Engineering</td>
<td>31/19</td>
<td>34/24/76</td>
<td>34/21/79</td>
<td>39/31/69</td>
</tr>
<tr>
<td>Medical Engineering</td>
<td>0/0/0</td>
<td>4/50/50</td>
<td>0/0/0</td>
<td>0/0/0</td>
</tr>
<tr>
<td>Environmental Engineering</td>
<td>8/0/0</td>
<td>10/10/90</td>
<td>5/40/60</td>
<td>2/50/50</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>23/26</td>
<td>26/31/69</td>
<td>23/22/78</td>
<td>24/50/50</td>
</tr>
<tr>
<td>Other Engineering Technologies</td>
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<td>4/0/0</td>
<td>3/0/100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>279</strong></td>
<td><strong>26/74</strong></td>
<td><strong>252</strong></td>
<td><strong>25/75</strong></td>
</tr>
</tbody>
</table>

Source: Ladok
Figure 9
Licentiate and doctorate degrees 2005–2014

Källa: Ladok
Internationalisation

Targets
In the KTH Strategic Plan for 2013–2016, it is stated that KTH shall strengthen its position as one of Europe’s most eminent technical universities. KTH operates in an international market, and must be able to compete with other excellent universities for the best researchers and students. KTH is already a multicultural university where nationalities and cultures meet, and works actively to ensure that students increasingly undertake a part of their education abroad.

The following specific targets have been established for KTH to achieve with respect to the internationalisation of education in 2013–2016:

• The number of KTH students spending at least one term at an exchange university: 700 (638 in 2014).
• Efforts will be made to achieve a balance in the number of incoming and outgoing exchange students.
• The number of fee-paying students registered in the autumn term 2016: 1,000 (2014: 355 new fee-paying students).
• The number of externally-recruited new admissions for second cycle studies from the EU/EEA/Switzerland registered in the autumn term 2016: 700 (2014: 667), and
• the number of international strategic university partners: 12 (2014: two).

International mobility (exchanges)
The University Board took a decision in June 2012 to balance the proportions of student exchange. The number of incoming exchange students will be reduced, at the same time as the conditions for KTH students to study abroad will be improved. Great efforts to review the processing of exchange agreements have since been implemented and a number of prioritised contractual partners have since been identified, both within and outside Europe. KTH Schools currently receive exact information in their Operating Plans concerning the expected incoming and outgoing exchange students for the school. This process continued in 2014 and is expected to come into full effect by 2015.

The target is for 700 students to spend at least one term at an exchange university in 2016. In 2014 a total of 638 (638) students started studies abroad. Of them, 50 per cent (51) studied at a university outside Europe. The most common countries for studying abroad were France, Singapore, Spain, USA, Switzerland and Australia.

During the year, 946 (1,058) exchange students started studies at KTH. Most European students came from universities in Germany, France and Spain. Out of the exchange students coming from outside the EU/EEA/Switzerland, 38 per cent (37) came from Singapore, USA and Australia. KTH has the privilege of collaborating with prominent universities and there is a great interest in studying as an exchange student at KTH.

In addition to exchange students, KTH has a relatively large group of incoming double degree students in specific cooperation agreements with universities in Europe and Japan. These students study at KTH for one and a half to two years and then take a Master of Science in Engineering from KTH and an equivalent degree from their home university. There were 117 double degree students who started their studies at KTH during the year.

Interest in different types of projects abroad, such as writing a degree project, remains keen and KTH is trying to offer more scholarships for these purposes. During the year 31 (53) students started on Erasmus internships at a company or organisation in Europe and 40 (53) students were granted scholarships to carry out field work in a developing country under the Sida-financed programme Minor Field Studies (MFS). KTH saw a significant increase in the number of applicants for MFS scholarships during the year and a total of 96 applications were received. At the same time, KTH was awarded fewer MFS scholarships from the Swedish Council for Higher Education than previously (40 compared to 51 in 2013) since an additional application round had been cancelled.

Efforts to increase the number of outgoing students continued during the year. The largest single project was the KTH Global event, conducted for the third consecutive year during one week in September. A variety of activities were arranged, such as talk shows on studies abroad, a trade show featuring partner universities, information sessions, lunch lectures and so on. The aim was to inspire more students to study abroad and in concrete terms, KTH Global contributed to at least one hundred students deciding to study abroad during that week.

Information meetings were also arranged in the schools during the year. In addition, a blog that highlights selected students who are studying abroad helped to give a better picture of what that involves.

Administrative processes for both incoming and outgoing students have been reviewed and several changes aimed at increasing equal treatment of students at the various schools have been implemented. The new support system Mobility Online was implemented and developed over the year to support operations in the best possible way. Our goal of organising more exchange places at attractive, English-speaking universities has continued and negotiations are ongoing with universities in Singapore, China and North America. These are expected to be completed in 2015.

In summary, KTH has taken another step towards the objective of balancing student exchange, as the number of outgoing students increased by 20 and the number of incoming students decreased by 112 in 2014.

Student mobility in third cycle education
There are many international students at KTH doing doctoral studies. Of all new students admitted to KTH doctoral studies in 2014, about 40 per cent have an earlier degree from outside Sweden.

During the year, about 250 doctoral students spent at least a week abroad and almost as many (about 210) foreign students spent at least a week at KTH.
Tuition fees for third-country students

Tuition fees for the majority of KTH programmes and courses at second cycle are SEK 145,000 per academic year, and SEK 245,000 per academic year for architecture. Tuition fees for programmes and courses at first cycle are SEK 115,000 per academic year in all areas except architecture, where the fee is SEK 195,000 per academic year. The basis for the calculation of fees, besides an amount corresponding to state-funding for FYS and FYP, is additional costs for this group of students such as accommodation administration, fee administration, scholarship administration and marketing and recruitment. There are also additional costs for admission due to the more complex assessments of foreign qualifications that must be made.

In the KTH Strategic Plan 2013–2016, the target is 1,000 fee-paying students registered in the autumn term 2016. Major efforts are underway to achieve this target, including recruitment and the construction of efficient administration and services for fee-paying students, which means that operations in this area have so far run at a loss. KTH assesses that costs will not grow at the same rate as income and expects that income and costs will be balanced within a few years.

In autumn 2014, a total of 355 (269) new fee-paying students were registered; 92 women and 263 men. Of these, 89 (54) had been awarded scholarships. Of the new students funding their own studies, 63 (42) students come via the EIT ICT Labs and 20 (9) via EIT InnoEnergy.

In 2014 KTH had a total of 679 (591) fee-paying students registered per term (586 women and 493 men), of whom 200 (180) were on scholarships (66 women and 134 men). The paying students had a performance rate of 85 per cent, which is about the same level as other students in Master’s programmes and KTH as a whole. In summary, the number of new paying students increased by 32 per cent compared with the previous year.

Scholarships

KTH offered scholarships from the Swedish Council for Higher Education (UHR) in the form of full fee waivers to a total of 63 (92) new students. Of these, 42 (51) accepted the offer and 34 (23) were registered by 15 September. In addition, 53 (29) students were awarded scholarships by the Swedish Institute.

Of all KTH scholarship holders, including those granted in previous years, 14 (53) are funded by the Engineer Ernst Johnson’s Foundation, 4 are from the KTH – India Scholarship Foundation, 86 (51) are UHR scholarships, and 96 (43) are on scholarships from the Swedish Institute. There are also three students at KTH who are part-financed by the KTH Opportunities Fund. Overall, KTH had 205 (153) scholarship holders funded by KTH-related foundations or Swedish scholarship programmes.

In addition to these categories, there are scholarship holders funded by Erasmus Mundus Action 1 and 2 and by the European Institute of Innovation and Technology (EIT).

Priority regions

KTH intensified its cooperation with partners in the priority regions of Brazil, India, China and South east Asia in 2014. Emphasis has also been given to student recruiting activities in the form of trade fairs, student competitions and various types of events with prospective students and alumni. The purpose of selecting priority regions is to spread the KTH brand, increase student exchanges with top universities in the regions, create opportunities to recruit fee-paying students and develop future collaborative research activities.

KTH is not permitted to register the nationality of its students, so the information below is based on the country where the earlier, qualifying education was registered.

China

Collaboration between KTH and Tsinghua University was consolidated in 2014 with the C-Campus Project, which includes joint courses and a series of seminars held in the form of distance learning. A delegation led by the President and a number of Heads of Schools visited Tsinghua University, Shanghai Jiaotong University (sjtu) and the Hong Kong University of Science and Technology in March. An innovation workshop with Swedish companies was held at sjtu, where the Swedish consul participated. During the visit, meetings were also organised with the Swedish Chamber of Commerce and alumni in Shanghai. A high-level seminar on energy and materials was organised with sjtu in which a number of companies were involved, and a summer school for doctoral students in biomedical engineering was arranged.

Through cooperation with the China Scholarship Council (CSC), KTH took on 48 doctoral students during the year, 30 of whom were admitted to study for a doctoral degree, two master’s students and researchers.

Student recruitment work in 2014 focused on strengthening partnerships with Chinese universities to ensure long-term recruitment of students with good academic results and the ability to pay tuition fees.

During the year almost 500 students with preparatory studies from China applied for Master’s programmes at KTH (excluding EIT); 112 of the applicants were accepted and 60 started their studies at KTH. In addition there are students from China recruited through partnership agreements (so-called 3+2 agreements) with a number of selected partner universities. A total of 84 students from China started their Master’s studies at KTH, of which 79 were fee-paying.

India

KTH has nine partner universities established in India and strategic initiatives in the region focus on these.

During the year, KTH participated in two Erasmus Mundus Action 2 projects (INDIA4EU II and Svagata) that are primarily aimed at recruitment of scholarship holders from India at the second and third cycle.

Furthermore, university visits and trade fairs have been arranged to recruit fee-paying students. For the second year running, the competence-based competition KTH Master’s
Challenge was carried out with the aim of attracting students to four selected Master’s programmes. The competition was organised in cooperation with Ericsson, ABB and Saab, who offered the winners internships and scholarships for studies at KTH. During the year, 800 students with their previous education in India applied for a Master’s programme at KTH (excluding EIT). 194 were accepted and of them, 55 started studies; 47 were self-financed.

**South east Asia**

KTH signed a cooperation agreement during the year with Del Institute of Technology, Indonesia and the University of the Philippines Diliman. Student exchange agreements were signed with Chulalongkorn University and Kasetsart University in Bangkok, Thailand. KTH also signed a contract with recruitment agents in Indonesia and Vietnam.

A large student exchange is still taking place with the National University of Singapore (NUS) and Nanyang Technological University (NTU) in Singapore, and has about 80 term places in total for incoming and outgoing students. In addition, there are exchanges through the iLead programme with NUS, which include company internships and courses in entrepreneurship, with 9 outgoing and 18 incoming students; NUS and NTU are consequently KTH’s largest exchange partners. In September a large group of researchers visited NTU in Singapore to take part in a workshop on Urban Systems and Life Science Engineering, and to initiate strategic collaboration.

KTH has attended recruitment trade fairs in Indonesia, Singapore, Thailand and Vietnam and alumni sections have been opened in Bangkok and Jakarta.

There were about 120 students with previous education from South-east Asia who applied for a standard Master’s programme at KTH in 2014; 25 were admitted and 10 were registered, of which 9 were fee-paying students.

**Brazil**

The trend toward an increase in outgoing exchange students to Brazil continues and in 2014 there were 15 students who went there, with the result that KTH had students in all five of its partner universities. For the second time, KTH participated in the Brazilian state scholarship programme Science without Borders and received 24 students, as compared to 14 in 2013. In addition, 5 students from Brazil have registered on Master’s programmes, of which one is a fee-paying student. Several journeys were made during the year to recruit students and establish academic contacts. In November, a large delegation from KTH attended a number of events in Brazil in collaboration with other Swedish universities and operators. The purpose of the trip was partly to promote KTH and Sweden as a country for studies, and partly to establish a network for starting up research projects. KTH signed an agreement of cooperation with a Brazilian institute, Instituto Tecnológico Aeronáutica.
Cooperation with universities abroad

One of the objectives in the KTH Strategic Plan 2013–2016 is to attract twelve international strategic university partners by 2016. KTH currently has two strategic partners: the University of Illinois at Urbana-Champaign in USA and Aalto University in Finland. Efforts to establish more strategic relationships with selected partners are ongoing. Extensive discussions have taken place with the Nanyang Technological University in Singapore and at least two more collaborations are expected to come to fruition in 2015.

Strategic partnership with the University of Illinois, Urbana-Champaign

Collaboration with the University of Illinois, Urbana-Champaign, under the strategic alliance created in 2011, was further developed during the year. Areas include mobility for students, doctoral students and researchers, joint courses, summer courses, on-line education and collaboration with society at large. About 40 cooperative projects are ongoing in fields as varied as regional development and sustainability, mechanics, railways, media technology, algae and glycosciences.

CLUSTER

The CLUSTER network consists of twelve eminent technical universities in Europe. The network is a platform and skills base for the development of future joint Master’s programmes, for applications to various EU programmes and it also acts as a uniting player in relations with the EU Commission. In 2014, strategic partnerships with the university networks IDEA League and Eurotech were intensified to coordinate lobbying activities at the EU level and create joint projects in education and research. Collaboration between CLUSTER and 18 Chinese universities within the Sino-European Engineering Platform, S3EP, was also intensified and the first doctoral schools were launched. The European and Chinese universities in S3EP met in September at Xi’an Jiaotong University.

In January, a seminar was held in Brussels to present the newly launched Erasmus+ with participants from the EU Commission and about a hundred participants from the partner universities. A workshop on the theme of International Offices at CLUSTER Universities was held at the Technische Universiteit Eindhoven in October to discuss and compare different models of organisation and decision-making processes.

Nordic Five Tech

The goal for Nordic Five Tech (N5T), a network of the Nordic region’s five largest universities of technology, is to utilise mutual strengths and create synergies in education, research and innovation. The network collaborates in six Master’s programmes, of which KTH is the coordinator for one programme in polymer technology. Cooperation in the Master’s programmes has resulted in further development of teaching methods, peer evaluation of programmes and student union cooperation, among other things. A joint course database has been created for doctoral studies and a comparative survey of national regulations and local guidelines has been implemented with the aim of facilitating the development of collaboration and exchange. In spring 2014, Aalto University handed over the presidency to Chalmers.

Deans Forum

KTH was involved in the start-up of the Deans Forum network in 2010, consisting of the University of Tokyo, Massachusetts Institute of Technology (MIT), University of California, ETH Zurich, Imperial College, a group of French Grandes Écoles and the IBM Watson Research Center. The network was initiated by the University of Tokyo to start collaboration on a global scale between universities of technology regarding common issues in the future.

In February 2014, the annual meeting took place at KTH with a focus on collaborative research and the development of education for engineers. Engineers in the future will increasingly work with interdisciplinary challenges and students need to be equipped with the competence for this. New demands are thus put on their undergraduate education (first and second cycle) as well as continuing professional development. In connection with the meeting, KTH arranged a workshop on Brain-Like Computing with the support of IBM which succeeded in gathering leading researchers in the field. The next meeting will take place at IBM Watson Research Center in New York in April 2015.

The network has also resulted in increased collaboration between the University of Tokyo and KTH, primarily in the field of research. The universities have further collaboration aimed at developing education methodology in engineering programmes. A workshop was held on the subject at KTH in the spring and another workshop will take place in Tokyo in March 2015.

Participation in international programmes and projects

European Institute of Innovation and Technology (EIT)

KTH has been a partner in two of the three KICs (Knowledge and Innovation Community) launched within the EIT: KIC InnoEnergy and EIT ICT Labs. In December 2014, it became clear that KTH is also included in both KICs granted during the year, KIC Raw MaTTERS and KIC InnoLife. More on this can be found in the section under Research.

The EIT ICT Labs

KTH is the coordinator in EIT ICT Labs for the twenty universities included in the collaboration. KTH has an important role in the development of the EIT ICT Labs and its Master School, and has been given continued confidence to coordinate admissions, the processing of scholarships and the development of educational programmes. For the second year in a row EIT ICT Labs has doubled the number of appli-
cants to almost 1,700. Of these, 777 (38%) have been admitted and 234 (75%) chose to register and start their studies at one of the partner universities. The large drop-out rate at the last stage was due to the large number of self-financing students admitted in 2014, many of whom did not choose to start their studies within EIT. Just over 20 per cent of the registered students are self-financing. The others receive some form of scholarship or are students from EU countries and thus exempt from fees. The students come from 40 different countries, which confirms the very wide awareness of the programme and global recruitment.

About 30 per cent of the students are women and the aim is to increase this in 2015. Of the 234 students in total, 59 (26%) started their studies at KTH. The remainder started at one of the other 20 universities in the consortium. After studying for the first academic year at one of the partner universities, 33 (14%) students started their second year at KTH in 2014. During the year a total of 163 (37 women, 126 men) students at KTH were registered with KIC ICT Labs.

**InnoEnergy**

KIC InnoEnergy offers seven Master’s programmes, of which KTH participates in five. In autumn 2014, 56 (23%) students started their first year at KTH and 12 (4%) students started their second year of studies. The number of scholarships from KIC InnoEnergy doubled. Admissions for the programmes in this KIC are processed by Karlsruhe Institute of Technology. There were a total of 108 students at KTH (58 women, 50 men) registered in KIC InnoEnergy.

**Erasmus Mundus**

Five Master’s programmes and three doctoral programmes were coordinated by KTH in the Erasmus Mundus Action 1 in 2014. KTH participated in a total of eight Master’s programs and five doctoral programmes. A total of 262 (38%) Erasmus Mundus Action 1 students were registered in 2014.

The five Master’s programmes coordinated by KTH had their last autumn admissions round in the five-year contract with the European Commission. One of these programmes will continue until 2015 as an Erasmus Mundus programme after an application submitted for continued support has been granted, subject to the Quality Review. With the launch of Erasmus+, new procedures for the establishment of joint programmes have been drawn up with focus on quality assurance and anchoring in the KTH strategy for internationalisation.

In 2014 KTH coordinated two projects under the Erasmus Mundus Action 2 for the mobility of students, doctoral students and researchers between 20 or 50 universities in Europe and Central Asia. One of the projects has been reported as completed during the year. KTH has participated as a partner in six additional projects, one of which was reported as completed in 2014. Mobility has largely taken place at the research level during the year.

**Tempus**

Tempus is an EU financed programme that makes possible cooperation between EU countries and a number of countries bordering Europe. KTH is currently involved in 30 projects in various stages of implementation. The ongoing projects are being carried out in Asia, North Africa, the Middle East and the western Balkans. The projects are about the development of new programmes in technology, the environment and sustainable development, geographical information systems, geoinformatics and enterprise systems, as well as the development of infrastructure to support students, innovation and university administration. In a summary of the last phase of the programme, Tempus IV, KTH participated in 46 of the projects granted and KTH has thus been one of the most successful universities in the programme. In the future, Tempus will be included in the new programme Erasmus+ under the name Capacity Building.

**Marie Skłodowska-Curie**

Marie Skłodowska-Curie is included in the new EU framework programme Horizon 2020, and is the most important mobility programme for doctoral students and researchers. The basic concept is interaction between universities and industry for increased mobility and shared education programmes to promote innovation, development and doctoral students’ career opportunities outside academia.

KTH researchers were invited to a large number of applications within the Marie Skłodowska-Curie project in 2014, thanks to well-established contacts and their internationally renowned excellence. Eight new projects were approved in 2014 with KTH as one of the participants. During the year KTH was involved in a total of 43 projects in the programme, of which ten as coordinator. At the departmental level KTH has collaboration with about 140 foreign universities and industrial partners, in and outside Europe, through projects financed by Marie Skłodowska-Curie.

**Linnaeus-Palme**

Linnaeus-Palme is a SIDA-financed exchange programme that stimulates bilateral exchanges between universities in Sweden and developing countries. The programme is based on cooperation between institutions and may include teacher and/or student exchanges. KTH has been granted four new projects for 2014 and had a total of ten active projects during the year.

**Staff mobility**

At KTH, all staff have opportunity of developing and taking further steps in their careers. More than 250 KTH teachers and researchers taught or conducted research abroad for a period of at least one week in 2014. Conversely, almost 300 teachers, researchers and post docs came to KTH for at least one week to teach or conduct research. KTH teachers and researchers participate to a large degree in international collaboration with universities around the world. In some cases
such collaboration takes place in programmes funded by SIDA, the Swedish Institute or the EU. Several KTH teachers and professors are also guest professors at other universities.

During the year there has been a growing interest in various types of continued professional development of staff in Europe, such as the new EU programme Erasmus+. During the year, 20 administrators were granted compensation for an exchange or course in Erasmus+ and twelve academics have been involved in teacher exchanges in the programme. In addition to an increased interest from staff, more and more offers of Staff Exchange Weeks are coming from KTH partner universities and it is very good that more professions are involved – including those who do not normally work with international issues.
Research

Strategic research areas
Since their introduction in 2010, KTH has been responsible for five strategic research areas (SFOs) and participates in a further six research areas which have another managing university. In 2014, the government’s five-year initiative was evaluated by external assessors with the help of self-evaluations carried out by the environments and university management groups, as well as interviews with the researchers involved. The evaluation report will be presented in 2015.

In those areas in which KTH is the principal, a total of 61 successful strategic recruitments were made, of which 31 were to KTH. The new recruitments have been used to strengthen and broaden the environments and they are an important instrument for developing future excellence in the research areas. The KTH research environments have also built networks with researchers in successful research groups and have been successful in obtaining external financing from EU projects, among others.

The KTH research environments have demonstrated a high level of influence and interaction with the community through participation in public debates, development of patents and licenses, research that has underpinned new businesses and ensuring that education achieves the same high level as research and is tied in to the needs of society. For instance, The Swedish e-Science Education project (seese) was started up to provide third cycle courses in the e-science area, and a Master’s programme through the SciLifeLab in collaboration with KTH, Karolinska Institutet (KI) and Stockholm University (SU).

The strategic research areas have been successful with publications in journals with a high impact factor. The environments have also had high citation values, on average one field-normalized citation line per 1.6.

The Swedish e-Science Research Centre (SERC) is a national initiative for supercomputer resources with KI, Linköping University and SU as partners. SERC includes the Center for Parallel Computers (PDC) at KTH and the National Supercomputer Centre (NSC) at Linköping University. The centre was further strengthened in 2014 through an investment of SEK 170 million in a new supercomputer for the Center for Parallel Computers. Funding is shared between the Swedish National Infrastructure for Computing (SNIC), KTH and industry at large. SERC has made it possible to connect more application-oriented research to fundamental research.

The initiative for Excellence in Production Research (XPRES) has created a research infrastructure for digital manufacturing and visualisation, and participates in the steering groups for several of the Strategic Innovation Areas (SIO) approved by Vinnova. The research environment is one of the leading production research environments in Europe and participates in discussions with the government. The research is relevant for KTH’s strategic partners, such as ABB and Sandvik.

Twelve of the 31 strategic faculty recruitments have taken place in the ICT consortium – The Next Generation, where KTH collaborates with Acreo and SICS. The consortium includes several excellent research environments at KTH and has a strong connection to the EIT ICT Labs and KTH’s strategic partner, Ericsson. The consortium has contributed to the emergence of new interdisciplinary projects that link ICT to energy, transport and health. In addition to several EU projects, researchers in ICT TNG have been successful in obtaining grants from KA2, the Swedish Research Council (VR) and the Swedish Foundation for Strategic Research (SSF).

In the Transport Research Environment with Novel Perspectives (TRENOP), KTH cooperates with Linköping University and the Swedish National Road and Transport Research Institute (VTI). The research focuses on ground transportation and explores innovative technology and policy concepts, intelligent decision-support at the tactical, operational and strategic level, and implementation processes. Research at TRENOP is related to several centres at KTH and the environment is conducive to the establishment of the new Integrated Transport Research Lab (ITRL), to which KTH’s strategic partner Scania is contributing SEK 50 million.

Science for Life Laboratory – SciLifeLab
SciLifeLab started in 2010 with the support of strategic research funding (SFO funds) in Molecular Biosciences. From 2013 on, financing was added to establish a National centre for life science research, including a National focus on drug development. The construction of SciLifeLab is one of the largest research projects in Sweden, and its main locations are in Stockholm and Uppsala. SciLifeLab is run in collaboration with the four hosting universities: KTH, Karolinska Institutet, Stockholm University and Uppsala University. KTH acts as principal.

SciLifeLab has nine national platforms that include 31 facilities which offer a wide range of services, often with a focus on large scale and advanced technologies. The largest initiative is in DNA analysis (genomics) but proteomics, bioinformatics, bioimaging and pharmaceuticals development are also very strong areas. The use of the facilities are usually regulated with a direct queue system, after the feasibility of the project has been checked. A total of 445 people work in the platforms, but the number of annual manpower units is slightly lower. In 2014, the management of the SciLifeLab defined its research environment and appointed 143 group leaders to it.

The most explicit measure of scientific production is the number of publications produced. The number of publications has increased related to SciLifeLab’s expansion, both in premises and financially, and in conjunction with the establishment of a multidisciplinary environment. In 2010 there were 94 articles published, while 314 were published in 2014. Many of the articles are of a high international standard, and in 2014 there were 26 articles published in the very best international journals. SciLifeLab holds leading roles in several projects with large external financing, including the Human Protein Atlas which has mapped all human proteins, and the mapping of the spruce genome.
The government funding for SciLifeLab amounted to SEK 343 million in 2014, divided into SEK 153 million for National Infrastructures, SEK 41 million for pharmaceuticals development and SEK 149 million in SFO funds. A total of SEK 45 million of the SFO funds are granted directly toUU. Except for direct financing by the government and supplements of appropriation funds from the four host universities, it is estimated that the research environment has received nearly SEK 450 million in income from grants in 2014. SciLifeLab also generates income through fees and other remuneration as a result of the service the platforms supply for various projects. SciLifeLab’s turnover, measured as income from operations, including contributions for financing transfers, amounted to approximately SEK 950 million in 2014.

During the year the research environment in SciLifeLab was awarded over SEK 300 million for research infrastructure, including SEK 200 million for sequencing the human genome, from the Knut and Alice Wallenberg Foundation. The Erling-Persson Family Foundation has contributed SEK 90 million for research in clinical proteomics.

European Institute of Technology – EIT
Since 2010 there have been three Knowledge and Innovation Communities (KICs) within the ICT, energy, and climate areas. KTH participates in two of the three: ICT Labs and InnoEnergy. In 2014, two additional KIC initiatives were announced in the areas of Raw Materials and Healthy Living and Active Ageing. Within the framework of two different consortia, KTH has participated in applications for both initiatives. In December, KTH was informed that both of these consortia had been awarded financing from the EU. The two KICs will be established in 2015, when the seven-year cooperation agreement has been signed.

KTH involvement in the EIT ICT Labs and EIT InnoEnergy is an important tool for promoting KTH researchers’ network of European research groups. It enables an increased capacity for strong EU applications and a high proportion of EU financing for KTH.

InnoEnergy
KTH continues to be one of the most active partners in the KIC InnoEnergy with its involvement in all the thematic areas in the form of innovation projects, educational programmes and business development. Most of the previous innovation projects were completed in 2014 and some will move into the commercialisation phase, depending on the results achieved. At the end of the year, KTH was taking part in 17 innovation projects, two of which started during the year. Within the field of education, KTH has continued to coordinate two Master’s programmes and participate in three more. At the same time, KTH has had the most doctoral students (24) participating in InnoEnergy PhD School of all the partner universities. KTH students and researchers are also behind several start-up companies which received establishment support through InnoEnergy Highway Ventures such as Tandem Sun, Watty, Verdant and Greenly.

ICT Labs
ICT Labs’ objective is to develop activities and partnerships with a focus on entrepreneurship and innovation-driven research leading to commercialisation. The Swedish company’s hub is Co-location Centre in Electrum, Kista – a modern, well-equipped and popular meeting place for internal and external events and meetings. KTH remains the single largest party in the whole consortium. In 2014 the ICT Innovation master school, which is directed by KTH, continued to grow to approximately 230 new students in 2014 and the first 80 students graduated during the year. The school has eight tracks with different specialisations, but all blend traditional engineering courses with a common educational base of innovation, entrepreneurship and contact with industry. KTH has a wide involvement in innovation activities in all EIT ICT Labs’ technology areas, but particularly in the area of Future Networks, which is an important area for other Swedish partners such as Ericsson and the Swedish Institute of Computer Science (SICS). The active European network of technology advisers and business coaches in all nodes of EIT ICT Labs has been expanded in 2014 and has resulted in a number of start-ups and technology transfers originating from ICT Labs’ activities.

InnoLife
The coming KIC InnoLife has been approved in the field of Healthy Living and Active Ageing. The consortium consists of 140 companies, research institutes and universities from 14 countries. KTH, together with KI, SU, Uppsala University (UU) and the University of Copenhagen, among others, constitute the Nordic node that is located in Stockholm. The preparatory work has been carried out within the framework of the Life Science Technology Platform at KTH.

RawMatTERS
The coming KIC RawMatTERS has been approved in the area of Raw Materials, which includes sustainable exploration, extraction, processing and recycling of raw materials as well as possible substitute materials. The consortium includes more than 100 partners from 22 countries in the EU. KTH will participate in the Baltic node together with Aalto University in Finland, and they will mainly focus on the education area. The preparatory work has been done within the framework of the materials platform at KTH.

Research platforms
In 2014, the five research platforms at KTH (energy, information and communication technology (ICT), materials, medical and biomedical technology and transport) continued with their efforts to promote and strengthen interdisciplinary research initiatives, within KTH and with external partners from society and industry. The success with the two new KICs is a good example.

In addition, a number of actions were taken during the year to increase KTH’s visibility KTH, to stimulate broad
research initiatives and projects relevant to major societal challenges, and to build partnerships and solid relationships with external partners. Public relations activities are organised in each platform.

The annual platform days were targeted at external stakeholders as well as research groups at KTH around areas of common interest. This year’s Energy Dialogue with the theme Funding Strategies for Research and Innovation attracted 250 people, with speakers from the European Commission and representatives of the Swedish Energy Agency and Vinnova’s management among others. The theme of the Materials Platform day was Innovative Materials for Tomorrow’s Industry and included speakers from IKEA, Tetra Pak and Jernkontoret to air industry’s ideas regarding the future of innovative materials, and to link these with ongoing research at KTH.

The ICT platform arranged AIMday Big Data, where business representatives and researchers at KTH gathered to discuss the future of Big Data. The Life Science Technology platform focused instead on increasing internal cooperation at KTH through the inspiration day, Frontiers in Life Science Technologies at KTH.

Through continuous support given to the Transportation Labs, the transport platform has been a key player in bringing the Transport Research Centre into existence. The centre, which will be inaugurated in early 2015, will work with transportation issues over a broad perspective, in line with the objectives of the platforms’ activities.

Centres

Centres are important for KTH in its development of fertile research environments, nourished with industrially relevant issues, which provide networks for senior researchers and doctoral students. A centre is a neutral collaboration platform where different parties agree on a common operations plan and contribute with resources for its implementation. In 2014 there were 45 centres at KTH, the majority being financed by long-term commitments from Vinnova, the Swedish Energy Agency and the Swedish Transport Administration.

Three successful centres were given continued financing during the year. The Competence Center Gas Exchange (CCGEX) which conducts research in the field of internal combustion engines’ gas exchange and the Swedish centre for smart grid and storage (SweGrid) have both received further funds from the Swedish Energy Agency. Win Excellence Center ECO’ Vehicle Design was granted more financial support from Vinnova for Stage 4.

A new interim centre, the Biomechanical Modeling and Experimentation Center (BioMEX), was set up at the School of Engineering Sciences during the year. The centre will coordinate and strengthen collaboration in biomechanical research at KTH. During the interim period of two years, the research base will be consolidated. In addition, emphasis will be put on attracting new projects and external financing to the centre.

The interim centre KTH Windcenter has been transformed into an established KTH centre with UU as a collaborating party under the name Standup for Wind. This centre includes parts of the SFO project Standup for Energy. UU is the main applicant and the university in charge.

External research financing

**FP7 – recap and summary of programme**

The EU Seventh Framework Programme (FP7) ran during the period 2007–2013. The last calls for proposals were not approved until 2014. In total, KTH was granted 352 projects, where the vast majority of around 300 projects provide funds for research in collaboration with universities and companies; 26 projects support ground breaking research and 37 aim at promoting mobility of researchers.

The purpose of the European Research Council (ERC) is to support pioneering and cross-border basic research of the highest quality in all fields in Europe. Grants are allocated using different financing instruments for both young and senior researchers based on scientific excellence.

ERC projects financed by FP7 consist of:

- 13 Starting/Consolidator Grants, of which two have moved to KTH and one has moved out,
- 11 Advanced Grants, of which one as additional partner (with Linköping University as the principal partner) and one that has moved to KTH, and
- two Proof of Concept.

**The new Framework Programme Horizon 2020**

The new Framework Programme Horizon 2020 started on 1 January 2014 and in the first six months a number of information initiatives for KTH researchers were carried out within the research platforms and at an overall level. Horizon 2020 consists of several parts, of which KTH researchers are mainly affected by Excellent Science (e.g. ERC), Industrial Leadership (e.g. Enabling and Industrial Technologies), Societal Challenges (seven defined societal challenges), the EIT and Euratom.

In total, over 350 applications were submitted in 2014, of which 29 were granted. Three relate to ground breaking research (ERC), eight to researcher mobility in various Marie Skłodowska-Curie projects and the remaining projects are within traditional collaborative research.

In the KTH Strategic Plan for 2013–2016, the target of 20 new ERC grants will go to KTH researchers. The target is already halfway achieved, with ten new contracts in the period 2013–2014.

In 2014, the following calls took place:

- Starting Grant – one grant awarded (Dimos Dimarogonas, School of Electrical Engineering),
- Consolidator Grants – seven candidates, the results to be
announced at the beginning of 2015,
- Advanced Grants – ten candidates, results ready in mid-2015 and
- Proof of Concept – two rounds in the 2014 call. In the first round, two grants were approved (Göran Stemme, School of Electrical Engineering and Mikael Östling, School of Information and Communication Technology). Another application was approved, but did not receive a grant due to limitations of the call budget (Jens Fransson, School of Engineering Sciences). In the second call for applications in autumn 2014, five KTH researchers took part. Results will be announced in 2015.

**National external financing**

In 2014 the Swedish Research Council granted KTH grants of SEK 252 million, of which SEK 199 million was within the major call for applications, Natural and Engineering Science, which means that KTH was the third largest beneficiary in Sweden after Lund University and Uppsala University. The largest grants were approved as framework grants for strategic research, such as SEK 12 million to Mikael Östling, School of Information and Communication Technology, and SEK 10 million to Dan Henningson, School of Engineering Sciences. In the call for applications for outstanding young researchers, Luca Brandt from the School of Engineering Sciences was granted SEK 18 million. In the call for applications for international career grants, Martin Månsson at the School of Information and Communication Technology was awarded SEK 8 million. The Knut and Alice Wallenberg Foundation (KAW) granted SEK 200 million to the development of national capacities for sequencing the human genome at the Science for Life Laboratory, with Joakim Lundeberg at the School of Biotechnology as one of the principal applicants. KAW also approved project grants to Danica Kragic at the School of Computer Science and Communication, SEK 19 million, and SEK 24 million for infrastructure at the Odqvist Laboratory with Jens Fransson at the School of Engineering Sciences as one of the principal applicants. In 2014 a researcher from KTH was appointed as Wallenberg Academy Fellow – Fredrik Viklund, conducting research in mathematics. The grant was for SEK 5 million.

In the research field of medical technology, the Swedish Foundation for Strategic Research (SSF) granted SEK 30 million to Björn Önfelt, School of Engineering Sciences, and SEK 32 million each under framework grants for electronics research to Joachim Oberhammer at the School of Electrical Engineering and to Mikael Östling at the School of Information and Communication Technologies. Within the call for applications for framework grants in applied mathematics, Ozan Öktem at the School of Engineering Sciences was awarded SEK 21 million.

In the Formas calls for applications in 2014, Magnus
Wälinder at the School of Architecture and the Built Environment was granted SEK 12 million for the Engineered Wood and Biobased Building Materials Laboratory. In addition, Fredrik Lundell at the School of Engineering Sciences and Hans Westlund at the School of Architecture and the Built Environment were granted SEK 8 million and SEK 7 million respectively.

Major grants awarded by the Swedish Energy Agency include SEK 8 million each to Stefan Ivanell at the School of Engineering Sciences and Mårten Behm at the School of Chemical Science and Engineering, and SEK 7 million to Semida Silveira at the School of Industrial Engineering and Management.

KTH is in the steering group for three of the Strategic Innovation Areas (SIAs) approved by Vinnova: Production, Lightweight Materials and Metallic Materials. KTH is also a member of InnovAir. The trend in 2014 is for each SIA to decide on and implement calls within their area of research. KTH notes that this form of cooperation has approached the model used in Vinnova’s collaboration programmes Strategic Vehicle Research and Innovation.

External changes

Universities’ research funding is facing major changes in the coming years and KTH worked with various preparatory projects in this area in 2013. In a nutshell, government financing will increasingly be linked to national evaluation of research and collaboration based on national needs assessment and collaboration within different consortia. There is a need to demonstrate that research funding goes to projects that can provide the greatest societal impact.

Research infrastructure

The Swedish Research Council conducted a review of the support for research infrastructures in the Council for Research Infrastructures last year. The review resulted in a referral proposal to change the national support for research infrastructures comprehensively. This is based on the need to finance major future initiatives which are strategically essential in collaboration with national consortia. The Swedish Research Council decided on the implementation of the new system in December 2014 and it will take effect from January 2015.

In view of this system change, KTH has listed which research infrastructures are resources at national, regional and local levels and are openly available, and all the laboratories have been contacted to obtain an overview of the needs and wishes for external relations. Stockholm County Council has also worked on a project to gain an overall picture of the region’s future needs for research infrastructures.

Moving toward more funding of collaborative research

The new EU Framework Programme for Research and Innovation, Horizon 2020, supports (as does FP7) collaborative research, which has led to national funders supporting more collaborative projects. This is reflected in Vinnova’s Strategic Innovation Agenda (formerly Strategic Innovation Areas), which is based on stimulating universities and companies to solve societal challenges.

Honorary Doctors

The Faculty Council appointed honorary doctorates in autumn 2014 with the following justifications:

Lei Guo, professor at the Institute of Systems Science, Chinese Academy of Science, China, is the most influential person in systems analysis and control engineering in China. In his role as Vice Secretary-General of the Committee of the National People’s Congress, he plays a unique role in shaping China’s future research strategies. He has provided fundamental contributions to theory formation in control engineering and the description of stochastic systems.

Professor Guo is a prolific and influential researcher who has received many awards. He is a member of the Academy of Sciences for the Developing World (TWAS) and the International Federation of Automatic Control (IFAC), among others. Guo has strong ties to Sweden as visiting researcher at the Institute of Technology at Linköping University through shared projects with KTH researchers and frequent visits to the university, and through receiving Swedish researchers and doctoral students in Beijing.

Marta Kwiatkowska, Professor at the University of Oxford, UK, is Professor of Computer Systems and a Fellow of Trinity College, Oxford. She is a world-leading computer science researcher and a driving force behind the development of probabilistic and quantitative methods in computer science. Her research has been applied to a range of different areas, such as communication networks and data protection, nanotechnology, game theory and systems biology. She holds an ERC Advanced Grant and is a member of Academia Europea, a Fellow of BCS, and participates in editorial boards for a number of computer science publications. She has collaborated with researchers at KTH in a number of ways, not least through her long-standing involvement as scientific advisor to the ACCESS Linnaeus Centre.

Gregory B. Olson, Professor at Northwestern University, USA, is an internationally leading researcher in science-based material design. By combining state-of-the-art knowledge from many different scientific disciplines with engineering tools, he has been able to design a number of new materials. He has played a large role in the development of the Integrated Computational Materials Engineering area.

Professor Olson has been given many awards, including the Jacob Wallenberg Foundation Award and the ASM Gold Medal. He holds roughly 20 patents. Professor Olson is a member of the American National Academy of Engineering and a foreign associate of the Royal Swedish Academy of Engineering Sciences.

Sverker Martin-Löf, Chairman of the board, Industrivärden, is one of Sweden’s most renowned industrialists. As President and CEO of SCA from 1990–2002, he imple-
mented important changes which resulted in SCA becoming Sweden’s only global forest products company.

Through his knowledge and personal qualities, and his company’s success, Sverker Martin-Löf stands out as one of the leading representative of the Swedish forest industry. Through his commitment and vision, he works toward the further development of forestry research and toward a stronger and more competitive Swedish forest industry in the future.

_Marie Vahter_, Professor at Karolinska Institutet, has worked widely in the area of metals and human health during her research career. A majority of metals are generally regarded as essential for human health in trace amounts. But it remains unclear whether other metals are necessary for human metabolism. While researchers at KTH have studied the geochemistry of metals in different environments, including metalloids such as arsenic, Professor Vahter’s work relates to the connection between exposure to and impact of metals on human health. The combination of these two factors is essential to understanding how metals behave in nature and how people are exposed to them.

Professor Vahter is a highly productive and internationally established researcher who has made huge efforts to clarify the connection between exposure to and impact of metals on human health on a global level. Among other things, this has led to a reduction of the limits for arsenic levels in drinking water in most countries of the world.
Collaboration

KTH has a long-standing and positive experience of working with companies, research institutes, government agencies, municipalities and county councils. KTH’s ambition to achieve closer collaboration with society at large has been further developed in close dialogue with KTH teachers and researchers. The work is based on the commission of the Vice President for Collaboration, and is carried out in accordance with the KTH model for collaboration.

KTH will promote, broaden and deepen relations with society at large and support in this area is provided by the KTH Business Liaisons Department. During the year, a team of six collaboration coordinators, one of whom is financed by Scania, worked to promote collaboration with industries and the public sector. The team is a support unit for KTH faculties, schools, strategic research platforms, companies and organisations, and works closely to Vice President for Collaboration.

KTH reinforces its position in society through a well-maintained network of alumni.

KTH model for collaboration

The KTH model for collaboration includes the establishment and operation of partnerships, different forms of personal exchange, venues for collaboration, projects for development and methods for impact assessment.

Partnerships

Under the Strategic Plan, KTH has worked with the establishment of strategic partnerships with companies and organisations at senior management level since 2011. Two new partnerships were established with Sandvik and the City of Stockholm in 2014. KTH has had ongoing strategic partnerships with ABB, Ericsson, Saab, Scania, Skanska, Stockholm County Council and Vattenfall for a number of years. Each of the partnerships is followed up annually by the KTH management group and by the operational management of the partners.

In 2014, KTH and Scania launched the largest joint venture so far: a research centre named the Integrated Transport Research Lab (ITRL).

Twice a year, the top management groups of all the strategic partners gather at KTH to share experiences and find more synergies between their operations.

The strategic partnership process was evaluated during the year by the university’s AAE 2014. Refer also to the section Quality Work. A model was designed during the year to facilitate partnerships between KTH and other organisations, including the level of schools.

Staff mobility

An important part of the KTH model for collaboration is mobility, both from academia to industry and vice versa. The number of adjunct professors during the year increased from 55 to 64 (nine women and 55 men).

The number of people in the category of affiliated faculty members rose from 14 to 27 during the year. These people are not employees at KTH and so they are not included in the staff summary in the Annual Report.

The Forum for Adjunct Faculty at KTH is for the discussion of collaboration between academia, industry and society. The forum also acts as an advisory body to KTH management, taking up topics such as a two-year industry-related licentiate degree programme, and how KTH and industry can together reap benefits from opportunities in the coming EU framework programme Horizon 2020. The Forum received a new programme decision and held three meetings during the year.

OpenLab

OpenLab is an established arena for collaboration between the City of Stockholm, Stockholm County Council and Stockholm County Administrative Board, Karolinska Institute, Stockholm University, Södertörn University and KTH. OpenLab activities were developed during the year to include cooperation started up with the Hasso Plattner Institute in Berlin, developing methodology and strengthening the skills required to work in interdisciplinary teams of students and researchers. The aim is to find innovative ways of tackling the region’s challenges. Three KTH students won an innovation competition about elderly care in the future. Five KTH students did their degree project at OpenLab during the year. During the Almedalen week, OpenLab arranged workshops with hundreds of participants to stimulate new thinking on the collaboration process and how challenges can be solved.

Impact follow-up

Projects for development and methods for impact follow-up during the year were carried out in-house (Impact 2.0) and with external partners (KLOSS and NOTIS).

Impact 2.0 is a development project that Vinnova partially funds within the framework for the programme Universities’ and University Colleges’ Strategic Development of Collaboration. The project aims to develop a broad KTH strategy for impact through collaboration and build up knowledge of national and international developments in the field.

KLOSS (knowledge exchange and learning about strategic collaboration) is a national development project initiated by KTH. The work is led by KTH and the Vice President for Collaboration leads a steering group with representatives from all the participating universities’ management groups (Umeå University, Uppsala University, the Swedish University of Agricultural Sciences, Stockholm University, KTH, Mälardalen University, Linköping University, Jönköping University and Lund University). The project is partly financed by Vinnova. The purpose of KLOSS is to increase the relevance and quality of education and research by reinforcing Swedish universities’ capacity to collaborate strategically with society and to develop support structures for this collaboration.

NOTIS (science and technology in society) is a professional
development project for teachers and staff at KTH and Stockholm University’s Faculty of Science.

NOTIS ended on 30 June 2014. KTH has since chosen to continue working with a more occupational approach at an overall level. The work will partly focus on increasing cooperation between teachers and strategic partners, and partly on providing teachers with more information about students’ future labour market.

Regional collaboration
Stockholm Cleantech is a regional company network that aims at increasing the growth and export of environmental technology. KTH is a member of the network and also has a seat on the board.

KTH takes part in organising meetings in the network where academia, companies and other players gather and make contacts.

Innovation Stockholm is a coordination and collaboration scheme in the region that is led by the county governor. During the year, KTH has been active in planning for the Regional Innovation Strategy. KTH operates one of the group’s five action plans, Research and Innovation Infrastructure. During the year, KTH organized three study visits and made 15 interviews, arranged a workshop with 46 heads of laboratories and held seven group meetings on collaboration between laboratory/testing and demonstration facilities with participants from Research Institutes of Sweden (RISE), KTH, Stockholm University and Karolinska Institutet. Stockholm County Council has also joined this regional work to make research infrastructure more accessible.

Collaboration between small and medium-sized companies
A strategy for collaboration with small and medium-sized companies was developed during the year and will be fully implemented next year. The strategy, which is linked to the plan and the objectives of the Innovation Office, includes input of knowledge by KTH to meet the development needs and challenges of small and medium-sized companies and thereby enhance their growth. This form of cooperation is emphasised in the EU framework programme Horizon 2020, which means that good relations and cooperation with small and medium-sized companies are necessary for KTH to remain successful in obtaining research funds in competition with other European organisations.

Commissioned education and continuing professional development
The task of collaboration includes providing continuing professional development for professionals. KTH offers courses in a number of areas aimed at broadening or deepening skills, primarily for professional engineers and architects, but also for other groups in need of professional development, such as teachers.

KTH offered courses and course packages during the year, both in the ordinary activities, financed by government grants, and in the form of specially designed commissioned courses. The courses are intended to be combined with professional activity, as several of them are distance courses and IT-based. Some courses are taught in English.

Alumni relationships
KTH’s alumni activities create opportunities for former students to stay in touch with KTH and with each other, and provide both physical and virtual meeting places where alumni, students and faculties can share experiences and develop forms of collaboration. An attitude survey was conducted in spring 2014, which showed that many of KTH’s alumni have a strong interest and commitment to remaining a part of university activities after completing their studies.

The internationalisation process of KTH’s alumni activities and networks was stepped up during the year. Three local networks were started up (in USA, Germany and Iceland) and six associations were formally established, called KTH Alumni Chapters. There are now ten formalised Alumni Chapters around the world.

A total of 39 international alumni events were organised during the year. Alumni participated in international student recruitment activities to a greater extent than in previous years. They were involved in student recruitment fairs in China, Indonesia, India and Vietnam.

In September, KTH’s first international reunion was organised at the KTH Campus when the 20th anniversary of KTH’s first fully international Master’s programme was celebrated. Around twenty alumni came to Sweden from all over the world to be part of the celebrations.

In the first week of October the Alumni week was held for the third year running at the KTH Campus. It was an extensive programme, including visits to the KTH Space Center, section pubs, guided tours and reunions. The Alumni of the Year Award was presented to Regina Kevius, former city planning commissioner in Stockholm. Visitors also had the opportunity of meeting some of the students who were given support from the KTH Opportunities Fund and learning more about their projects.

In all there were 1,050 alumni who attended organised events in 2014, including about 600 who visited events at the KTH Campus.

KTH Opportunities Fund
The KTH Opportunities Fund, established in 2012, was developed during the year. It is a platform in which KTH can receive and channel alumni involvement, in terms of financial donations and volunteer work. During the spring, a four-week telephone campaign was carried out with two main objectives: to introduce and provide information about alumni activities and to generate financial and non-financial support for the fund.

By the end of 2014, total funds raised for the KTH Opportunities Fund amounted to just over SEK 1 million. The Fund
supported the completion of 15 student and research projects during the year, and two international students were awarded scholarships. A hundred alumni have contributed around a thousand hours as volunteers, working as mentors, inspirational speakers, experts and coordinators of alumni activities.

KTH Innovation
KTH Innovation works to promote research results and business ideas from KTH researchers and students being developed and meeting the market.

The overall objectives at KTH Innovation are:

• to increase the number of ideas and results from KTH researchers and students that meet the market and become successful innovations,

• from an international perspective, to ensure an efficient support process (with the right network and conditions) to best support ideas on their way to the market, and

• to enable the creation of a strong, complementary ecosystem for innovation support of top international quality at KTH.

The strategy for 2014 was to maintain a high input of ideas while resources were spent on activities to produce a qualitative and quantitative increase in output.

KTH Innovation took in 233 new ideas in 2014, well balanced between researchers and students. In comparison to 2013, this was an increase of 27 per cent. The commercialisation projects which KTH Innovation supports obtained a total of just over SEK 19 million in funding from the Vinnova-financed Verification for Growth program (VFT) which is managed by KTH Holding AB. During the year, 24 companies were founded, of which three were student companies, and seven commercial agreements with customers were signed. Based on KTH research, 50 patent applications were filed and 20 patents were granted. During the year, two companies were admitted to the business incubator, Stockholm Innovation and Growth (STING), and another three went to European and American incubators.

KTH Innovation and KTH Holding AB have very close collaboration and during the year this led to the holding company investing in two new companies from KTH. KTH Innovation does not use a selection process for new ideas, but accepts all innovators that meet the basic requirements of (a) being affiliated to KTH and (b) showing a connection between the idea and KTH operations. The innovation support process is based on the innovator being helped to test her ideas on the market, and depending on the outcome, to decide whether to continue with the idea. Evaluation of the feasibility of the idea may take up to two years.

Work with Student Inc., KTH’s student incubator, was developed during the year. One focus in the communication plan for KTH Innovation was to increase awareness of it among KTH students. Student Inc. took on 21 student projects during the year.

Together with the student union, Armada Startup was arranged for the second time. This is a trade fair with the aim of highlighting entrepreneurship as a possible career path after studies at KTH.

The KTH innovation support process was evaluated in 2014 using the Administrative Assessment Exercise (AAE). An international external assessment group provided feedback and found that the process meets the needs of internal as well as external players.

Through a partnership between STING and KTH Innovation, commercialisation projects have been able to recruit expertise through STING’s Search for Talents. Eight recruitment processes were initiated or completed in 2014, which helped to consolidate the project team and improve the prospects of success in taking the idea to the market.

Innovation Office
The government appropriations document for 2009 stated that KTH, and other universities, should open Innovation Offices. One condition was that KTH would invite other universities to cooperate within the framework of the Innovation Office.

The work with the Innovation Office is led by KTH Innovation, which is building a scalable innovation support system in close cooperation with regional partners at universities in Mälardalen. The KTH Innovation Office, which is a partnership between KTH, Mälardalen University and Stockholm University, has been named InterAct.

In 2014, KTH Innovation assisted in the work to develop the new Innovation Office at Stockholm University by supplying processes, methods and tools as well as participating in the recruitment process. Stockholm University has continued to participate in the InterAct partnership, and that work will continue. From the start, the Innovation Office worked in close collaboration with Uppsala University.

The overall goal of InterAct is to create strong international support systems for innovation at the partnership’s universities. InterAct will broaden, deepen and streamline the innovation system in Mälardalen using existing operations as a base. In 2014, the overall strategy was to maintain the influx of ideas and consolidate the work for increasing throughput in the innovation support process. Activities that lead to increased output and a more efficient process were prioritised. One such activity is the continued development of tools in the innovation support process, such as scales for measuring the development of an idea toward the market based on aspects such as customer relationships, funding, teams and technology. Consultants have been engaged to verify innovation projects, and the recruitment of business developers and other key personnel for projects has been implemented. The innovation support process was given a thorough evaluation and areas needing improvement were identified and corrected.

A number of cross-border partnership activities were implemented. Examples include exchanges of experience
and the programme Startup Inspire, a tailored development programme for innovators with business ideas that are assessed as having potential for the US market. The programme is open to innovators from the university sphere in Sweden, and aims at increasing participants’ knowledge of entrepreneurship.
Quality work

Overall quality work
The KTH Quality Policy entitled “Quality through continuous improvements” contains principles for quality work and high-priority activities in the area. The Quality Policy includes an action plan. Quality work is largely governed by the objectives in the KTH Strategic Plan for the period 2013–2016.

The starting point for quality work at KTH is the idea that responsibility for quality lies with every student, teacher and staff member in their everyday work. In addition, a formal division of responsibilities and an administrative support organisation are in place for quality work. The Faculty Council is the collegiate body with overall responsibility for the quality of education, research and interaction with society at large. At each school there is a member of the faculty in charge of education at first and second cycle, called Director of First and Second Cycle Education, and one responsible for third cycle studies called Director of Third Cycle Education. Each education and doctoral programme has a Programme Director.

The KTH Quality Policy and Action Plan are based on the areas of education, research, competence supply and collaboration. The work undertaken in these areas in 2014 is described in the relevant sections below.

Quality work in education

Evaluation by the Swedish Higher Education Authority
KTH first and second cycle programmes were evaluated by the Swedish Higher Education Authority during the period 2012–2013. The total outcome for KTH was that three programmes were considered to be of very high quality, 25 programmes were judged to be of high quality, but eight were judged to be of insufficient quality.

In 2014 KTH submitted action plans to the Swedish Higher Education Authority regarding the programmes of questionable quality. At the same time, KTH established an internal working procedure for follow-up work. The Swedish Higher Education Authority is expected to take a decision in 2015.

Third cycle initiative
The quality of education at third cycle has not been examined in any of the earlier self-initiated evaluations, RAE in 2008 and 2012, EAE in 2011 and AAE in 2014, where it was only looked at indirectly. One reason for this is a new organisation for third cycle education in the form of doctoral programmes was introduced at KTH as recently as 2011. The other major evaluation projects also took a lot of time and effort from the organisation. In the light of this, a third cycle education initiative will be carried out in 2014–2015 instead.

The initiative will include a thorough analysis of third cycle education, and support and actions will be put in place where necessary. The overall aim is to enhance the quality of third cycle education at KTH. Conclusions from the project will be summarised in a report in 2015.

Follow-up of students
In 2013 Statistics Sweden carried out a survey entitled “Labour market entry for university and university college students”. KTH chose to extend the survey to include the entire population. The study, “Labour market entry” was completed in 2014. The target group was new students at KTH in the academic year 2005/06 who had completed at least 150 ECTS when the survey started. The investigation revealed that the difference in becoming established on the labour market is very marginal between graduates and non-graduates who had almost completed their programmes. Those who completed a Master of Science in Engineering programme were established in the labour market slightly faster than those who took a three-year programme. As many as 45 per cent of the total population already had a job when they finished their studies, 44 per cent found work within one month and a further 9 per cent found work after two to three months.

Master of Science of Engineering graduates from KTH have a higher proportion of permanent employment, shorter periods of unemployment and find jobs faster than their equivalents in the rest of Sweden. Just over one in two Master of Science in Engineering graduates from KTH had a job when they graduated, compared with 41 per cent for other universities.

Teaching and Learning in Higher Education
KTH is making large investments in quality work in the form of educational development, and Teaching and Learning in Higher Education plays an important role. The initiative has three parts: courses in Teaching and Learning in Higher Education, including courses for postgraduate supervisors and courses in leadership, university teaching support for programme and course development, including educational leaders, and university teaching research, development and business intelligence.

Quality work in research

Publication culture at KTH
The project entitled Publication Culture at KTH was completed during the year. The aim was to analyse KTH publications to create a basis for future work. The goal is higher impact from KTH publications, as well as further development of the application of bibliometrics at KTH.

An extensive comparison was made of 20 leading technical universities, which showed that KTH citation rates were consistently relatively low. It is not possible to identify any single subject as an explanation of KTH’s relatively low places in different bibliometric evaluations and rankings. KTH performs better in terms of citations when full counts is used, rather than fractional weighting. It may be the case that KTH has a relatively high citation impact for publications co-authored by more than a hundred writers, especially in
physics. One difference between KTH and the most successful technical universities is a low citation of national publications and publications with one hundred or fewer authors. National, co-authored publications from KTH are generally 20–25 per cent less cited than international publications.

The proportion of highly cited publications are also relatively low at KTH, especially when the statistics are fractionated. In terms of field-normalised and weighted fractional citation rates, KTH has the highest values in chemical engineering, chemistry, electrical engineering and mechanical engineering.

KTH has developed recommendations for publication strategies. These include planning the publication of research results, choice of publishing channel, collaboration and communication, and making publications freely available. KTH also introduced a tool for identifying recently graduated PhDs who are likely to have promising career prospects.

**Rankings**

The importance of visibility and position on ranking lists have increased in recent years, such as lists for student recruitment, recruitment of international researchers, international collaboration, funding probability, influence of different policies, investment in excellence and expressions of national prestige.

KTH performed strongly in 2014. Despite the drop in proportion of international students, KTH advanced its position in the QS World University Rankings from 118th place to 110. In the Times Higher Education (THE) World University Rankings, KTH fell slightly from 117th place to 126. The improvement in the QS ranking is mainly due to KTH's academic reputation being strengthened among academics and international employers. The slight fall in THE rankings depends mainly on the marginal decline in the field-normalised citation rates at KTH, and the decreasing proportion of international students. KTH continues to perform strongly in most indicators that measure excellence in research, education, collaboration and internationalisation in different ways.

KTH performed very well in subject area ranking and subject rankings. In the THE subject area rankings for Engineering and Technology, KTH was ranked as the 50th best university in the world and in the corresponding QS ranking, KTH was ranked as the 33rd best. In the National Taiwan University (NTU, formerly HEEACT) and QS subject rankings, KTH performed particularly well in mechanical engineering, electrical engineering, chemical engineering and materials science. In mechanical engineering, for example, KTH was placed 22nd by QS and 43rd best university by NTU. In ten subjects, i.e. all the major subjects that are represented at the university, KTH is among the top 30 universities in both NTU and QS subject rankings.

During the year a comprehensive benchmarking process was carried out to identify KTH’s strengths and weaknesses in comparison with 20 other leading technical universities. KTH’s major strengths were a high production rate of different forms of publication per faculty and researcher, and a very high proportion of co-authored publications with researchers from other international universities and industry. KTH also has a high proportion of international researchers, teachers and students. KTH is successful in attracting research funding from external funders and has a high proportion of income from industry. KTH has a very sound international reputation, better than its performance in bibliometric indicators that measure research impact and research excellence. A study of KTH’s academic reputation showed that it is particularly strong in Europe.

KTH’s performance is relatively weak in bibliometric indicators measuring research impact and research excellence. Most serious is the relatively low field-normalised citation rate, whether the outcome is fractionalised or not. KTH is among the 260 to 350 best in the world in this area. KTH performance is also relatively mediocre in the top 10 per cent, i.e. the proportion of highly-cited publications in the 10 per cent most cited, classed in the same subject.

**Quality work in administration**

KTH evaluated administrative support in 2014, in accordance with the KTH Strategic Plan. The project was called the Administrative Assessment Exercise (AAE) and included a total of 15 strategically important administrative processes:

- The educational process from the system support and student perspective/Studies and career counselling,
- Provision of premises,
- Teaching positions,
- Complex personnel issues,
- International students,
- Contract management,
- Support for external financing,
- Innovation,
- Collaboration,
- Document management,
- Controller function,
- In-house communications,
- Procurement,
- Administrative support for follow-up of education and research,
- Internal audit review process.

The purpose of AAE was to obtain a basis for developing the quality of administration at KTH. The methodology used, peer review, is similar to that used previously by KTH for research evaluations (RAE) and education evaluations (EAE). The project was implemented in three phases.

In the first phase, a self-assessment scheme was carried out involving a large number of KTH employees from administration as well as from the faculty. A self-assessment report was compiled for each sub-project.

In the second phase, external observers were engaged with the task of reviewing the administrative processes from three perspectives: service, cost and competence. The assessment groups had access to the self-assessment reports.
and made site visits to KTH in June 2014. The assessors summed up their impressions in a brief report.

The whole AAE project was summarised in a final report that was presented to the University Board in December 2014. The report points out, among other things, the need for an improved dialogue between the administration and the faculty, between the central university administration and the schools, and within the university administration. The assessment also mentioned that KTH had undergone rapid expansion in recent years, and that administrative support had not had time to adapt. Areas such as internationalisation and contract management were named in this context. The AAE showed that administrative staff at KTH have high competence levels but they are not always used optimally. A more process-oriented approach including a clearer division of roles was recommended.

In the third phase, which will take place in 2015–2016, the conclusions from the project will be processed. Four focus areas have been identified: dialogue, contract management, international students and IT support. The main responsibility for follow-up work lies with the permanent line organisation, where a large number of concrete follow-up activities will be carried out.
The environment and sustainable development

A large majority of the engineers and architects who graduate from KTH are faced with duties at work where they need to deal with sustainability issues and make trade-offs. This issue came up in the regular career survey of alumni carried out, the latest being from 2013–2014. It illustrates how sustainability issues often drive forward technological developments, and the challenges that students will work with after graduation.

It is one of the objectives of KTH to be among Europe’s leading technical universities in the field of environment and sustainable development. KTH’s identity and brand must be associated with first class work in these areas.

KTH contributes to sustainable development through education, research and collaboration with the surrounding community. The activities which KTH carries also affect the environment. Examples of environmental impact areas are energy consumption, use of materials, construction, travel and transportation made on KTH’s behalf and procurement of goods and services.

KTH’s strategic work with the environment and sustainable development is performed in parallel by KTH-Sustainability and Sustainable Campus. KTH-Sustainability is a council that has been formed to work with the environment and sustainable development in KTH’s education, research and collaboration. It is an advisory body for the President and a preparatory body for the Faculty Council. KTH-Sustainability is led by the Vice President for Sustainable Development and consists of teacher and student representatives as well as the environmental manager. KTH-Sustainability was established in 2011. KTH’s environmental manager is responsible for Sustainable Campus. Sustainable Campus is responsible for KTH’s environmental management systems and environmental issues affecting the Campus.

KTH Environment Policy
KTH will contribute to sustainable development through education, research, collaboration and by reducing its own environmental impact. KTH will:

- Be represented by an identity and a brand that is associated with a first-class contribution to the environment and sustainable development,
- Be a place where the issues of environment and sustainable development are presented and debated, and where different disciplines, approaches and actors meet,
- Consist of staff, students, alumni and partners who contribute to sustainable development by developing, disseminating and applying the techniques, methods, approaches and knowledge that include these issues,
- Encourage and train staff and students in environmental awareness within and outside KTH operations,
- Continually and systematically prevent pollution and improve environmental performance,
- Conserve energy, goods and materials and impose environmental requirements on purchasing and procurement,
- Comply with all relevant environmental legislation and requirements,
- Inform about, and report on, KTH environmental performance both in-house and externally.

Education, research and collaboration with society
Efforts continue at KTH to integrate sustainability issues in all engineering and architectural programmes. New courses relevant to the environment and sustainable development have been established at several schools and new parts have been added to existing courses. Several programmes have added an introductory module on sustainable development to existing courses. The course on Learning for Sustainable Development has been further developed this year and is also taught in English. In 2014, every school has worked on its action plan for the integration of sustainability issues in teaching that was signed in 2013. A new follow-up will be carried out in 2015. New course modules on economic and social sustainability were developed during the year. The idea is that these modules can be integrated into a number of educational programmes, possibly after some modifications.

KTH’s identity and brand must be associated with first class work in these areas.
signed. Agreements for collaboration on sustainability issues were also drawn up in 2014 with the Stockholm Environment Institute. This was followed up with a half-day workshop and a series of seminars. There are several ongoing collaborative projects with the Environmental Research Institute and the Stockholm Environment Institute. KTH has set up a partnership agreement with Akademiska Hus on research and teaching about sustainability. The option of using the premises where KTH teaches and conducts research for activities related to environment and sustainability is very interesting.

A project plan and a communication plan have been drawn up for KTH-Sustainability. An example of communication activities during the year is the monthly KTH internal newsletter sent as direct mail, and a summary of information about research calls in the area of environment and sustainable development. An external newsletter was started which is aimed at industry and commerce, policy makers, agencies and organisations. It is normally published six times a year.

**Sustainable Campus**

The focus of Sustainable Campus work during the year continued to be the introduction of a certifiable environmental management system. According to the ordinance on environmental management in government agencies, KTH must have an environmental management system that must be certified if there is a significant environmental impact, which KTH is considered to have. A report of the environmental management work must be submitted annually to the Swedish Environmental Protection Agency. In the report sent in 2013 KTH was ranked higher than the year before, which proves that the environmental work carried out, both centrally and in the schools, produces results. The decision to have a certifiable system by the end of 2014 is considered as implemented.

The following have been implemented during the year:

- Continued documentation of working methods, both centrally and in the schools, to put the environmental management system in place,
- School and university administration worked with local environmental goals that will help to meet the shared and overall targets at KTH for environmental performance,
- Internal environmental audits where both good practice and areas for improvement in environmental performance have been identified,
- Several communication initiatives, such as a series of articles about the environmental work being carried out at KTH schools,
- Courses, on handling chemicals for example, which will continue in the future, and
- Work to establish a new sustainability policy to be decided by the KTH University Board in 2015.

Other activities that have been completed include:

- Several workshops for KTH’s environmental representatives,
- A collaborative project with the Student union at KTH and Akademiska Hus for reducing waste at KTH Campus by going back to reusable mugs instead of disposable cups,
- A network meeting for environmental management at universities and university colleges was held at KTH in May, with participants from several universities and university colleges in Sweden, and
- A web course in environment and sustainable development was launched for KTH employees.

Environmental management operations are conducted centrally by the Environment Group in the Environmental and Construction Department at university administration. The role of the Environment Group is to provide support for schools and the university administration in their environmental management activities. At KTH schools there are appointed environmental representatives who, together with school management, run local environmental work.
**Employees and managers, participation and influence**

**Employees, participation and influence**

As a result of collaboration between employers’ and employees’ organisations, the third joint staff survey at KTH was conducted in late 2013. The survey can be seen as a temperature gauge and an important strategic tool for the development of the work environment at KTH. The purpose of the KTH staff survey is to better understand how KTH employees perceive their work situation and to gain information about what needs to be improved in the work environment. The employee survey is a tool for identifying strengths and weaknesses within the organisation and taking actions that lead to improvement. The goal is to increase awareness of how our workplace, work environment and activities can be improved and developed. A high response rate provides a better basis for working on improvements. The staff survey is a joint party project and it is important for both the employer and the unions that as many people as possible participate.

The results were presented in early 2014. A positive aspect of the 2013 staff survey is the slightly higher response rate than in previous years, 64 per cent compared with 62 per cent in 2011, and a better result in general. The results were higher in all areas except the overall assessment of KTH as an employer, where the result was the same as in previous studies. The physical working environment was a new area that was investigated in the 2013 staff survey. It was noted that KTH must continue working on fire protection and procedures for reporting incidents and work-related injuries. Based on the results of the staff survey, the schools have drawn up focus areas that they will continue to work with in 2015.

To ensure that all staff members are given the same introduction, KTH has created a digital introduction in an effort to strengthen the employer’s message and brand. It describes KTH’s history, organisation and activities in an easily accessible way. It aims to provide new employees with an understanding of what it means to be part of KTH staff. All new employees will be given the digital introduction when they start work at KTH, and later there are another two introductory sections: one cross-cultural introduction for the whole university and one more specific introduction that is related to the employee’s workplace.

Starting in autumn 2014, KTH also arranges an introduction programme over one academic year for qualified administrators that provides information on mentoring, organisa-

**Leadership**

Good leadership provides the right conditions for having motivated staff and creating an inspiring work environment. KTH is investing in the development of management and leadership at all levels, from both academic and administration viewpoints. In 2014, 120 managers and leaders at KTH participated in various centrally arranged development schemes.

Interest in management and leadership development is increasing, especially training for managers in KTH’s line organisation. Development of an earlier initiative for the employer’s role in leadership has resulted in course modules for managers with staff responsibility. The aim is to raise awareness and provide KTH managers with better knowledge of the responsibilities that a managerial position entails. Management support in the form of information linked to each module is available on the internet. The new web structure makes all management and leadership development materials accessible.

KTH’s equality-integrated leadership programme consists of three parts, and was further developed in 2014. Participants are recruited from faculty and administration. Step 1 aims to deepen the knowledge of how KTH is organised and governed. It consists of three parts: a seminar, a study trip to the University of Cambridge and a new module with peer tutoring. Step 2 aims to develop personal leadership. Step 3 contains longer, external national and international management programmes to which the President appoints participants.

As part of the development of academic leadership, a tailored course in leadership is arranged with a focus on communication and feedback for associate professors. Each school nominates participants for the course, which is given in Swedish and English.

**Gender equality, diversity and equal opportunities**

In 2014, training in equality, diversity and equal treatment was given to most management teams down to the section level. The course is intended to activate participants and give them the tools to recognize and deal with covert discrimination and exclusion. The forms of the course vary from school to school so that their different challenges and issues can be taken up. Work in this area is partly based on case studies from KTH that have been taken up in the IKKA project, Inventory of the Link between Gender and Real Work Situation in the Faculty, 2009–2012.

The diversity project that started in 2012 was completed as planned in 2014. Results worth mentioning are various sur-
veys and training schemes. University teachers were given an introduction to intercultural teacher competence and the student union has conducted a workshop on how to handle the issues. In 2013 a study trip was made to the United States, which in 2014 gave ideas on further development of the Appointments procedure for teachers at KTH and the appointments procedure.

A proposal for a modified approach to faculty appointments, which will ensure with more clarity that equality applies to all new recruitment, has been produced by the Faculty Council. The proposal includes training for committees and chairs, and improved processes and rules to ensure that persons of both sexes are identified and recruited. The proposals produced will be implemented in 2015.

A process was introduced in 2014 to ensure that people are appointed to leadership positions with regard to equality at all levels in KTH. This will ensure that men and women are appointed on their qualifications and suitability, that an appropriate gender balance is achieved, and that KTH fully utilises the diversity of people at the university with experience and earlier careers from many parts of the world.

A review and development of the equality aspects in the various KTH leadership training courses has been carried out. Leadership training courses must also include diversity issues.

A follow-up has been carried out on all people employed as assistant professor at KTH since this position was introduced in 2002. The proportion of men/women who have been employed is around 70/30 per cent, which corresponds to the gender distribution at third cycle education. It is good to see that the same gender distribution continues among those who have been promoted at KTH, some of whom are now professors.

An increased involvement in gender equality issues has been seen among students and the student union during the year. As a result, the Vice President for Faculty Development and Gender Equality has been given an extended remit, which also includes gender equality in education and in the student group. The equal opportunity plan for students in 2015 was developed in collaboration with study counsellors, FUNKA (support for students with disabilities) and the student union (TIS) at KTH. The union associations Malvina and Gaytek have been granted financial support for the academic year 2014/15.

The prize for equality and diversity work for employees was awarded this year to Per Norström at the School of Education and Communication in Engineering Science for his work in Tekniklyftet, which aims to increase knowledge among compulsory school teachers in the subject of technology.

The three-year plan for equality, diversity and equal treatment 2014–2016 was drawn up in 2014 and is now being implemented in the schools.

A result of the staff survey in 2014, guidelines have been produced with procedures for handling cases of discrimination, harassment, sexual harassment and victimisation. Part of the implementation of the new guidelines has led to the development and running of courses for HR managers, administrators and study counsellors responsible for receiving and/or investigating complaints. The courses are adapted to their target groups and will also include managers with staff responsibility.

Professional development and career development (CPD)
Continuing professional development and transfer of skills must constantly take place as a natural part of work at KTH. All CPD is based on the needs of the organisation in relation to the individual's circumstances.

All employees are encouraged to take responsibility for the development of their professional role, and the manager’s role is to create the right conditions for this to take place. To this end, a website for career and skills development has been produced on the KTH intranet. It presents needs-adapted programmes and courses that are in demand. Current agreements with education suppliers are available to facilitate the schools’ ability to call off services themselves. This year’s needs inventory resulted in an initiative to reinforce the knowledge required of officials and administrators to work in a government agency. Other key staff training during the year included various courses in rhetoric, IT and languages.

Continued regional collaboration between universities on staff training provides KTH with benefits, both in terms of an extended network and more cost-effective solutions. Examples of collaboration are project management for researchers, administration training, basic leadership etc.

KTH offers career support in various forms, including a programme on life planning and career planning. The programme aims at providing KTH employees with the opportunity of developing their skills and continuing professional development.

KTH continues the work to provide mentors for newly appointed managers. During the year, KTH participated in the start of the sixth round of the partner mentoring programme with the Government Offices of Sweden, Peab, Skandia, SVT and Sj. The mentoring programme, under the direction of universities in the Stockholm region, was completed in the spring and a new programme has been planned for 2015. The number of universities has been increased to include participation from Karolinska Institutet, Stockholm University, the Swedish Defence University, Södertörn University and the Stockholm School of Economics.

In both mentoring programmes, participants are appointed from the faculty as well as administration.

Wherever possible, job shadowing is arranged to increase collaboration between the university administration and school activities. KTH also encourages teachers and administrative staff to apply for international staff exchanges through Erasmus+.
KTH Relocation

The purpose of KTH Relocation is to centralise, streamline and systematise the reception of everyone recruited by KTH from abroad. Since its start in November 2012, operations have continually developed.

In 2014, KTH Relocation assisted a total of 600 people with accommodation during the whole or part of their stay at the university.

In addition to arranging accommodation, KTH Relocation also helps people accompanying recruits, estimated at about 300 per year. It is important that this group also feels included in the service that KTH offers. A social network and coaching support have been organised for people accompanying recruits in conjunction with their move to Sweden. KTH Relocation is also working on the development of career support for these people.

KTH Relocation provides an intercultural introduction course that aims to bridge the cultural difficulties that may arise in a multicultural workplace such as KTH, as well as arranging regular social gatherings where newcomers are given the opportunity to meet and learn both useful and amusing facts about KTH, Stockholm and Sweden.

KTH Relocation is an information channel for all KTH operations and has about one hundred administrators in the network who are regularly provided with relevant information about international recruitment, external and internal regulations and news items.

Recruitment system

KTH implemented a comprehensive web-based recruitment system in 2014. The system can potentially save time and streamline the recruitment process. KTH users are now able to work with clear case flows where activities already implemented are logged.

The system is easily accessible and transparent for different user groups in recruiting and covers the entire recruitment process from advertising, organising and selecting applicants to completing a recruitment. Internal communication and communication with candidates can be managed from the system. There is also an entrance where external assessors, such as experts, may have access to relevant information.

Staff structure

The account of full-time equivalent positions below may be affected by numbers below rounded off.

In 2014 the average number of employees increased by 231 to 5,157, as compared to 4,906 in 2013 and 4,811 in 2012. The average number of employees is calculated from information gathered every month in 2014. When converted into full-time equivalent positions, this means an increase of 51 to 3,672 in 2014, compared to 3,621 in 2013 and 3,542 in 2012. Measured in full-time equivalent positions, the proportion of women is 37 per cent, or an increase of 1 percentage point from last year.

Teachers and researchers

The number of teachers has decreased by 17 full-time equivalent positions to 830 (the number of women remains at 172, the number of men decreased by 17 to 658). The teacher group includes professors, visiting professors, adjunct professors, associate professors, assistant professors, lecturers and guest teachers. The proportion of women teachers is 21 per cent, which is unchanged since 2012.

The number of researchers, research engineers and post-docs, i.e. staff who primarily work in research and research support, has increased by 27 full-time equivalent positions to 662 (women up by 12 to 178 and men up by 16 to 485).

The number of full-time equivalent employees in the professor group (professors, visiting professors and adjunct professors) has increased by 8 full-time equivalent positions to 311 (women up by 3 to 47 and men up by 2 to 26) in 2014.

Professors have increased by 4 full-time equivalent positions to 280 (women up by 5 to 37 and men unchanged at 244). The proportion of women has increased during the year by one percentage point to 13 per cent. During the year 16 new professors were appointed (5 women and 11 men). The proportion of newly employed women professors was 31 per cent in 2014.

Visiting professors have decreased by 1 full-time equivalent position to 16 (women unchanged at 9 and men unchanged at 8). The proportion of women among visiting professors is 56 per cent.

At the end of 2014, adjunct professors had increased by 9 to 64 (women up by 1 to 9 and men up by 5 to 55). In terms of full-time equivalent positions, this is an increase of 4 to 14 (women up by 1 to 2 and men up by 3 to 12). The proportion of women measured in numbers has decreased by 1 percentage point to 14 per cent and measured in full-time equivalent positions there is an increase of 4 percentage points to 14. During the year, 17 adjunct professors were recruited (2 women and 15 men). All are employed by KTH but have their main sources of income outside KTH. The positions are at least 20 per cent and at most 50 per cent of full-time positions; most of the adjunct professors receive no salary from KTH.

The number of associate professors has increased by 8 full-time equivalent positions to 258 (women down by 3 to 52 and men up by 10 to 205). The proportion of women has decreased by 2 percentage points to 10 per cent compared to the previous year. During the year 35 new associate professors were appointed (4 women and 31 men). The proportion of women among the newly employed was 11 per cent.

The number of assistant professors has fallen by 16 full-time equivalent positions to 67 (women down by 3 to 120 and men down by 13 to 47). The proportion of women has increased by 4 percentage points to 30 per cent compared to 2012. During the year, 24 assistant professors were recruited (8 women and 16 men).
**Doctoral students, employed or with study grants**

The number of doctoral students employed or with study grants increased in 2014 by 10 full-time equivalent positions to a total of 1,045 (women down by 8 to 302 and men up by 18 to 743). Of the 1,045 there were two doctoral students with study grants (men). For doctoral students employed or with study grants, the proportion of women was 29 per cent, which is a decrease of one percentage point compared to 2013.

**Technical and administrative staff**

Technical and administrative staff, including library staff, has increased by 26 full-time equivalent positions to a total of 1024 (women up by 31 to 651 and men down by 5 to 373). The proportion of women increased by two percentage points to 64 per cent in comparison with previous year.

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**Figure 13**

Staff 2014
Premises

KTH premises
At the end of 2014, KTH had at its disposal approximately 264,000 m² (266,000) of floor space, a reduction of around 1 per cent from the previous year. The decrease in area is partly due to KTH leaving the Forum building in Kista in October 2014, and the contract for building 43:12 was cancelled during its rebuilding.

The proportion of vacant or unused premises remained low at the end of 2014 at about 1 per cent of the total rented area. This means that the margin for managing ongoing changes in premises is still limited, and there is a growing need for premises. A more reasonable proportion of available floor space would be around 3 per cent.

Over the past three years, as a consequence of expansion of operations at KTH, several large projects related to premises have been started.

Major conversion projects completed in 2014
• In May 2014 the IT Department and Premises Service moved into the newly refurbished premises in building 94:1 on Drottning Kristinas väg 48 (3,950 m²).
• In August 2014 KTH left Forum in Kista altogether and the School of Information and Communication Technology moved into new premises in Electrum, in Kista. The change of premises resulted in a reduction of premises in Kista by more than 4,000 m².

Minor rebuilding and refurbishment projects completed in 2014
During the summer period it is possible to carry out more extensive rebuilding and renovation of classrooms and study areas, and the following premises were affected in summer 2014:
• In the main building, 43:3, the two large auditoriums D1 and E1 were renovated. KTH changed the fixtures and fittings, including whiteboards, screens and projectors. At the same time the owner, Akademiska Hus, carried out maintenance in the form of floor replacement and repainting.
• In building 43:40 in the machine quarter, study areas, group rooms and the silent reading room were renovated. Old and worn fittings were removed and replaced with new ones. The owner, Akademiska Hus, replaced the corridor lighting.

Other ongoing projects on premises
• New construction and renovation of the premises for the School of Architecture and the KTH entrance are in full swing and the premises will be ready to use in August 2015. The project includes over 11,000 m², of which 7,000 m² is new construction. As a consequence, KTH will completely move out of the current premises belonging to the School of Architecture on Östermalmsgatan.
• The University Board decided in October 2012 to move the teaching of Constructional Engineering and Design to KTH Campus and it was decided to rebuild the partially unused space in building 43:12 (earlier premises for Structural Engineering, etc.) for this activity. The refurbishment work began in August 2014 and the premises will be ready for use in December 2015. The lease has been renegotiated. The project includes approximately 3,900 m².
• As a result of the decision to move the programme Constructional Engineering and Design from Haninge to KTH Campus, and the School of Architecture moving its teaching to the KTH Campus, the number of students at the main campus will increase sharply in autumn 2015. It has been decided to construct new teaching premises in the civil engineering quarter, and leasing contracts were signed with Akademiska Hus in autumn 2014. The project is being carried out in close collaboration with teachers and students, and a key aspect of the planning work is the future learning environment. The new building will be ready for use in autumn 2016.
• In autumn 2012 it was decided that the School of Technology and Health will focus its activities in Huddinge in the future, in new premises adjacent to Karolinska University Hospital. A leasing contract was signed in January 2014. The planned moving-in date is June 2016. The project includes over 12,000 m².
• Parts of the Department for Transport Science are currently in building 43:10, along with the Swedish National Road and Transport Research Institute. An extension is planned to bring the entire department together in a new adjacent building, along with some additional central units at KTH. The building, approximately 5,000 m², will contain mainly administrative offices and is expected to be ready for use at the end of 2016.
• The refurbishment of premises at Valhallavägen 79 (2,943 m²) started in the beginning of 2014, and by January 2015 the building will include a mix of offices and classrooms. New tenants will be OpenLab, KIC InnoEnergy and Stockholm Academic Forum.

Student and visiting researcher housing
Under a government decision that extends to 2015, KTH is allowed to sub-let apartments to students and visiting researchers. The trial period has been extended until the end of 2016. KTH currently provides a large number of student rooms and apartments for exchange students, foreign Master’s students and visiting researchers.

In autumn 2014 KTH provided accommodation for approximately 1,500 students. The rental portfolio comprises 1,050 rooms and apartments. The occupancy rate has been around 83 per cent during the whole year. KTH predicts an increase in international students during the coming years and the need for additional accommodation is likely to increase. Income from charges for these apartments is reported together with other charges in the annual accounts.
Accommodation for visiting researchers is supplied via KTH Relocation, which began operations in late 2012. KTH Relocation has a total portfolio of 129 studios and apartments spread over Greater Stockholm. The occupancy rate is on average 98 per cent. Exceptions from the high occupancy rate are 31 student rooms in Flemingsberg and 28 studios on Campus Roslagen. These have an occupancy rate of about 80 per cent over the year. There are also two guest houses: Matsällskapet in Solna, with an occupancy rate of approximately 65 per cent over the year, and Wallqvist with an occupancy rate of approximately 70 per cent (20 per cent of the rooms were closed for renovation for four months).

More than 600 incoming visiting researchers and newly employed foreign visiting researchers and doctoral students obtained their accommodation through KTH Relocation in 2014. Costs for the Nordita research institute, which previously accommodated all doctoral programme guests in hotels, decreased significantly after they started using the two KTH guest houses in 2014.

The construction of student accommodation on the KTH Campus area continues. The detailed planning process is currently underway and there should be at least 500 housing units in use from 2017.

A new student building will be completed in February 2015 on the central KTH Campus with apartments for students and visiting researchers. An agreement was signed in 2013 with Elite Hotels AB. The building comprises 58 apartments, an assembly hall and a study room.
Finances – outcome, resource utilisation and financing

Financial outcome and changes to capital
Net outcome of SEK 83 million is a considerable increase compared to the previous year’s outcome of SEK 8 million and is somewhat higher than forecasts made during the year.

One explanation for this year’s outcome is that the National Board for Science for Life Laboratory (SciLifeLab) has not yet made a decision on the allocation of parts of the SEK 194 million which KTH received in grant funds for national infrastructure and pharmaceutical research development. Of the year’s grants, SEK 34 million remained to be allocated, but this is not free to be disposed of by KTH; it is earmarked for future activities in the SciLifeLab. At the end of 2013, KTH’s outcome was impacted with SEK 49 million for the same reason. SEK 10 million of the agency capital from 2013 was used in 2014.

One further explanation of this year’s outcome is that the number of full year students (FYS) and full year performance (FYP) was higher than the KTH forecast. KTH was able to set off FYS and FYP against previous years’ saved appropriations. As a result, KTH received SEK 25 million in addition to the year’s ceiling amount of SEK 1,033 million.

KTH turnover increased by 5 per cent in 2014 and amounted to SEK 4,637 million measured as operational revenue, including grants for financing of transfers.

KTH agency capital amounts to SEK 755 million, which corresponds to approximately 16 per cent of the turnover under the above definition. The long-term objective at KTH is for agency capital to be 10 per cent of turnover. Agency capital in research and third cycle education represents 20 per cent of the turnover. KTH agency capital provides continued opportunities to make strategic investments in accordance with the KTH Strategic Plan for 2013–2016.

Income
Operating income increased by 5 per cent and is now SEK 4,243 million, or up SEK 205 million since 2013.

Education at first and second cycle
Income makes up 31 per cent of total revenue. Revenues amount to SEK 1,320 million, which is an increase of approximately 10 per cent compared with the previous year.

Income from grants for first and second cycle education increased by 11 per cent and amounted to SEK 1,063 million. This figure is influenced by the change to the division of the academic year carried out in 2013, which resulted in performance revenues being moved from 2013 to 2014. Setting off FYS and FYP against previous years’ saved appropriations. As a result, KTH has performed over the ceiling amount for 2014 and has been able to utilise SEK 25 million from the previous year’s grant savings. Between 2012 and 2014, however, grants increased by almost 4 per cent.

Income from fees and other remuneration increased by almost 5 per cent and amounted to SEK 193 million. Income from commissioned education decreased compared with the previous year as a result of reduced demand, among other
factors. Charges received from fee-paying students amounted to SEK 59 million, which is SEK 13 million more than 2013. For the first time since the introduction of tuition fees, education of fee-paying students generated a surplus of nearly SEK 3 million in 2014. The accumulated deficit for tuition fee financed education is approximately SEK 7 million.

**Research and third education cycle**
Income represents 69 per cent of total revenues. Income amounted to SEK 2,922 million, which is an increase of approximately 3 per cent compared with the previous year.

Income from research and grants for third cycle education increased by approximately 8 per cent and amounted to SEK 1,064 million, excluding the grants that KTH transfers. Transfers take place to other universities in SFO projects and the SciLifeLab, among others, to the amount of SEK 210 million. Income from fees and other remuneration has increased by approximately 13 per cent, despite the reduction in scope of commissioned education.

Income from grants increased by SEK 32 million and the major part of the increase was through the use of unspent allowances, which continue to decrease.

**Costs**
Operating costs increased by 3 per cent, and now amount to SEK 4,158 million.

**Education at first and second cycle**
The costs continued to account for 31 per cent of KTH’s total costs, which is slightly lower than the previous year. Costs amount to SEK 1,284 million, which is an increase of SEK 32 million compared with the previous year. Staff costs increased by SEK 46 million compared with 2013, while other types of cost decreased.

**Research and third education cycle**
Costs represent 69 per cent of the total expenses. Costs amount to SEK 2,875 million, which is an increase of 3 per cent compared with the previous year. Staff costs increased by SEK 58 million, which is an increase of 3 per cent.

Costs for premises increased by SEK 48 million, and SciLifeLab accounted for an increase of approximately SEK 11 million compared with previous years. Another building was put into operation in the third quarter of 2013, and the increase in cost had full impact during the year. KTH is the lessee for all the premises and charges Karolinska Institutet and Stockholm University, according to their occupancy. KTH moved out of premises in Forum, Kista during the year, which resulted in a one-off rent of almost SEK 16 million. Most of the cost belongs to research and third cycle education. Operating expenses decreased by SEK 2 million and depreciation expenses decreased by SEK 7 million. At the end of 2014 KTH invested in a new supercomputer, Beskow, which will increase depreciation costs next year.
Foundations and donations

Foundation management
There are currently 113 private foundations with legal requirements for administration by KTH. The foundations have been formed through various donations to KTH. During the year, the Foundation Torsten Lindström’s electrical power scholarship ended.

The two oldest foundations managed by KTH have their origin in donations from 1866, when they were deeded to KTH’s predecessor, Kongl. Teknologiska Institutet. These gifts came from Manufacturer Joh. Michaelson and Wällöfliga Borgarestandet in 1866. Both donations were intended to create scholarship funds for destitute students who distinguished themselves through hard work, aptitude and honest behaviour. These foundations continue to distribute scholarships to students at KTH.

Purpose management
In the Foundation Regulations, the purpose of every foundation is stated. KTH-affiliated foundations distributed a total of SEK 23 million in 2014. The largest group of these foundations, 55 in all, award scholarships to students at first and second cycle. It was decided to distribute SEK 7 million through 315 scholarships from the foundations intended for students. Of these, about SEK 4 million were taken from the largest foundation, the Foundation Henrik Göransson Sandviken Scholarship Fund. The Foundation has capital of SEK 102 million, which is primarily invested in securities related to Sandvik AB. Almost 30 foundations award travel grants to teachers, researchers and doctoral students. During the year it was decided to award grants totalling SEK 7 million from these foundations in the form of 309 scholarships. Other foundations contribute to research activities at KTH. Grants amounting to SEK 9 million were awarded to research activities at KTH through 122 scholarships during the year.

The second largest foundation managed by KTH is the KTH Great Prize Foundation, coming from a donation in 1944. The donor, who wished to remain anonymous, stipulated that the prize should go to a Swedish citizen who had great significance for Sweden through historical discoveries, ingenious applications or artistic effort. The prize for 2014 was SEK 1.2 million and was awarded in connection with the KTH conference and inauguration ceremony. The prize was awarded to Professor Sara Snogerup Linse. The jury’s justification was, “Sara Snogerup Linse, through her research in molecular physics, has broadened and developed knowledge about proteins’ biophysical chemistry and their crucial role in some of today’s most common diseases such as diabetes, Alzheimer’s and Parkinson’s. Her passion, commitment and expertise paves the way for new and vitally important knowledge.”

The foundations pay an annual management fee to KTH for costs incurred, amounting to SEK 1.7 million in 2014.

Fundraising
Fundraising consists of strategic, systematic and long-term work to increase private external financing for KTH and should be seen as a complement to traditional financing. In 2014 the Erling-Persson Family Foundation donated SEK 90 million to a new centre for clinical proteomics. The sum will be paid out over a period of five years. Among other donations received during the year was one from the Stockholm Building Society for SEK 10 million, and a further SEK 10 million from the Bertil and Britt Svensson Foundation for Lighting Technology.

<table>
<thead>
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<th>Capital, MSEK</th>
<th>Number</th>
<th>Capital, MSEK</th>
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</thead>
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<tr>
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<td>23</td>
</tr>
<tr>
<td>648</td>
<td>113</td>
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Figure 20
Size and number of foundations
Total 648 msek at end of December 2014
## Financial Statement

In order to provide an overall picture that reflects the character of KTH operations, the Financial Statement is shown not only for this and the precious financial years but also for at five-year period.

<table>
<thead>
<tr>
<th>Operating revenues</th>
<th>2014</th>
<th>2013</th>
<th>2012</th>
<th>2011</th>
<th>2010</th>
</tr>
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<td>Government grants</td>
<td>2,204,918</td>
<td>2,021,228</td>
<td>2,011,781</td>
<td>1,970,901</td>
<td>1,992,218</td>
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<td>Revenues from tuition fees and other charges</td>
<td>426,998</td>
<td>423,844</td>
<td>384,963</td>
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<td>Revenues from grants</td>
<td>1,603,381</td>
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<td>1,522,060</td>
<td>1,431,031</td>
<td>1,205,385</td>
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<td>Financial income</td>
<td>7,528</td>
<td>16,236</td>
<td>29,035</td>
<td>24,563</td>
<td>8,354</td>
</tr>
<tr>
<td><strong>Total operating revenues</strong></td>
<td><strong>4,242,825</strong></td>
<td><strong>4,038,122</strong></td>
<td><strong>3,947,839</strong></td>
<td><strong>3,755,385</strong></td>
<td><strong>3,522,781</strong></td>
</tr>
</tbody>
</table>

| Operating costs | |
|-----------------|------|------|------|------|------|
| Staff costs     | 2,565,289 | 2,460,926 | 2,372,901 | 2,197,870 | 1,994,068 |
| Costs for premises | 737,816 | 698,343 | 643,665 | 621,401 | 583,900 |
| Other operational costs | 679,637 | 684,704 | 678,153 | 630,460 | 598,591 |
| Financial costs | 4,175 | 5,527 | 7,655 | 15,420 | 3,733 |
| Depreciation    | 171,463 | 181,860 | 188,791 | 182,205 | 149,028 |
| **Total operating costs** | **4,158,380** | **4,031,359** | **3,891,163** | **3,647,357** | **3,329,320** |

| Total operating outcome | 84,445 | 6,762 | 56,676 | 108,029 | 193,461 |

| Outcome from shares of subsidiary companies and other interests | -1,806 | 1,337 | 1,091 | -463 | 278 |

| Transfers | |
|-----------|------|------|------|------|------|
| Funds allocated from government budget for financing of grants | 231,449 | 249,144 | 131,048 | 93,573 | 86,371 |
| Funds allocated from government agencies for financing of grants | 118,301 | 90,320 | 101,428 | 89,662 | 86,371 |
| Other funds received for financing of grants | 43,937 | 41,288 | 34,001 | 42,354 | 47,917 |
| Grants made | 393,687 | 380,751 | 266,478 | 228,296 | 193,945 |

| Outcome of transfers | 0 | 0 | 0 | 0 | 0 |

| CHANGES TO CAPITAL FOR YEAR | 82,639 | 8,099 | 57,767 | 107,565 | 193,740 |

Financial Statement per operational area

<table>
<thead>
<tr>
<th>Operating revenues</th>
<th>Education at first and second cycle</th>
<th>Research and education at third cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>Total</td>
<td>First and second level studies</td>
</tr>
<tr>
<td>Government grants</td>
<td>2,204,918</td>
<td>1,063,169</td>
</tr>
<tr>
<td>Revenues from tuition fees and other charges</td>
<td>426,998</td>
<td>152,875</td>
</tr>
<tr>
<td>Revenues from grants</td>
<td>1,603,381</td>
<td>63,506</td>
</tr>
<tr>
<td>Financial income</td>
<td>7,528</td>
<td>868</td>
</tr>
<tr>
<td><strong>Total operating revenues</strong></td>
<td><strong>4,242,825</strong></td>
<td><strong>1,280,417</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operating costs</th>
<th>Education at first and second cycle</th>
<th>Research and education at third cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>Total</td>
<td>First and second level studies</td>
</tr>
<tr>
<td>Staff costs</td>
<td>2,565,289</td>
<td>747,644</td>
</tr>
<tr>
<td>Costs for premises</td>
<td>737,816</td>
<td>273,503</td>
</tr>
<tr>
<td>Other operational costs</td>
<td>679,637</td>
<td>190,854</td>
</tr>
<tr>
<td>Financial costs</td>
<td>4,175</td>
<td>667</td>
</tr>
<tr>
<td>Depreciation</td>
<td>171,463</td>
<td>26,635</td>
</tr>
<tr>
<td><strong>Total operating costs</strong></td>
<td><strong>4,158,380</strong></td>
<td><strong>1,239,304</strong></td>
</tr>
</tbody>
</table>

| Total operating outcome | 84,445 | 41,114 | 412 | -4,824 | 49,990 | -2,247 |

| Outcome from shares of subsidiary companies and other interests | -1,806 | 0 | 0 | 0 | 0 |

<table>
<thead>
<tr>
<th>Transfers</th>
<th>Education at first and second cycle</th>
<th>Research and education at third cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>Total</td>
<td>First and second level studies</td>
</tr>
<tr>
<td>Funds allocated from government budget for financing of grants</td>
<td>231,449</td>
<td>2,551</td>
</tr>
<tr>
<td>Funds allocated from government agencies for financing of grants</td>
<td>118,301</td>
<td>28,639</td>
</tr>
<tr>
<td>Other funds received for financing of grants</td>
<td>43,937</td>
<td>705</td>
</tr>
<tr>
<td>Grants made</td>
<td>393,687</td>
<td>31,896</td>
</tr>
</tbody>
</table>

| Outcome of transfers | 0 | 0 | 0 | 0 | 0 |

| CHANGES TO CAPITAL FOR YEAR | 82,639 | 41,114 | 412 | -4,824 | 48,184 | -2,247 |
# Balance Sheet

## ASSETS

### I. Intangible fixed assets

### II. Tangible fixed assets
- Machines, inventory items, installation etc.: 447,797 (2014), 338,857 (2013)
- Advances concerning tangible fixed assets: 0 (2014), 856 (2013)

### III. Financial fixed assets
- Other investments held as fixed assets: 90 (2014), 90 (2013)

### VI. Receivables
- Receivables - other government agencies: 100,149 (2014), 73,153 (2013)

### VII. Cut-off items
- Other accrued revenues: 2,877 (2014), 16,450 (2013)

### VIII. Settlement with Government

### X. Cash and cash equivalents
- Cash and cash equivalents: 94,943 (2014), 84,466 (2013)

## TOTAL ASSETS

## CAPITAL AND LIABILITIES

### I. Agency capital

### III. Provisions
- Provisions for pensions and similar commitments: 8,942 (2014), 9,882 (2013)

### IV. Liabilities etc.
- Other accounts payable: 0 (2014), 874 (2013)

### V. Cut-off items
- Unutilised grants: 918,815 (2014), 988,702 (2013)
- Other prepaid revenues: 8,718 (2014), 6,897 (2013)

## TOTAL CAPITAL AND LIABILITIES

Contingent liabilities
Licentiate Theses

Degrees awarded during 2014

ARTS

Architecture

CHOI, EUNYOUNG
Walkability as an urban design problem - Understanding the activity of walking in the urban environment

BIOLOGICAL SCIENCES

Biological Physics

OLOSSFON, PER
Quantitative approaches to studying NK cell functional heterogeneity

SHAMBEKOVA, NESTAN
Electrical and optical properties of colloidal quantum dots in cultured human airway epithelial cells

TIBBELIN, SANDRA
HyperSPECT – A New Instrument for High Resolution Single Photon Emission Computed Tomography

WENNBORG, CHRISTIAN
Exploring the Interactive Landscape of Lipid Bilayers

CHEMICAL ENGINEERING

Chemical Engineering

MAHMOUDZADEH ZARANDI, BATOUL
Oxidative dissolution of doped UO$_2$ in Combinations with MALDI and nano-ESI mass spectrometry and computer simulations

MIKKONEN, SAARA
Sample preconcentration in open microchannels: Combining with MALDI and nano-ESI mass spectrometry and computer simulations

NILSSON, KRISTINA
Oxidative dissolution of doped UO$_2$ and H$_2$O$_2$ reactivity towards oxide surfaces – A kinetic and mechanistic study

Materials Chemistry

BURKS, TERRANCE
Functionalized Nanomaterials For The Removal Of Chromium (VI) From Aqueous Solutions

CIVIL ENGINEERING

Civil and Architectural Engineering

ARVIDSSON, THERESE
Train-Bridge Interaction – Literature Review and Parameter Screening

KROUNIS GUERRERO, ALEXANDRA
Uncertainty in Sliding Stability Analyses of Existing Concrete Gravity Dams with Bonded Concrete-Rock Interfaces

MIRZADEH, IMAN
Life Cycle Cost Analysis of Asphalt Pavements

RYDELL, CECILIA
Seismic high-frequency content loads on structures and components within nuclear facilities

SPOSS, JOHAN
A Critical Review of the Observational Method

WENNBORG, CHRISTIAN
Exploring the Interactive Landscape of Lipid Bilayers

Chemical Sciences

Chemistry

BOSSO, KAJA
Thermal Properties of Polyethylene-based Materials

ANDERSSON, RICHARD
Structural Properties and Micromechanics of PMMA-based Electrospun Hybrid Fibers

ANNA JOHANNA NAESS
Macromolecular Design of Polylactide-based Materials for Improved Mechanical and Degradation Properties

HOLLENTZ, REBECA
Dielectric properties of wood fibre components relevant for electrical insulation applications

LINDSAY, ERIK
Long-term Performance of a DEHP-containing NBR Membrane and a Plasticised PVC Cable

WILLGERT, MARKUS
Solid Polymer Lithium-ion Conducting Electrolytes for Structural Batteries

ZHANG, WEIFENG
Chemical Pathways to Electrically Conductive Hemicellulose Hydrogels

Planning and Decision Analysis

AHMADI ACHACHLOUEI, MOHAMMAD
Environmental Impacts of Electronic Media: A Comparison of a Magazine’s Tablet and Print Editions

BROWN, NILS WILLIAM OLOF
Better low-energy buildings: The contribution of environmental rating tools and life-cycle approaches

POULIKIDOU, SOFIA
Integration of Design for Environment in the vehicle manufacturing industry in Sweden - Focus on practices and tools

COMPUTER AND INFORMATION SCIENCE

Computer Science

NAIR, ANU
Modeling receptor induced signaling in MSNs – Interaction between molecules involved in striatal synaptic plasticity

Human-computer Interaction

FORSSLUND, JONAS
Reflective Spatial Haptic Interaction Design

Information and Communication Technology

CASTANEDA LOZANO, ROBERTO
Integrated Register Allocation and Instruction Scheduling with Constraint Programming

CHEN, TINGSU
CMOS High Frequency Circuits for Spin Torque Oscillator Technology

KALAVRI, VASILIKI
Perception Techniques and Tools for Data-Intensive Computation Platforms

MARTINEZ BALLESTEROS, LUIS GUILLERMO
Towards QoE-aware Mobile Infrastructures - QoE-based Resource Management in Mobile Networks

MUDDUKRISHNA, ANANYA
Locality-aware Scheduling and Characterization of Task-based Programs

ROBINO, FRANCESCO
A model-based design approach for heterogeneous Noc-based MPSoCs on FPGA

SHALMASHI, SERBETH
Cooperative Spectrum Sharing and Device-to-Device Communications

TANYINGYONG, VORAVIT
Performance and Reliability in Open Router Device Communications

TIAN, YE
Silicon Carbide Sigma-Delta Modulator for High Temperature Applications
VARISTEAS, GEORGIOS
Cooperative user- and system-level scheduling of task-centric parallel programs

EDUCATIONAL SCIENCE
Education and Communication in the Technological Science
ROOKE, GUNILLA
In Search for Gender awareness in Technology Education

SVÅRDH, JOAKIM
Measuring Long-Term Effects of a School Improvement Initiative

ELECTRICAL ENGINEERING, ELECTRONIC ENGINEERING, INFORMATION ENGINEERING
Electrical Engineering
BRANDT, RASMUS
Coordinated Preceding for Multicell MIMO Networks
FRID DALARSSON, MARIANA
Online power transformer diagnostics using multi- modes of microwave radiation
GARCÍA CARRASCO, AYVARO
Plasma-Facing Components in Tokamaks: Studies of Wall Conditioning Processes and Plasma Impact on Diagnostic Mirrors
GISDAKIS, STYLIANOS
Secure and Privacy Preserving Urban Sensing Systems
GUO, MENG
Cooperative Motion and Task Planning Under Temporal Tasks
HUANG, YALIN
Electricity Distribution Network Planning Considering Distributed Generation
JAKOBSSON, MARTIN
Extensions and Applications of Fast-Lipschitz Optimization
LIANG, KUO-YUN
Coordination and Routing for Fuel-Efficient Heavy-Duty Vehicle Platoon Formation
NAZARI, MOHAMMAD
Control of DC voltage in Multi-Terminal HVDC Transmission (MTDC) Systems
NIKOO, ROYA
Diagnoses of Oil-Impregnated Paper Insulation Systems by Utilizing Lightning and Switching Transients
PACIFICI, VALENTINO
Bandwidth and Storage Allocation for Operator-owned Content Management Systems
PAJECIC, LIUBICA
Opportunistic Networking: Mobility Modeling and Content Distribution

TERELIUS, HÅKAN
Consensus Algorithms in Dynamical Network Systems
TROLLBERG, OLLE
On solution multiplicity and convergence rate in extremum seeking control – With applications to the CANON process
UDDIN, ABU HAMED MOHAMMAD MISBAH
Real-time Search in Large Networks and Clouds
VALENZUELA PACHECO, PATRICIO ESTEBAN
Optimal input design for nonlinear dynamical systems
XU, YUZHE
Decentralized Network Optimization in Wireless Networks

Microelectronics and Applied Physics
YU, XINGANG
Developments of Improved Performance Vertical Cavity Surface Emitting Lasers

ENVIRONMENTAL ENGINEERING
Industrial Ecology
LIU, HONGLING
Crossing the river by feeling the stones – Approaches to Sustainable Urban Development in China
SINGH, JAGDEEP

Land and Water Resource Engineering
MALOVANY, ANDRIY
Ammonium Removal from Municipal Wastewater with Application of Ion Exchange and Partial Nitration/Anammox Process
MKUMBO, STALIN
Development of a Low Cost Remediation Method for Heavy Metal Polluted Soils

HEALTH SCIENCES
Technology and Health
HALLING, BENGT
Lean implementation – the significance of people and dualism
KOTHAPALLI, VEERAVENTHAKRISHNAN
Ultrasound Contrast Agents Loaded with Magnetic Nanoparticles: Acoustic and Mechanical Characterization
LINDSKOG, PERNILLA
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The housing adaptation grant in Swedish municipalities – cost variations and grant handling process

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From Vision to Transition – Exploring the Potential for Public Information Services to Facilitate Sustainable Urban Transport

INDUSTRIAL BIOTECHNOLOGY
Biotechnology
HASSAN, NOOR
Biochemical and structural characterization of two thermostable carbohydrate-active enzymes with potential in biotechnological applications
SONG, YAJING
Advances in DNA Detection on Paper Chips

MATERIALS ENGINEERING
Engineering Mechanics
APPELQUIST, ELLINOR
Direct numerical simulations of the rotating-disk boundary-layer flow
ASHWAT, NASSER ALI MOHAMMED OMAR
Vibration Frequencies as Status Indicators for Tensegrity Structures
FABBIANE, NICOLA
Adaptive and model-based control in laminar boundary-layer flows
KHAPKO, TARAS
Transition to turbulence in the asymptotic suction boundary layer

LASHGARI, IMAN
Global stability analysis of complex fluids
NOORANI, AZAD
Lagrangian Particles in Turbulence and Complex Geometries
ROSEN, TOMAS
The influence of inertia on the rotational dynamics of spheroidal particles suspended in shear flow
TRIP, RENZO
An experimental study on the wake behind a rectangular foreshore with variable inlet conditions
WENG, CHENYANG
Modeling of Sound-turbulence Interaction in Low-Mach-number Duct Flows
ZHAN, CAIJUAN
On the behavior of motile microbes in Fluid Flow

Materials Science
CAVA, CARLOS EDUARDO
Memory Effects on Iron Oxide Filled Carbon Nanotubes
LI, SHEN
First-principles studies of Thermoelectric Materials
ZHOU, JING
Experimental study of phase separation in Fe-Cr based steels
Materials Science and Engineering

BU, JUNFU
Exploratory Study of Novel Materials Used for Intermediate Temperature Solid Oxide Fuel Cell (IT-SOFC) Electrolytes

DAVYDENKO, ARKADY
Some aspects of recycling of rest products and slag foaming in the EAF during stainless steel production

KAPLAN, BARTEK
Experimental and theoretical study of carbides in the Co-Cr-C system

KASEDDE, HILLARY
Characterization of Raw Materials for Salt Extraction from Lake Katwe, Uganda

LI, XIAOQING
Mechanical Properties of Transition Metal Alloys from First-Principles Theory

SVENSSON, JENNIE
The Submerged Entry Nozzle – A Study of how to Reduce Decarburization and Clogging

WANG, GUISHENG
The Effect of Long Range Order on Elastic Properties of Alloys

VAZEHRAD, SADAF
A Study on Factors Influencing the Microstructure and Shrinkage Porosity Formation in Compacted Graphite Iron

YANG, YING
Inclusion Behaviour under a Swirl Flow in a Continuous Casting Process

ZHOU, XIAOQING
Mathematical and physical simulation of a BOF converter

Metallurgical Process Science

ROOS, ERIK
A Study of Factors Influencing Nozzle Clogging of Special Steel Grades during Continuous Casting

SVIDRÓ, PÉTER
Study of Solidification and Volume Change in Lamellar Cast Iron with Respect to Defect Formation Mechanisms

MATHEMATICS

Applied and Computational Mathematics

ARJMAND, DOGHONAY
Analysis and Applications of the Heterogeneous Multiscale Methods for Multiscale Elliptic and Hyperbolic Partial Differential Equations

GUDMUNDSSON, THORBJÖRN
Markov chain Monte Carlo for rare-event simulation in heavy-tailed settings

LÖFDAHL GRELSSON, BJÖRN
Stochastic modelling in disability insurance

Mathematics

GRECO, ORNELLA
Bounds on Hilbert Functions

LUNDMAN, ANDERS
Classifying Lattice Polytopes

MECHANICAL ENGINEERING

Energy Technology

MONACO, LUCIO
Remote Laboratories in the Training of Turbomachinery Engineering Students

MORFELDT, JOHANNES
Tools for Evaluating Energy Efficiency of Steel Production – Lessons from Sweden and Europe

SANZ LUENGO, ANTONIO
Experimental Investigation of the Influence of Local Flow Features on the Aerodynamic Damping of an Oscillating Blade Row

Machine Design

ANDERSSON, MARTIN
Churning losses and efficiency in gearboxes

PIRNAROV, ABDURASUL
On forestry machine and soil interaction for sustainable forestry

Production Engineering

DAEMI, BITA
Image analysis for precision metrology – Verification of micro-machining systems and aerodynamic surfaces

FRANGOUDIS, CONSTANTINOS
Controlling the dynamic characteristics of machining systems through consciously designed joint interfaces

LIEDER, MICHAEL
Integrated evaluation of resource efficiency and cost effectiveness in production systems

PERVAIZ, SALMAN
Investigating Cooling and Lubrication Strategies for Sustainable Machining of Titanium Alloys

SHARIAT ZADEH, NAVID
Manufacturing Process Specification – Information requirements and representation for concurrent material flow analysis and layout design

Vehicle and Maritime Engineering

LUNDBERG, OSKAR
Vibrations induced by surface roughness in non-linear rolling contacts

MÄRTEMSSON, PER
Cost and weight effective composite design of automotive body structures

ÖSTERLÖF, RICKARD
Modelling of the Fletcher-Gent effect and obtaining hyperelastic parameters for filled elastomers

MEDICAL TECHNOLOGY

Applied medical technology

ABTAHI, SEYEDFARHAD
Aspects of Electrical Bioimpedance Spectrum Estimation

PHILOSOPHY, ETHICS AND RELIGION

Philosophy

BAARD, PATRIK
Sustainable Goals – Feasible Paths to Desirable Long-Term Futures

BÜLOW, WILLIAM
Ethics of Imprisonment Essays in Criminal Justice Ethics

STENKVIST, ANNA
Pictures and Mathematics Essays on Geometrical Representation, Pictorial Realism and Representational Abilities

PHYSICAL SCIENCES

Physics

ALMLÖF, JONAS
Quantum error correction

LUKINOV, TYMOFIY
Atomistic modeling of materials under extreme conditions

RIAD, STELLA
Studies of effective theories beyond the Standard Model

SOLTANMORADI, REYHANEH
Micro- and nano-structured metal films for opto-electronic devices

TJÖRHAMMAR, STAFFAN
Thermal Properties of Volume Bragg GRATings and its Implications on Lasers
Degrees awarded during 2014

**ARTS**

**Architecture**

**LEGEBY, ANN**
Patterns of co-presence – Spatial configuration and social segregation

**BIOLOGICAL SCIENCES**

**Biological Physics**

**GULDEVALL, KAROLIN**
Single Cell Investigations of the Functional Heterogeneity Within Immune Cell Populations

**XU, LEI**
Development and application of ultra-sensitive fluorescence spectroscopy and microscopy for biomolecular interaction studies

**CHEMICAL ENGINEERING**

**Chemical Engineering**

**KLETT SARMENTERO, MATILDA**
Electrochemical Studies of Aging in Lithium-Ion Batteries

**LIU, JIN**
Influence of fluid shear on primary nucleation of organic compounds in solution

**OYARCE BARNETT, ALEJANDRO**
Electrode Degradation in Proton Exchange Membrane Fuel Cells

**PERSSON, JOHANNES**
Low-energy buildings – Energy use, indoor climate and market diffusion

**REXED, IVAN**
Applications for Molten Carbonate Fuel Cells

**SVENS, PONTUS**
Methods for Testing and Analyzing Lithium-Ion Battery Cells intended for Heavy-Duty Hybrid Electric Vehicles

**Corrosion Science**

**HOSSEINPOUR, SAMAN**
Molecular studies of initial atmospheric corrosion of copper - Exploration of ultra-sensitive techniques for the inhibiting effect of self assembled monolayers, and the effect of gamma radiation

**JAFAR ZADEH, SHAOD**
Functional composite coatings containing conducting polymers

**VIKLUND, PETER**
Superheater corrosion in biomass and waste fired boilers – Characterisation, causes and prevention of chlorine-induced corrosion

**Fibre and Polymer Science**

**AMINLASHGARI, NINA**
LDI-MS strategies for analysis of polymer degradation products, additives and drugs

**ANDERSSON, RICHARD**
Micromechanical, Antimicrobial and Filtration Properties of Electrospun Fiber Mats

**BOHN LIMA, RAQUEL**
Establishment of lignin and other bio-renewable materials as fuels and material developments for better performance for fuel cell technology

**BRUCE, CARL**
Surface Modification of Cellulose by Covalent Grafting and Physical Adsorption for Biocomposite Applications

**CARLSSON, LINN**
Surface Modification of Cellulose by Covalent Grafting and Physical Adsorption

**FALL, ANDREAS**
Colloidal interactions and orientation of nanocellulose particles

**GUSTAFSSON, EMIL**
Tailoring Adhesion and Wetting Properties of Cellulose Fibres and Model Surfaces Using Layer-by-Layer Technology

**HELANDER, MIKAELA**
The Use of Membrane Filtration to Improve the Properties of Extracted Wood Components

**LE NORMAND, MYRIAM**
Spruce Bark Polysaccharides Extraction, Characterization and Valorization

**MUSHI, NGESA EZEKIEL**
Chitin nanofibers, networks and composites – Preparation, structure and mechanical properties

**SAADATMAND, SOHEIL**
Bio-based barriers from wood hydrolysates – A pilot-scale approach

**UNDIN, JENNY**
Functional Degradable Polymers by a Radical Chemistry Approach

**WANG, YAN**
Pretreatment and Enzymatic Treatment of Spruce – A functional designed wood components separation for a future biofinery

**WILLGERT, MARKUS**
Solid Polymer Lithium-Ion Conducting Electrolytes for Structural Batteries

**ZHANG, XIAN**
Biolubricants and Biolubrication – Microstructure, corrosion initiation, patina evolution and metal release

**Materials Chemistry**

**NIKKAM, NADER**
Engineering Nanofuels for Heat Transfer Applications

**SALEEMI, MOHSIN**
Nano-Engineered Thermoelectric Materials for Waste Heat Recovery

**Theoretical Chemistry and Biology**

**JI, YONGFEI**
Theoretical Studies on the Molecular Mechanisms of Photo-Catalytic Reactions on TiO₂ Surfaces

**LI, HONGBAO**
Conformations of Amino Acids Characterized by Theoretical Spectroscopy
MIAO, QUAN
Nuclear Dynamics in Linear and Non-linear X-ray Processes

SUN, LU
Stability and Growth of Composite Atmospheric Nanoclusters Studied by Molecular Dynamics Simulations

WANG, YING
Theoretical Studies on Water Splitting Using Transition Metal Complexes

CIVIL ENGINEERING

Civil and Architectural Engineering
ABDI, ADEL
Efficient Winter Road Maintenance - A Study of Technical and Contractual Issues

BRYNE, LARS-ELF
Time Dependent Material Properties of Shotcrete for Hard Rock Tunnelling

DAS, PRABIR KUMAR
Ageing of Asphalt Mixtures - Micro-scale and mixture morphology investigation

GOHARDANI, NAVID
An Approach Towards Sustainable Building

GONZALEZ SILVA, IGNACIO
Application of Monitoring to Dynamic Characterization and Damage Detection in Bridges

PLOSIC, ADNAN
Technical solutions for low-temperature heat emission in buildings

Geodesy and Geoinformatics
QIN, YUCHU
From LiDAR Waveform to Urban Land Cover Map - Modeling, Processing and Application

SKOG, LARS E
Spatial Analysis and Modeling for Health Applications

Infrastructure
ALEMU, BELACHEW YIRSAW
Expropriation, Valuation and Compensation in Ethiopia

AMBAYE, DANIEL WELEDEGBRIEL
Land Rights and Expropriation in Ethiopia

Planning and Decision Analysis
BERNHARD, IRÉNE
E-government and E-governance – Local Implementation of E-government Policies in Sweden

DYMÉN, CHRISTIAN
Engendering Spatial Planning – A Gender Perspective on Municipal Climate Change Response

EKENER PETERSEN, ELISABETH
Tracking down Social Impacts of Products with Social Life Cycle Assessment

KRAMERS, ANNA H
Smart Cities and Climate Targets - Reducing cities’ energy use with ICT and travel information

SHAHRAKI, ABDOUL AZIZ
Sustainable new towns in Iran – Reflections on problems and practices of urban planning and design using case studies

YIN, YING
Environmental Integration in Sustainable Urban Planning from an Institutional Perspective – A Study of Swedish and Chinese Eco-City Development

Transport Science
AHMED, ABUBEKER
Mechanistic-Empirical Modelling of Flexible Pavement Performance – Verifications Using APT Measurements

HESAMI, EBRAHIM
Characterisation and Modeling of Asphalt Mastics and Their Effects on Workability

LAURELL, ÅSA
A Fundamental Adhesion Model for Asphalt

LINDBERG, PER OLOV
Contributions to Probabilistic Discrete Choice

WANG, QIAN
Four Essays on Travel Behaviour Modeling

YIDETI, TATEK
Packing theory-based Framework for Performance Evaluation of Unbound Granular Materials

COMPUTER AND INFORMATION SCIENCE

Computer Science
AGHAZADEH, OMID
Data Driven Visual Recognition

BANLIU, MUSARD
Logics for Information Flow Security: From Specification to Verification

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Human 3D Pose Estimation in the Wild using Geometrical Models and Pictorial Structures

DE OLIVEIRA OLIVEIRA, MATEUS
Combinatorial Slice Theory

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Real Estate and Construction Management
UITTENBOGAARD, ADRIAAN CORNELIS
Crime Clusters and Safety in Underground Stations

Human-computer Interaction
JACOBSSON, MATTIAS
Tinkering with Interactive Materials - Studies, Concepts and Prototypes

MOLL, JONAS
The Influence of Modality Combinations on Communication in Collaborative Virtual Environments

NILSSON, MARCUS
Mediated and Mobile Communication for Experts

Information and Communication Technology
DENTONI LITTA, EUGENIO
Integration of Thulium silicate for enhanced scalability of high-k/metal gate CMOS technology

FERRER COLL, JAVIER
Channel Characterization and Wireless Communication Performance in Industrial Environments

KANG, DU HO

LANNI, LUIGIA
Silicon Carbide Bipolar Technology for High Temperature Integrated Circuits

NIKITA CALDERON, NATALIA
Software Process Improvement Framework

OBREGON GAMARRA, EVANNY CAROL
On the Deployment of Large-Scale High-Capacity Wireless Systems with Secondary Spectrum Access

RAHMIAN, FATEMEH
Gossip-Based Algorithms for Information Dissemination and Graph Clustering

ROVERST, ROBERTO
A System, Tools and Algorithms for Adaptive HTTP-like Streaming on Peer-to-peer Overlays

SHARIF MANSOURI, SHOHREH
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