



Attracting Young Talent into Engineering

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National R&D Framework (2006-2010)



Cabinet

Research, Innovation & Enterprise Council (RIEC)

Ministry of Education

Ministry of Trade & Industry

National Research Foundation (NRF)

Academic Research Fund (AcRF)

A*STAR

EDB

R&D Performers

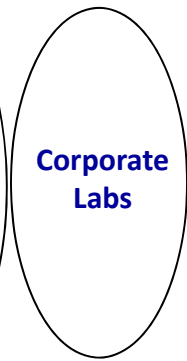
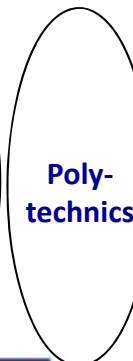
Universities



A*STAR Research Institutes



Hospitals



Basic Investigator-led Research

Basic Mission Oriented Research

Applied Industrial Research

Development

Enterprise

A*STAR Graduate Academy

Our Mission



Agency for
Science, Technology
and Research

**Fostering world-class scientific research and talent for
a vibrant knowledge-based Singapore**





Agency for
Science, Technology
and Research

Chairman A*STAR

MD A*STAR

**Science &
Engineering
Research
Council**

**Joint
Council
Office**

**Biomedical
Research
Council**

**A*STAR
Graduate
Academy**

**Corporate
Group**

Research Institutes (RIs)

BMRC has 7 RIs and
5 Research Consortia
SERC has 7 RIs.

Other Scientific Services Outfits

- Biopolis Shared Facilities
- Biological Resource Centre
- National Breeding Centre
- Singapore Tissue Network
- National Metrology Centre
- Computational Resource Centre

Commercialization Outfits

- Exploit Technologies
- Experimental Therapeutics Centre
- Industry Development Group (BMRC)



A*STAR 3C Strategy



Human Capital

Investing in Talent

- To promote manpower training and development in S&T
- To undertake the promotion of S&T to increase public awareness and understanding



Intellectual Capital

Creating a World Class Research Environment

- To promote the commercial application of scientific knowledge and technology in Singapore through industry engagement and collaboration, R&D investment promotion, and active commercialisation of its intellectual property,



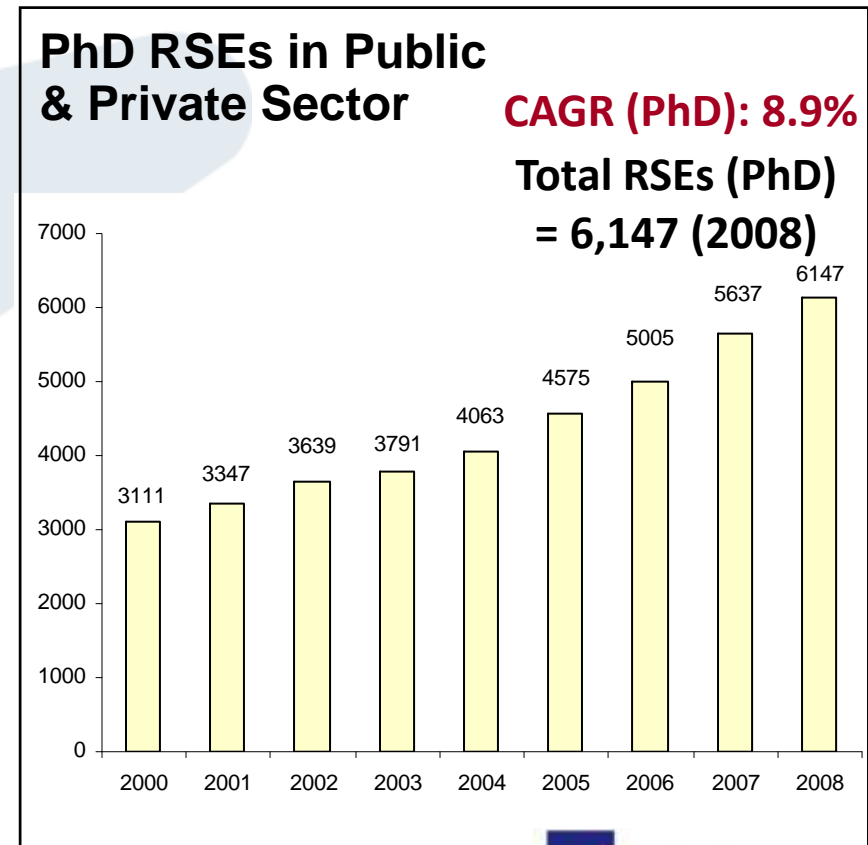
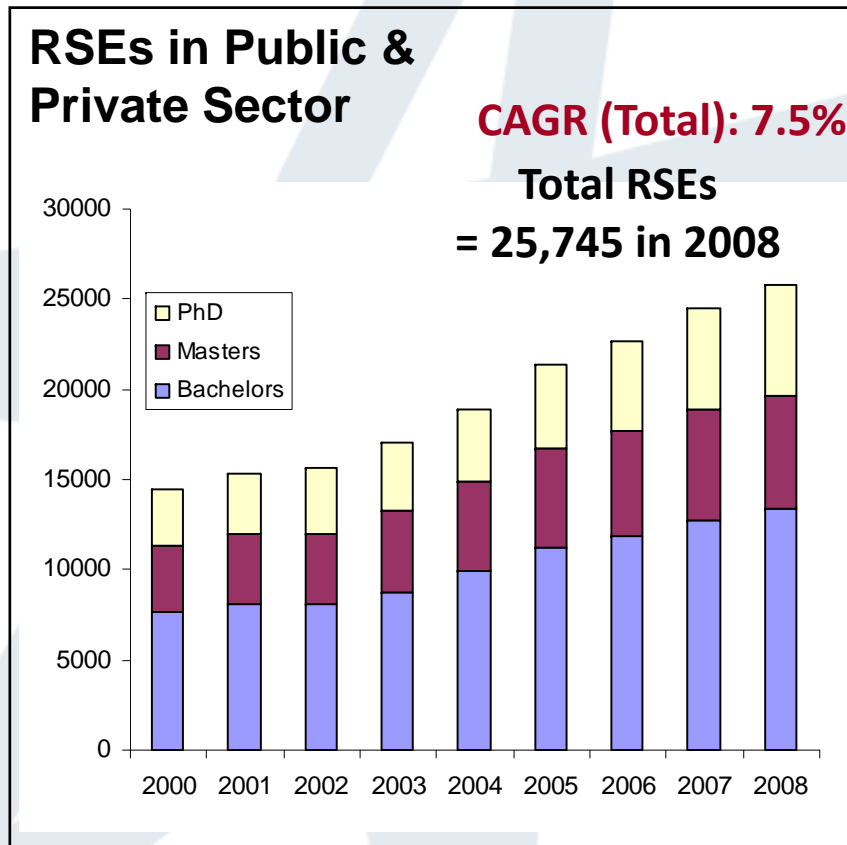
Industrial Capital

Collaborating with Industry

- To direct and undertake mission-oriented R&D in the areas of S&T
- To provide extramural R&D grants for the larger research community in Singapore

PhD Talent in the Workforce

- Number of RSEs in Singapore has grown at 7.5% since 2000
- Number of RSEs with PhD has grown at 8.9% since 2000

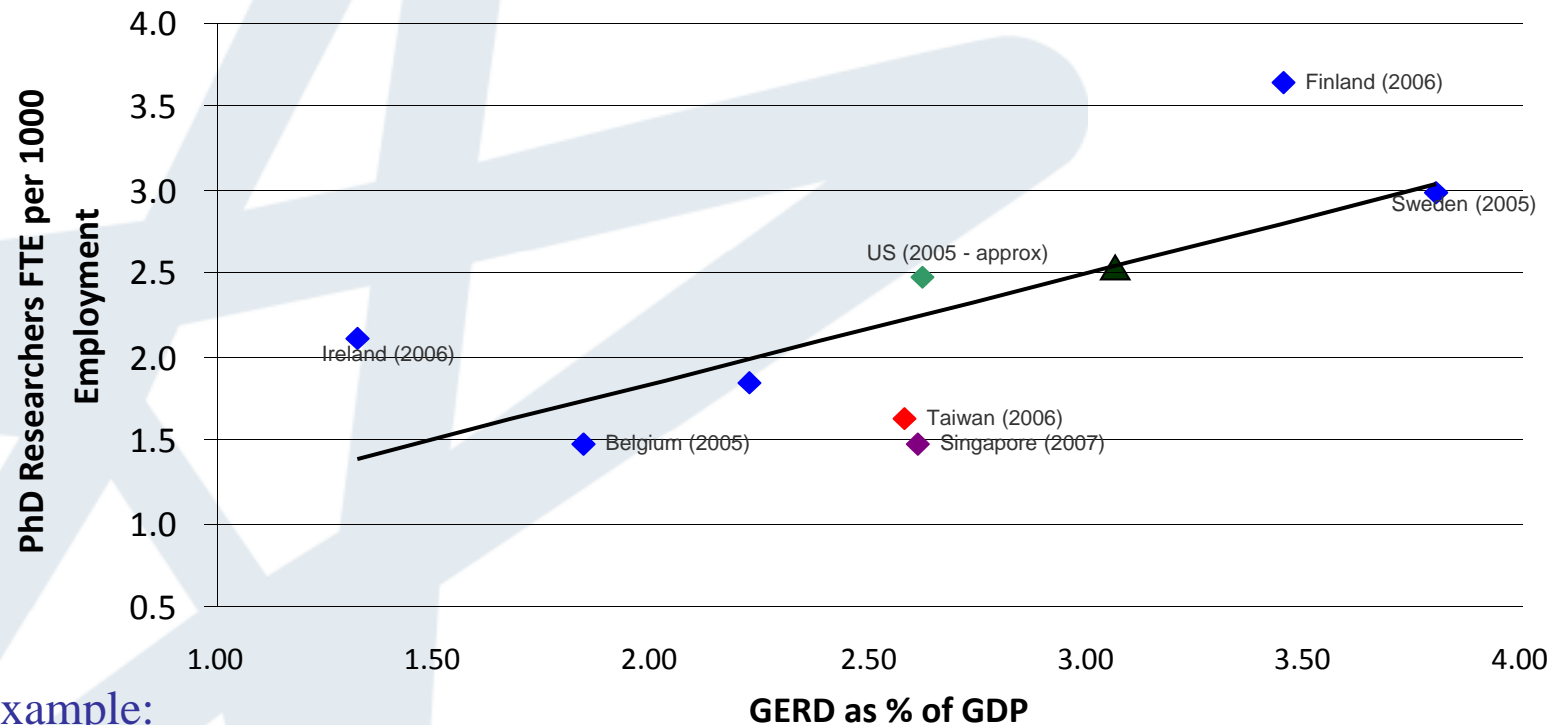


Source: Annual National Survey of R&D in Singapore

PhD Talent in the Workforce

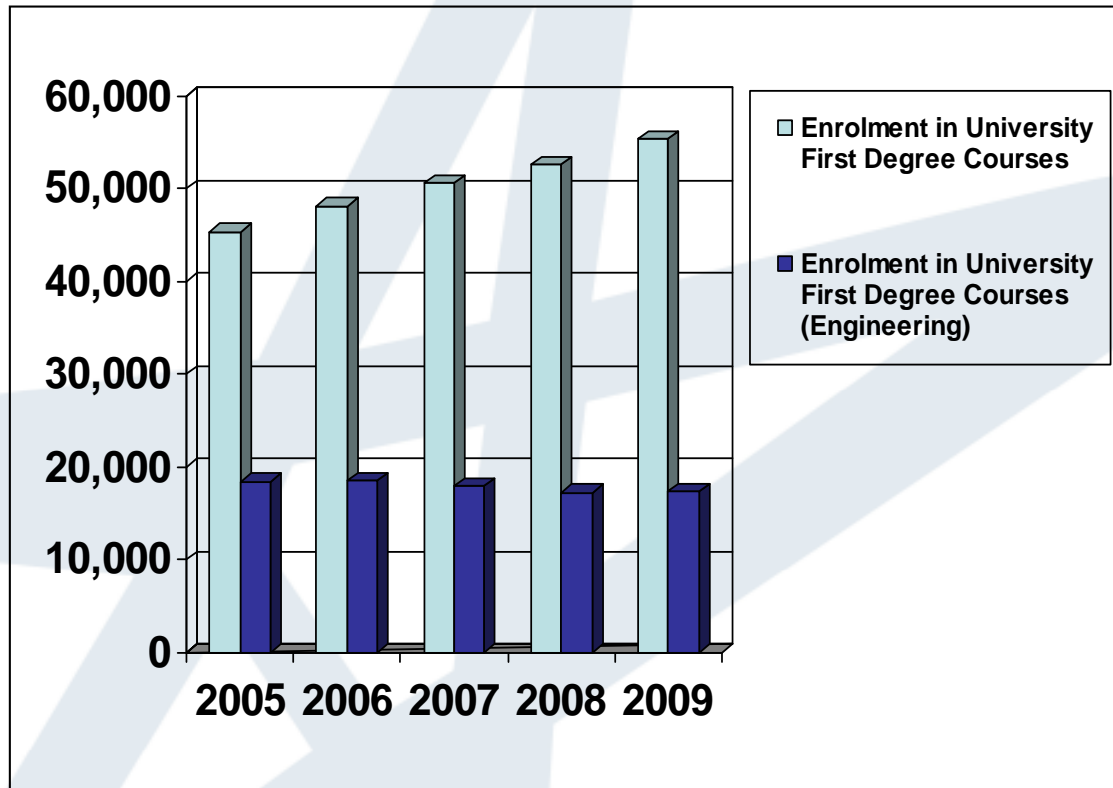
Singapore's PhD RSE Intensity is significantly below benchmark countries.

GERD as % of GDP and PhD Researcher Intensity



- Example:
 - ~ Sweden has 26,100 PhD researchers out of 4.3 million workforce employment (in 2005)
 - ~ Singapore has 5,600 PhD researchers out of 2.7 million workforce employment (in 2007)
- (Source: OECD)

Enrolment in Engineering Disciplines in University



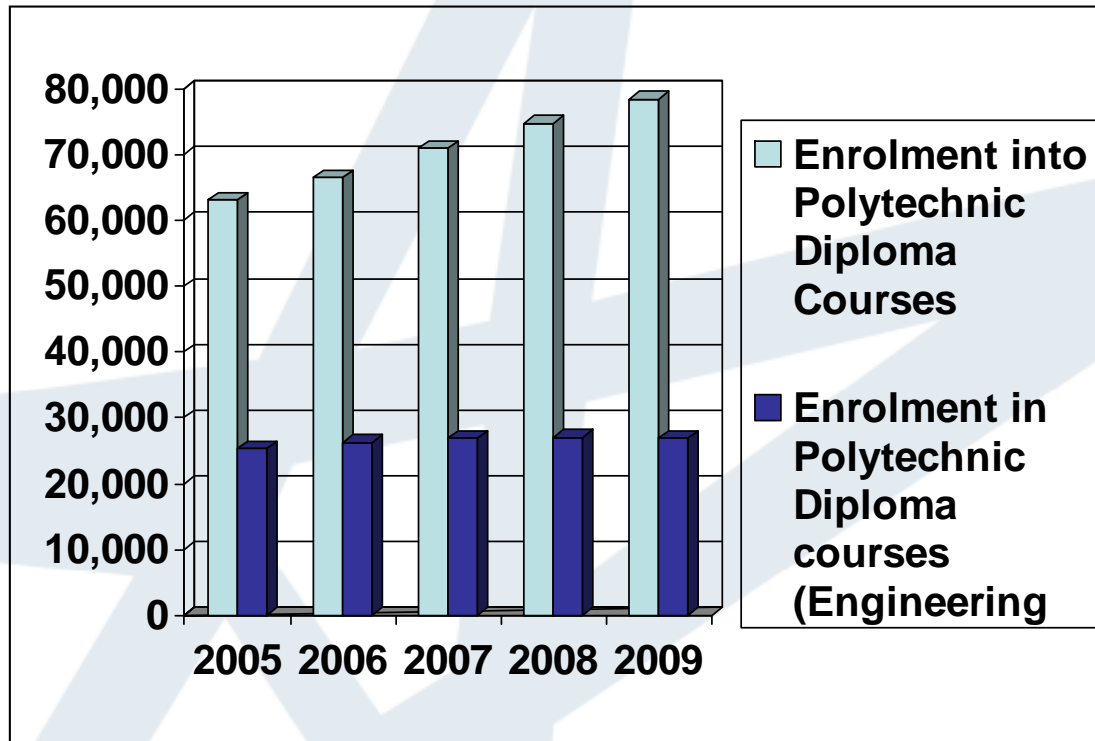
- Enrolment in Engineering disciplines as first degree course has declined over the past 5 years

Source: National University of Singapore

Nanyang Technological University

Singapore Management University

Enrolment in Engineering Disciplines in Polytechnics

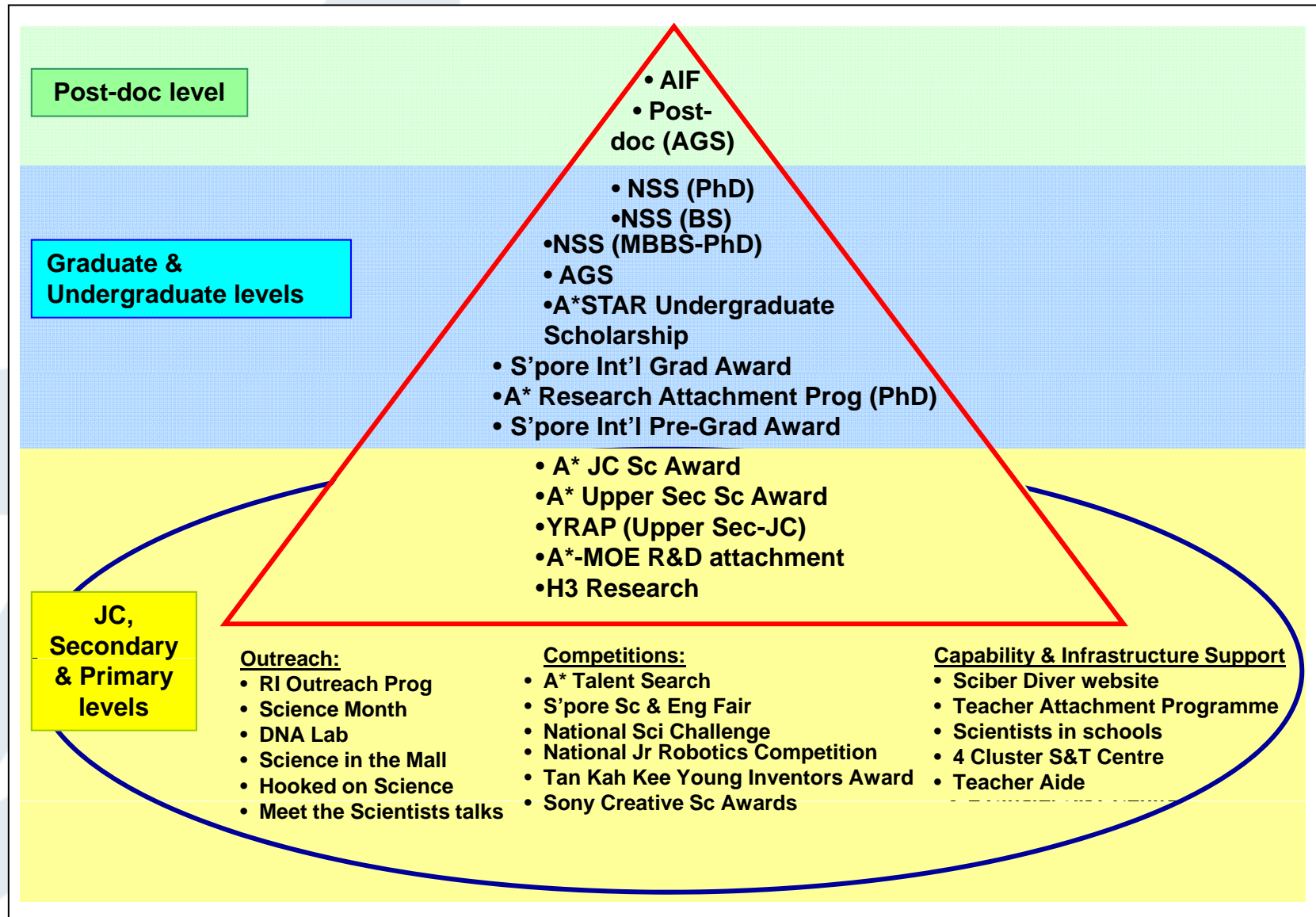


- Enrolment in Engineering disciplines courses has declined over the past 5 years in polytechnics

Source: Singapore Polytechnic
Ngee Ann Polytechnic
Temasek Polytechnic

Nanyang Polytechnic
Republic Polytechnic

A*STAR Graduate Academy's Human Capital Development Programmes



Building a Vibrant Community of Local Research Talent

A*STAR has nurtured a **pipeline of 1,000 local PhD Talent** since 2001



- ✓ 75% pursuing BS/PhD/post-doc training
- ✓ 25% completed training and deployed
- ✓ Multiple pathways & early career development for young PhDs

National Science Scholarship

- Provides opportunities for undergraduate studies at some of the world's finest universities in Biomedical Sciences, Physical Sciences and Engineering disciplines.
- Chance to work in some of the world's renowned research institutes and learn from the best scientific minds.



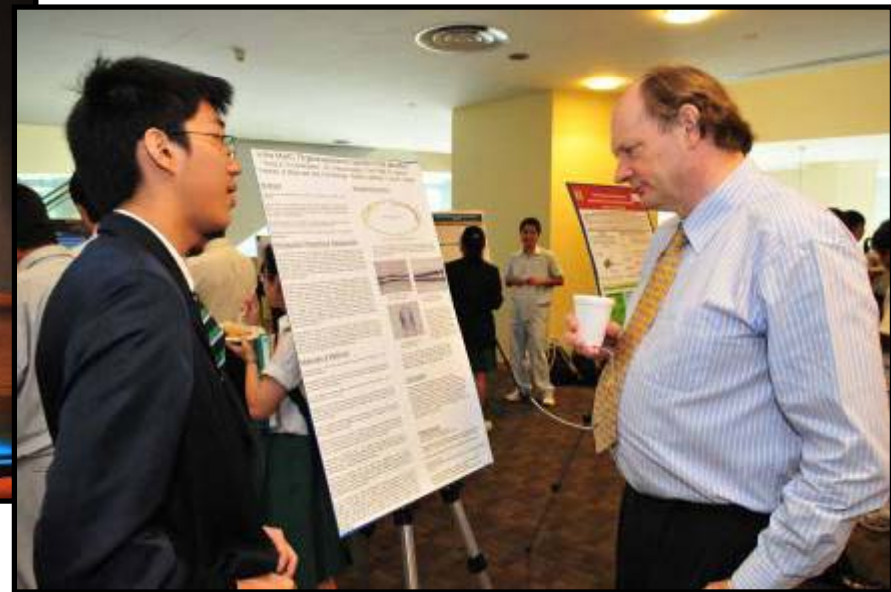
Young Talent Awards

- A*STAR Science Awards and the Young Researchers Attachment Programme for Upper Secondary to Junior College students who demonstrate strong aptitude and interest in Math and Science.
- Awardees given opportunity to gain insight into scientific research through visits, attachments, workshops and talks by scientists and visiting Nobel Laureates.



A*STAR-MOE Research Attachment Programme

- For JC 1 Level students
- 4 – 5 week attachment programme in Nov/Dec exposing JC 1 students to the R&D culture in A*STAR research institutes and stimulate their interest in Science
- Jointly organized by A*STAR and MOE



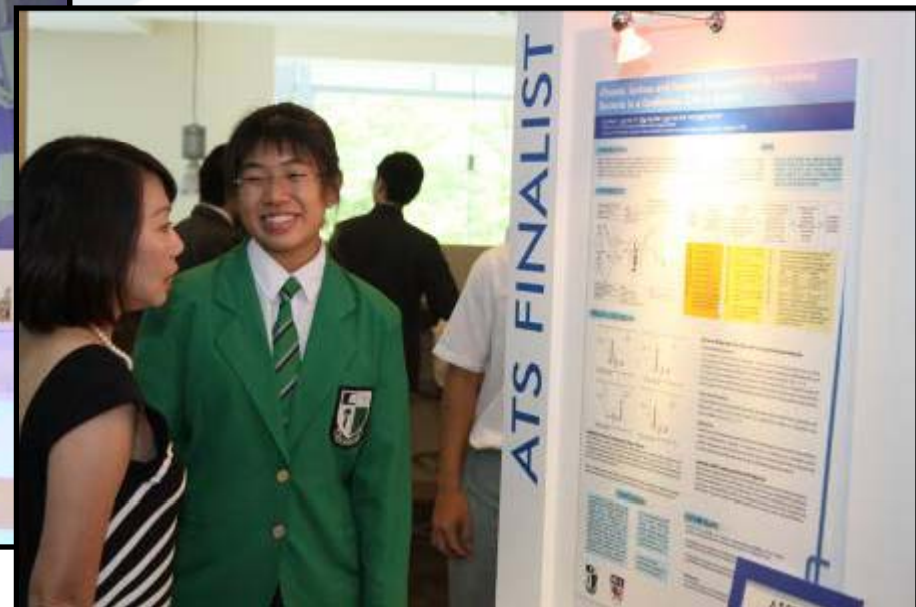
Singapore Science and Engineering Fair (SSEF)

- Open to Secondary and Junior College students
- Annual S&T research project organized by MOE, A*STAR & Science Centre
- Winners represent Singapore in the prestigious Intel International Science & Engineering Fair (ISEF) in USA
- 10th anniversary in 2010



A*STAR Talent Search

- Open to Secondary and JC Students
- Competition to seek out students with potential to excel in S&T research
- Students will be interviewed by distinguished panel of judges, including a Nobel Laureate as Chief Judge



National Science Challenge

- Science gameshow on MediaCorp Channel 5 to promote Science education & foster creativity
- Viewership rating of more than 375,000 in 2010



Competitions & Outreach

– Sony Creative Science Award

- *Students exercise imagination and creativity to make toys that function on basic scientific principles*

– National Junior Robotics Competition

- *Largest national robotics competition*

– Tan Kah Kee Young Inventors Award

- *Organised by Tan Kah Kee Foundation to stimulate creativity and innovative thinking among students*

– Science Buskers Festival

- *Develops individual's communication skills through expressions of science in creative manners.*

Sony Creative Science Award



Tan Kah Kee Young Inventors Award



Science Buskers Festival



National Junior Robotics Competition

Science Outreach to Students & Public

- Meet the Scientist
- Singapore Science Festival & X-periment!
- Science in the Mall



Raising Awareness through the Media

SPECIAL REPORT



Raising Awareness through the Media



Dr Fatima Rugrungruang is a research engineer at the Singapore Institute of Manufacturing Technology (SIMTech) who focuses on carbon footprint assessment. She is surrounded by some of the latest innovations from the Agency for Science, Technology and Research (A*Star), including flexible lighting sheets which can be self-fit to make luminous maps and X-rays. ST PHOTO: ASHLEIGH SIM

Revealing the hidden allure

Engineering aims to show that it's
still a cool and sexy profession



NTU's Associate Professor Goh Wang Ling, who oversees outreach and external relations at the College of Engineering, hopes to attract more students to take up engineering at NTU through projects like the Unmanned Aerial Vehicle and Nanoyang Venture II which will be showcased during the Engineer's Day exhibition. PHOTO: NTU

A day for engineers

ORCHARD'S retail attractions will have some competition in early September, with spacecraft, solar-powered cars, and even humanoid robots **COMPETING FOR ATTENTION** alongside the top brands along Singapore's retail drag.

The exhibits will form part of Singapore's very first National Engineers Day (NED) Exhibition, organised by the Institution of Engineers Singapore (IES) and supported by the Institutes of Higher Learning.

"Students are not exposed to what is behind the scenes," said Dr Lock Kai Sang, chairman of the NED committee, explaining why the annual day on Sept 4 had been thought up.

The 15 co-organisers will be contributing exhibits, conducting workshops and arranging site visits for students from Sept 4 to 9 so that they can gain a new appreciation of the field.

Member of Parliament and former president of IES Lee Bee Wah, who first floated the Engineers Day concept, says that the site visits are what

**The Straits Times
Special Report on
31 July 2010**

Five page feature on
the engineering
profession, featuring
cool innovations,
research engineers
and engineering
challenges and
opportunities.



Thank you