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

Basic Investigator-led Research

Basic Mission Oriented Research

Applied Industrial Research

Development

Enterprise

Polytechnics

Corporate Labs

Hospitals

National University of Singapore

NATIONAL UNIVERSITY OF SINGAPORE

Nanyang Technological University

SMART CREATE

Centre for Quantum Technologies

Earth Observatory of Singapore

Agency for Science, Technology and Research

Singapore General Hospital

SingHealth

Singapore Polytechnic

Corporate Academies
Our Mission

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

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

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,

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

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, Nanyang Polytechnic, Ngee Ann Polytechnic, Republic Polytechnic, Temasek Polytechnic
A*STAR Graduate Academy’s Human Capital Development Programmes

- AIF
- Post-doc (AGS)
- NSS (PhD)
- NSS (BS)
- NSS (MBBS-PhD)
- AGS
- A*STAR Undergraduate Scholarship
- S’pore Int’l Grad Award
- A* Research Attachment Prog (PhD)
- S’pore Int’l Pre-Grad Award
- A* JC Sc Award
- A* Upper Sec Sc Award
- YRAP (Upper Sec-JC)
- A*-MOE R&D attachment
- H3 Research

Outreach:
- RI Outreach Prog
- Science Month
- DNA Lab
- Science in the Mall
- Hooked on Science
- Meet the Scientists talks

Competitions:
- A* Talent Search
- S’pore Sc & Eng Fair
- National Sci Challenge
- National Jr Robotics Competition
- Tan Kah Kee Young Inventors Award
- Sony Creative Sc Awards

Capability & Infrastructure Support
- Sciber Diver website
- Teacher Attachment Programme
- Scientists in schools
- 4 Cluster S&T Centre
- Teacher Aide
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
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.
Science Outreach to Students & Public

- Meet the Scientist
- Singapore Science Festival & X-periment!
- Science in the Mall
Raising Awareness through the Media

SPECIAL REPORT

The hidden allure

Engineering throws off its stuffy image to reveal a sexy side, as companies and institutes here work on a facelift for the profession. Chang Ai-Lien, Sumita Sami and Daryl Lim report.

Dr Fatima Rungaunguang is an assistant research scientist at A*STAR.
Raising Awareness through the Media

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