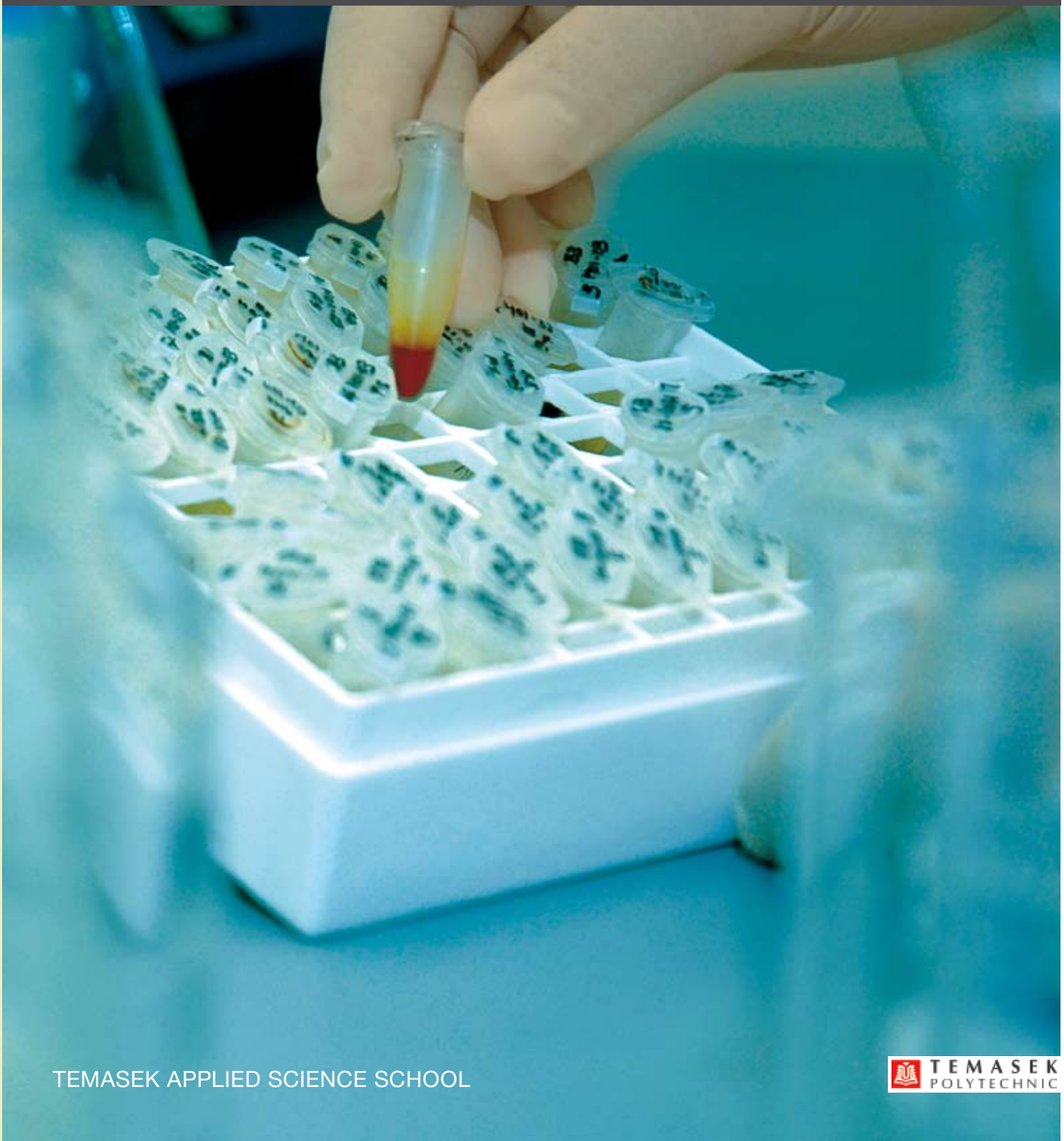
ASCIENTIA

PASSION TO MAKE IT HAPPEN!



TEMASEK APPLIED SCIENCE SCHOOL

TEMASEK POLYTECHNIC

ASCIENTIA

PASSION TO MAKE IT HAPPEN!

A combination of the acronym for Temasek Applied Science School, 'ASc', and the Latin word 'scientia' (which means knowledge, science or skill).

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The AScientia Team

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The team extends its appreciation to all who have helped in the production of this magazine.

HUNT FOR PROTEINS Developing Capabilities in Proteomics

The study of proteomics burst into the biomedical research scene a few years ago when scientists all over the world recognised its potential for diagnostics, therapeutics, prognostics and disease prevention. Proteomics is the study of the global protein content, also known as the proteome.

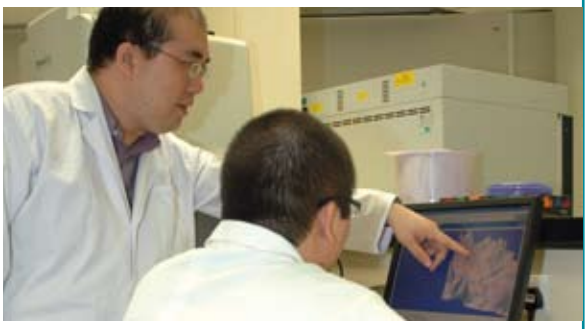
Since 2003, ASc has sought to develop in-house capabilities in proteomics to provide training for students and staff so that their skill-sets remain relevant to the industry. ASc had approached the process of capability development through staff training, facility building and collaborative projects with the industry.

1. A PhD staff was sent overseas for an 18-month proteomic-oriented industrial attachment to BD Diagnostics in the United States. The staff has since returned and is actively driving the proteomics capability development at ASc.

2. A Proteomics Research Facility has been set up at the new Temasek Applied Science Research Centre. The laboratory is equipped with state-of-the-art MALDI TOF/TOF mass spectrometer, 2-D HPLC, MALDI plate spotters, 2D gel sets, imagers, scanners and an automated gel spot picker cum processor. The laboratory can also draw on other in-house instrumentation such as LC-MS and supporting facilities such as the Biosafety Level Two laboratory.

3. The Proteomics research group, comprising experts from different scientific disciplines including microbiologists, chemists, molecular biologists and immunologists, is currently working on collaborative projects with the Singapore General Hospital and the Defence Medical & Environmental Research Institute (DMERI) to identify clinically-important proteins in microbial pathogens.

In summary, with its right mix of staff expertise and instrumentation setup, the Proteomics Research Facility is well positioned to provide training and services as well as engage in collaborative industrial research.



ASc student analysing 2D gel data of microbial proteins with the help of a lecturer

Research Collaboration Agreement (RCA) with ICES

When huge problems come our way … we just shrink them! That is the new philosophy of the Nanotechnology Research Group in ASc.

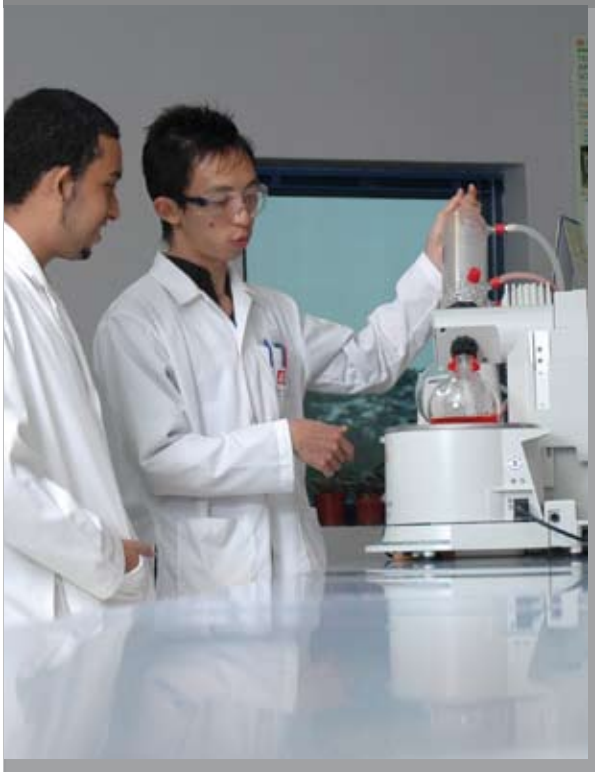
The Nanotechnology Research Group recently signed an RCA with the Institute of Chemical and Engineering Sciences (ICES) in August 06. The Group will be working closely with researchers from the Applied Catalysis Group in ICES to develop supported mono and bimetallic nanoparticles for hydrocarbon conversion. ASc will also be synthesising various types of nanocatalysts which will subsequently be characterised and tested at ICES.

This collaboration will also allow Diploma in Chemical Engineering students to be attached to ICES for their Student Internship Programme (SIP) to work on this project over the next two years.

Feature Story:

THE TEMASEK Applied Science Research

The newly developed Research Centre is a 1,400 m² centralised facility that houses the major research activities for chemical and life sciences in the School of Applied Science. It is a centre of excellence with state-of-the-art facilities to promote not only interdisciplinary applied research among staff and students but also collaboration with the industry and institutes of higher learning (IHLs).



The centre comprises various laboratory facilities such as:

- Certified Clean Room
- Analytical Service Laboratories
- Nutrition Counseling Facilities
- Walk-in Cold Room
- Specialised Research Laboratories for Traditional Chinese Medicine, Proteomics, Fermentation, Plant Biotechnology and Nutritional Assessment

Centre

The Centre is well equipped with supporting laboratory equipment and advanced instruments such as the Liquid Chromatography-Mass Spectrometer (LC-MS/MS) and Flow Cytometer for various research activities. In addition, there are other supporting facilities such as the Chemical and Microbiological project and testing laboratories that provide a real-life research environment for students with different technical backgrounds. In-house research programmes such as the Differential Research Programme (DRP) and Major Project (MP) are also conducted here.

The seminar and discussion rooms also provide a conducive training environment not only among staff but also for industry partners and IHL staff that come to ASc on staff attachment programmes.

The Temasek Applied Science Research Centre is the place for staff and students from various disciplines to work closely together and support each other in their passion to make research happen!

BIOSAFETY
at the Research Centre

Biosafety is the containment of bio-hazardous materials. Biosafety initiatives in the ASc Research Centre were enhanced incorporating the three important elements of Facilities, Management and Laboratory Practices.

The biosafety initiatives include:

- An independently equipped Biosafety Level 2 laboratory
- An anteroom to enhance safety levels
- Restricted access to the laboratory
- Risk assessment conducted before granting access rights for any activity
- Compulsory user training on general and specific safety
- The appointment of a Biosafety Officer as well as development of work instructions and audit processes

These initiatives were put in place to train staff and students in biosafety mindset and practices, to ensure compliance to regulations like WSH Act and BATA and also to enable collaboration with industry in training and research.

A yellow line to differentiate lab and non-lab areas

Capability Development in TCM Education

As part of its overall capability development plan, ASc has made significant progress in its technical competence in Traditional Chinese Medicine (TCM). ASc has gained much insight into TCM from its evidence-based research projects over the last 3 years.

The greater acceptance of TCM has led to an increased demand for TCM education either for enrichment purposes or professional practices. In particular, there exists a growing local market for acupressure (Tui Na, 推拿) which can be used for therapeutics, as well as to enhance health and well-being.

There is, at present, no structured approach for acupressure training in Singapore. Many practitioners have a limited knowledge of body mechanics and a limited understanding of the legal and ethical aspects of professional practices.

TP has decided to work with the Singapore College of Traditional Chinese Medicine (SCTCM) to offer comprehensive training courses on acupressure for working adults. Part-time Certificate Courses/Diploma in Acupressure (Tui Na, 推拿) will commence in March 2007.

The courses are supported by the WDA under the SDF and SRP funding scheme for eligible participants. Training will be conducted in 2 stages. The participants will be awarded a certificate after passing all Level 1 subjects and a Diploma after passing all Levels 2 & 3 subjects.

To help market the Tui Na courses, a public seminar cum course briefing was organised on 29 October 2006. The response from the public was overwhelming. The event not only helped create awareness in TCM, but also promoted TP as a provider of TCM education.

The Tui Na courses emphasise on the use of acupressure as a means of enhancing health and well-being. In these courses, students will acquire Tui Na techniques, built upon good knowledge of body mechanics and legal and ethical aspects of healthcare practices. In compliance with the current regulations control on the practice of TCM Tui Na, graduates from the courses are not allowed to practise TCM Tui Na. However, a few subjects on the identification of ailments that are ony to be handled by qualified TCM phsicians have been included to enhance students' awareness.

TP HERB GARDENS

The TP Herb Gardens were developed to support the teaching and research activities in ASc. They were developed in collaboration with the Singapore Chinese Physicians' Association (SCPA). It comprises open herb gardens and a specially designed nursery.

The nursery serves as a centralised location for TP's collection of medicinal plants. Plant propagation work is also carried out in the nursery. Currently, a collection of more than 50 species used in TCM are being cultivated in the newly completed facility. About 125 medicinal herbs have been cultivated at the nursery thus far. Among the medicinal plants found in the herb gardens are some common ornamental plants, like the Ixora and the Bougainvillea.

To capitalise on ASc's existing capability development in TCM and plant biotechnology research, the genetic fingerprinting of medicinal plants is currently being analysed. The analysis will offer insights on differentiating morphologically similar botanicals and very closely related plant varieties.

More information on medicinal plants, such as the variety, species, external morphology, cultivating conditions and processing requirements will be made available to the public via the ASc website.

The nursery where 125 herbs have been cultivated

Portulaca Grandiflora Hook
This flower dispels stagnant blood and has anti-inflammatory properties

Success at Competitions

ASc Students Clinch **Top Award** at Synergy 2006

(From left to right) Chen Yong Yi, Shaun Tan, Tracy Khong, Lam Xiao Ping and Ruben Toh

A team of five students from Temasek Applied Science School's Diploma in Chemical Engineering, walked away with the **Top Cash Award of S$5,000** in the Synergy 2006 Competition, beating teams from Nanyang Technological University (NTU), National University of Singapore (NUS), and the polytechnics. The patent commercialisation competition was organised by NTU and co-organised by Intellectual Property Exchange Private Limited (IPEXL).

The winning product was a **portable water treatment device** which is a synergistic combination of two patents – a household water treatment device and a method to coat nano-sized titanium dioxide photocatalyst onto supporting substrates.

The device is commercially viable as it can be used in niche markets like the SAF, crisis aid agencies and adventure seekers.

The annual competition is open to polytechnic and university students. The Cash Award is given to teams which demonstrate business acumen, IP knowledge and technical expertise.

> **"It w as an entirely new learning experience for us as we had to use our science lessons to create workable business plans. We would not have succeeded without the able guidance of our lecturers. - Lam Xiao Ping"**

Vino proudly receives her prize

Vino's Winning Essay

Vinodhini Jayaram, from the Diploma in Biomedical Science, clinched one of the top 3 prizes in an essay-writing competition organised by the Singapore Society of Biochemistry and Molecular Biology. Her essay, entitled 'Bird Flu – Past, Present and Future' impressed the judges for its insights and in-depth research.

2006 was a year of triumphs at competitions. These successes have spurred the School to forge ahead in its passion to innovate.

From **Waste** to **Wow!**

They were provided with a hodge-podge of Ricoh's used products. With some creativity and dogged determination, a group of students from the Diploma in Chemical Engineering transformed several used products into a portable table tennis/golf ball picker which they called PORTO PICK.

(from left to right) Candice Toh, Khiu Hui Ling, Kenneth Yeo and Tan Wei Jian

The Porto Pick won the 3rd prize

The pet food dispenser won the consolation prize

Their innovation won them the 3rd prize of $2000 at the Ricoh 'Waste to Wow' Recycling Competition. Another team won the Consolation prize of $100 for their creative Pet Food Dispenser.

The idea of the portable ball picker was conceived when members of the team noticed how table tennis players had to spend a back-breaking time picking up balls at the end of every game. Typically, about 100 balls are used per game. The portable ball picker can 'pick up' up to 30 balls before its tray has to be cleared.

The team that won the consolation prize created a contraption that could dispense pet food automatically. The contraption can store up to two weeks of dry pet food and about one litre of water.

The competition, which aims to promote recycling with a difference, was held on Earth Day, 22 Apr 06. It was jointly organised by Ricoh Asia Pacific Pte Ltd and the Green Volunteers Network with support from the Singapore Environment Council. A total of 92 teams from secondary schools, JCs, ITEs and Polytechnics participated in this competition.

Tan Wei Jian (left) with Mr Heng Chee How, Minister of State, Ministry of Health

Solar Innovations 2006

This prestigious annual competition brings together industry practitioners, government officers and academics in search of better environmental solutions to real-world problems. The theme for this year's competition was ECOFUTURE: Sustainable Development for the Environment.

Students Tan Wei Jian, Kow Cilin, Alex Teo, and Jonathan Ang won the 1st Runners-Up prize for their project, "Environment-Friendly Waste Water Treatment", at the SPH Foundation Solar Innovations 2006 Competition held from 2 - 4 Jun 06.

The tasks assigned to the participants involved not only generating ideas that addressed environmental issues of today, but also finding long term solutions to them.

About 90 teams from the different Polytechnics, JCs and ITEs in Singapore took part in this year's competition.

Overseas
Student Internship Programme

1 **Sichuan, China**
Dorothy Wong

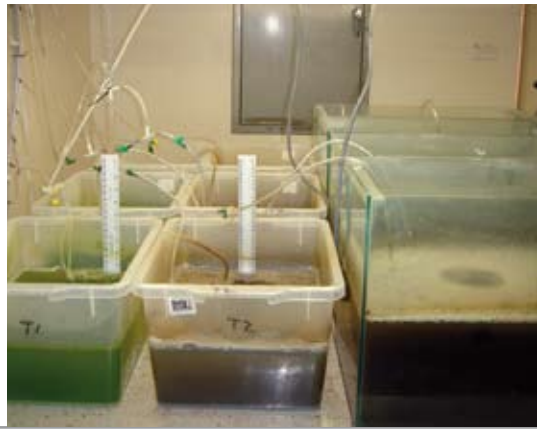
Project:
HSBC / NYAA EARTH WATCH STUDY TRIP on Asiatic Black Bears

Dorothy studied the eating patterns and gestation period of wild bears in the Sichuan Province. Working in the wild was an exhilarating experience for Dorothy who enjoyed the animals and the scenic beauty of the place.

2 **University of Adelaide, Australia**
Lim Meng Kuan

Project:
Algae Growth in Piggery Effluent

It was an invaluable experience for Meng Kuan as he gained new insights into algae and waste water treatment. He is now inspired to build a career in water treatment using algae.



3 Noveon Asia Pacific, Hong Kong

Lim Say Hwee

Project: Research & Development in Personal Care Products

Say Hwee worked in a speciality chemicals company performing research and development on its personal care products. The stint has added a new perspective in her knowledge of chemical engineering and enhanced her employability.

4 Shanghai ST Food Industry Co. Ltd., China

Huin Xin Yee

Project: Development of Frozen Convenience Foods

Xin Yee gained extensive insight into the manufacturing process of frozen convenience foods. The experience has changed her perception of working in China and given her confidence in her abilities. What a great way to jump-start her career in food technology!

5 University of Western Australia, Australia

Deborah Khoo

Project: Developing Drug Entities for Parkinson's Disease

Deborah loves the excitement of creating new drugs. She was thus on a natural high in UWA creating new drug entities not only for Parkinson's disease but for other immunological disorders as well!

Nutrition Intervention Programme in Cambodia

Twenty students from ASc had a golden opportunity to volunteer their expertise in an overseas community project in Cambodia.

The Nutrition Intervention Programme, designed by ASc students from the Diploma in Applied Food Science & Nutrition, aimed to impart nutritional knowledge and skills to women and healthcare workers living in Cambodia. The twenty students were assisted in this project by lecturers Sherlyn Quek and Choo Yang Sim.

The programme was carried out in two places in Cambodia:

- Healthcare Centre for Children in Phnom Penh
- Villageworks @ SongKhem in Baray

The participants were healthcare workers from the Healthcare Centre and young working mothers from Villageworks. Through talks and workshops, participants learnt the basics of healthy eating. This involved teaching participants about the food groups within the Healthy Diet Pyramid and about cutting down on salt, MSG, unhealthy fats and sugars. Participants were also given some basic food safety tips. To emphasise what had been taught, participants were treated to several cooking demonstrations.

The participants expressed a willingness to learn about nutrition, healthy eating and food safety. It is hoped that the participants will in turn teach the rest of their community. With the success of this programme, ASc hopes to further develop and extend the programme to benefit other villages outside Phnom Penh and Baray.

A cooking demonstration in progress

Cambodian women learning about the Healthy Diet Pyramid

Leadership Training Camp 2006

ASc held its first school-based Leadership Training Camp from 8 – 10 Sep 06 for 67 participants. The camp, targeting mainly level one students, had three objectives:

1. Screen and select capable members for the ASc Studies Club Sub-Committee
2. Coach participants in leadership, team skills and project management
3. Communicate the expectations on quality work and team dynamics

The participants were led through a variety of challenging activities that affirmed their strengths and facilitated the discovery of their potential. Team spirit was forged through tough times when participants were stressed to complete group tasks that demanded mental and physical discipline. Highlights of the programme included strategy games, a confidence-building night trail, an overnight camp in tentages at Changi Beach and the "Home Makeover" project, a service-learning component (see below).

The many new encounters, moving experiences and lessons learnt during the camp made a deep and positive impression on participants.

A triumphant close for the participants

"The participants were led through a variety of challenging activities that affirmed their strengths and facilitated the discovery of their potential."

A home in desperate need of a makeover

"Home Makeover" Project

The "Home Makeover" project was done in collaboration with the Bukit Ho Swee Family Service Centre and Tanjong Pagar Family Service Centre. Students were asked to complete a simple makeover for their assigned households within 9 hours using the limited funds and resources allotted to them.

A total of 6 households benefited from this project that was supported by donations from ASc staff, students and well-wishers. Working outside of their comfort zones, students cleaned, painted, repaired, organised and refurbished the living spaces allocated to them. Each household also received food rations and daily necessities.

The students learnt valuable lessons in managing time, money and people.

Collaborative Training in Hospitals

Singapore General Hospital, KK Women's and Children's Hospital and Changi General Hospital are collaborating with ASc to provide an innovative training programme for its final year students from the Diploma in Biomedical Science (Biomedical Technology Option).

The programme comprises a year-long intensive study of several Biomedical Technology subjects. In the first seven weeks of the programme, students learn the various subjects through a combination of the PBL mode, the use of case-based studies, and e-learning. Students then go to the hospitals for 20 weeks of on-the-job training. The hospitals will also supervise the Student Internship Programme and the Major Project during which the students experience focused learning in quality service, safety mindset and quality mindset. In the final eight weeks of the programme, students return to TP where staff help students consolidate their learning through reflection exercises, peer teaching and student presentations. Guest lectures by industry practitioners is included to keep student updated on the latest developments.

The first batch of 50 students embarked on this innovative learning journey on 24 Apr 06. Graduates from this diploma will become choice employees as laboratory technologists and clinical research technologists in hospitals and clinical research centres.

Plantlets that have been produced for sale at local souvenir shops

Plant Tissue Culture Training Facility

The Plant Tissue Culture Training Facility was set up in 2005 to train students in the mass propagation of tissue culture plantlets as well as to serve the horticulture and landscaping industry. As a spin-off of Project Heliclone, a one-million dollar project funded by A*STAR done in collaboration with Jurong BirdPark, the facility applies protocols developed by the project to propagate rare and exotic plants such as heliconia and gingers.

The facility not only trains students in plant tissue culture techniques, it also exposes students to the workflow of a production setting, from the propagation of plantlets to the packaging and commercialisation of the final products. To date, the facility has trained over 30 students under various schemes, such as the Differential Research Programme and the Student Internship Programme. To foster closer ties between educational partners, the facility took in two ITE students in Nov 06 under the Industrial Attachment Programme.

Starting with heliconia and red alpinia gingers, the types of plants produced by the facility have also increased over time. 2006 saw the addition of the Pink Alpinia Ginger, Costus French Kiss and Costus Amazonicus to the product list. **These plants have been sold to landscaping companies as well as gift shops at the Singapore Botanic Gardens.** An agreement was also signed in Dec 05 to mass propagate orchid plantlets for Woon Leng Nursery. Thousands of orchid plantlets are now being grown at the facility. These plantlets will eventually be supplied to commercial growers as well as orchid hobbyists.

Aik Leng (extreme right) with Suntar staff on a social outing

Lim Aik Leng was the first ASc staff to go on a one-month attachment in Xiamen after ASc signed a Letter of Agreement with Sinomen Technology Ltd (Singapore) in 2005 for a two-way staff and student exchange programme in its subsidiary company — Suntar Membrane Technology Ltd.

Staff Exchange Programme

Suntar Membrane Technology Ltd., Xiamen, China

During the exchange programme, Aik Leng was first attached to Hangzhou Zhongmei Huadong Pharmaceutical Co. Ltd. (a client of Suntar Technology) to learn about new applications of membrane technology for the downstream processing of industrial fermentation using membranes. The Hangzhou project involved the pilot study of ultrafiltration and nanofiltration to troubleshoot the problems in operating their industrial systems. The second part of the attachment involved the learning of laboratory fermentation techniques in Suntar's fermentation laboratory.

The project in Hangzhou was initially unsuccessful as Aik Leng had to process the fermentation products using membranes that were fouling too rapidly. When he discovered the cause of the fouling by accident, he then extended his stay and spent the whole Golden Holiday Week (China's national day) working on the project. Since his return, the project has been fully implemented there.

ASc is now setting up its own fermentation laboratory. The exchange has also fostered good relations with Sinomen and currently ASc is hosting a research staff from Sinomen who is working on the fermentation project.

4th International Ginger Symposium

Five staff members from ASc attended the 4th International Symposium of the Family Zingiberaceae in Jul 06. The 4-day symposium, jointly organised by the Singapore Botanic Gardens and the National University of Singapore, attracted delegates from more than 16 countries.

Many plants in the Zingiberaceae family (commonly known as the ginger family) as well as the heliconia and the costus, produce attractive inflorescence. While the heliconia is well known in the horticulture industry, the use of gingers as ornamental plants and as cut flowers has gained importance only in recent years.

The symposium provided a platform for plant enthusiasts and researchers to exchange ideas. The symposium covered topics on taxonomy, conservation and biodiversity to the micropropagation, optimisation of plantlet growth conditions, applications and commercial potentials of Zingiberaceae.

Knowledge acquired at the symposium will be shared with students through student projects. There are also plans to expand the product range of the Plant Tissue Culture Training Facility and to improve existing protocols for the micropropagation of gingers.

UP Your Service!
Course Leader Certification Programme

Sumathi Krishna and Viji Vijaykumarr were among the 14 Temasek Polytechnic staff who attended the UP Your Service! Course Leader Certification Programme by service guru Ron Kaufman. Held at the Bayview Hotel from 22 - 24 Aug 06, the course brought together representatives from the various schools in Temasek Polytechnic to learn about creating a culture at the polytechnic that is rooted in offering only quality service.

Ron Kaufman, an internationally acclaimed innovator and motivator for quality service, helped the participants discover the essence of superior service and the much sought after service DNA through hands-on activities and video clips. The secrets of the service DNA, acquired from this workshop, will be passed down to all ASc graduates in due course.

Viji (back, extreme left) and Sumathi (front, extreme right)

Counselling Seminar

Magdeline (left) and Alison

ASc staff Alison Ang and Magdeline Hor attended a seminar on **"Changing the Behaviour of Troubled Kids/Youths"** from 17 – 18 Aug 06. The seminar was delivered by Dr Linda Metcalf, a professional counsellor and marriage & family therapist in the US who has worked with adolescents and families for the past 18 years.

Dr Metcalf shared a successful approach in turning troubled youths around. Called the Solution-Focused approach, the approach aimed at changing behaviours through care rather than discipline. The troubled teen would emerge empowered instead of feeling bitter.

Participants, most of whom were counsellors from teaching institutions, found the approach 'refreshing'. The seminar has been enlightening for both Ms Ang and Ms Hor who are training to be school-based counsellors in ASc.

ASc's Contribution to SAC-SINGLAS Lab Accreditation

TAs from ASc: (from left) Loh Gin Hin, Ignatius Tan, Teong Ping Nam, Jiang Jianping and Loh Han Liat

The Singapore Accreditation Council (SAC) is a national authority for accreditation of conformity assessment bodies. One of SAC's three key accreditation schemes is the Singapore Laboratory Accreditation Scheme (SINGLAS), which accredits calibration and testing laboratories in Singapore according to ISO/IEC 17025 and ISO 15189.

The technical assessments for SAC-SINGLAS are supported by experts from the industry, government agencies and tertiary institutions. At present, five lecturers from ASc serve as Technical Assessors in the field of Chemical & Microbiological Testing. These lecturers have assisted in the auditing processes of laboratories related to the environment, consumer products, materials, fabrics, petroleum products, petrochemicals and solvents. One of the staff, Dr Jiang Jianping, is also a member in two SAC committees.

The knowledge gained is incorporated into subjects to ensure currency and relevance.

Healthy Cookbook edited by Kalpana

The 2004 National Health Survey indicated that Indians have the highest prevalence of diabetes mellitus.

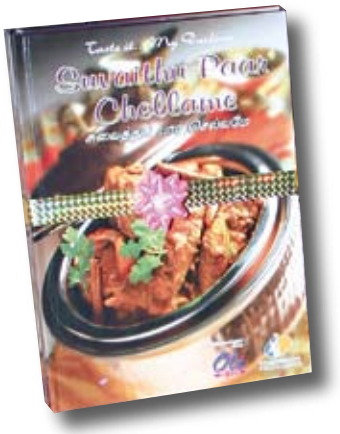
To curb this trend, Kalpana Bhaskaran (ASc) showed that favourite Indian dishes like briyani can be made healthy through simple modifications in ingredients and use of oil. The recipes are featured in a cookbook titled 'Suvaithu Paar Chellame' (Taste It ... My Darling) which was launched in Jan 06.

The project was the collaborative effort of MediaCorp Oli 96.8 and the National Healthcare Group Polyclinics (NHGP) under the Healthy Lifestyle Programme to promote healthy eating habits among the Indian population.

Kalpana was invited by Oli 96.8 to:
- Provide healthier options for each recipe
- Do a nutrient analysis for all 40 recipes

Oli 96.8 also selected 5 listeners to participate in a 3-month weight loss programme. Kalpana assisted Oli 96.8 in providing participants with a diet plan and weekly counselling sessions.

After three months, all five participants succeeded in losing between 8 – 10 kg each. Participants were full of praise for the recipes which enabled them to relish good Indian food without guilt.



Kalpana described her involvement in the project as rewarding as it enabled her to use her expertise for the benefit of the community.

WATER TECHNOLOGY

AEM for Secondary School Students

Twenty-five students from Dunman Secondary and St Hilda's Secondary were immersed in water education for two weeks when they participated in the Water Technology AEM offered by ASc from 6 – 20 Nov 06. The event was featured on CNA and in the news on local TV channels on 6 Nov 06.

For a subsidised fee of $5, students gained valuable insights into water quality and testing, water resources and conservation, and water technology. The students were thrilled to be able to perform water testing similar to that used in industries, make their own NEWater and understand how a pilot plant operates.

To enhance the learning of water technology, students were treated to a variety of activities including:

- Field trips to Bedok Water Reclamation Plant and the NEWater Visitor Centre
- Laboratory practical lessons
- Project on creating a Water Technology educational game

Feedback from students was overwhelmingly positive. Besides expanding their knowledge on water technology, students also got a pleasant glimpse into the educational system and life in Temasek Polytechnic.

The Advanced Elective Module (AEM), is a new initiative launched by MOE in Oct 06, gives secondary school students the opportunity to experience polytechnic education by providing them with a broader range of learning experiences as well as opportunities to discover their interest in applied disciplines.

Participants pose with Mr Lim Aik Leng (extreme right), the lecturer for the Water Technology AEM

Participants on a field trip at the NEWater Visitor Centre

Creating a Water Technology educational game

RESEARCH TRAINING

Teachers' Work Attachment

The Teachers' Work Attachment aims to broaden teachers' experiences so that they can create new learning opportunities and enrich students' learning.

Ms Lim Guat Hong, a senior teacher and the Chairman of Dunman Secondary School's Life Sciences Committee, commenced her full-time work attachment at the Applied Science Research Centre on 12 Sep 06. Ms Lim was involved in research in the areas of Proteomics and Traditional Chinese Medicine under the supervision of the Principal Investigators there.

Ms Lim was all praise for her 4-month stint at ASc. "I was impressed by the tenacity and passion displayed by the researchers. I now feel better equipped to mentor my students," she said.

The knowledge and skills acquired here will be channelled into training programmes for secondary school students in the East Zone. Ms Lim will also continue her research at TP on a part-time basis.

A Workshop by ASc

Baking Cakes with Egg Substitutes

"The bakers were pleasantly surprised to learn that even with the egg substitutes, the texture of the chiffon and sponge cakes was as light and springy as cakes made with fresh eggs."

On 6 Nov 06, ASc conducted a workshop on the use of fresh egg substitutes for bakery products at its premises in the Food Pilot Plant. The workshop was conducted in collaboration with the AVA and the Singapore Bakery and Confectionary Trade Association (SBCTA).

The workshop was conducted upon the request of the AVA to ensure bakers in Singapore were adequately prepared for alternative baking strategies in the event of a potential poultry and fresh eggs ban following an avian flu outbreak.

The workshop focused on the use of fresh egg substitutes, such as pasteurised liquid eggs and dried egg powders particularly in sponge and chiffon cakes. The bakers were pleasantly surprised to learn that even with the egg substitutes, the texture of the chiffon and sponge cakes was as light and springy as cakes made with fresh eggs.

Following the success of the workshop, the SBCTA plans to hold a cake-making competition using egg substitutes for its members in March 07.

This workshop is one of the many initiatives taken up by ASc staff to offer its expertise to the food industry in Singapore.

Paul Sin, Course Manager for ASc's new Diploma in Baking & Culinary Science, with the egg substitutes used to bake the chiffon cakes

COLLABORATION • EMPOWERMENT • INNOVATION

COLLABORATE WITH US!

Temasek Applied Science School (ASc) provides a range of industry related services. Through a multi-disciplinary team of scientists and engineers in the various fields of applied science, the School provides technical consultancy services to the food, healthcare, chemical and biomedical industries, with a special focus on nutritional assessment, food product and process development, environment technology, plant-related services and proteomics.

Current on-going projects in collaboration with industries include:

- Plantlet production and sale to landscaping companies souvenir shops and for export
- Heat pipe waste heat recovery system
- Food product and process development
- Shelf life extension of foods for SME food companies
- Nutrition consultancy services for hospitals, old folks' homes and health institutions
- Mass propagation of orchid plantlets using tissue culture
- Commercial trial of the orchid growth technology developed by TP
- Efficacy study of health products using animal models
- Identification of clinically-important proteins in microbial pathogens

If you need our technical assistance, do get in touch with us.

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