The School of Computing

The Talent Development Programme of the School of Computing is a new programme starting 1998/99. It is targeted at top students in the School of Computing who show leadership potential. It nurtures leadership talent by providing TDP students with (a) a stimulating learning environment that is challenging and inspiring, (b) avenues to develop technical excellence, and (c) opportunities for leadership roles within the student body, broader exposure and networking.

1. Aims

Leadership talent can come in many forms - apart from the general leadership, there is also technical leadership. The TDP for School of Computing aims to nurture both forms of leadership, as both are deemed important for TDP students.

The broad aims are
- to enhance and nurture leadership ability (both general and technical)
- to challenge our top students – stimulate and inspire them to excel
- to provide opportunities to sharpen leadership ability
- to provide opportunities for broad exposure, networking and teamwork.

2. Framework

To meet these aims, this proposed framework for the Talent Development Programme for the School of Computing will take a two-prong approach. Firstly, to train general leadership, The School of Computing will implement and take advantage of the various excellent programmes provided for under the broad umbrella of the TDP, including the TDP Global Programme.

Secondly, to nurture technical leadership in the broad domain of Information Technology (IT) under the School of Computing, our proposal also provides opportunities for a broad-based, challenging and stimulating university experience. Very briefly, this will incorporate greater flexibility in course planning and module selection, independent study and self-learning style of teaching for selected core modules, directed undergraduate research and attachment to research groups, with strong encouragement to join the Accelerated Masters Programme.

3. Programme Details

The concrete programmes of TDP in the School of Computing are shown below. Note that these include general programmes already in place under the general University's TDP as well as domain specific ones proposed by the School of Computing,

3.1 Individualized Course Planning

- *Mentorship* scheme by enthusiastic lecturing staff *and* senior students.
- Greater flexibility to plan *individualized* course of study.

3.2 Different Course Experiences and Independent Study

To give TDP students a more challenging and stimulating educational experience, some of the core modules of the School of Computing will be taught differently to them. Specifically, TDP students will take the following special modules:

- **CS1101S Programming Methodology**
  TDP students will take CS1101S instead of CS1101. CS1101S is *a more challenging and thought-provoking* version of the *Programming Methodology* course. The course is modelled after a similar course (6.001 SICP) at MIT.
  (Note: This also gives students chance for initial interaction and bonding)

- **TDCS1102 Data Structures and Algorithms (Independent Study)**
  This TDP module covers similar material as CS1102 Data Structures and Algorithms. However, it will be taught differently, emphasizing a *more independent and interactive self-learning style* on the part of the student. (Note: This is similar to the Concourse style teaching of MIT.)

- **TDCS2103 Software Design Methodology (Independent Study)**
  This TDP module covers similar material as CS2103S Software Design Methodology. However, it will be taught differently, emphasizing *a more independent and student project-based learning style* on the part of the student. TDP students will learn more on their own and will apply these in a group project.

In addition, TDP students can also choose to take some of the following TD modules.

- **TDCS3230 Design and Analysis of Algorithms (Independent Study)**
  (Done in place of CS3230 Design and Analysis of Algorithms)
- **TDCS3243 Artificial Intelligence (Independent Study)**
  (Done in place of CS3243 Artificial Intelligence)
- **TDCS3251 Technology Strategy and Management (Independent Study)**
  (Done in place of CS3251 Technology Strategy and Management)
- **TDCS3261 IT Marketing (Independent Study)**
  (Done in place of CS3261 IT Marketing)

Other modules can also be offered as Independent Study modules if there is demand from TDP students. These shall be considered on a case-by-case basis.

4 Research Opportunities

To expose TDP (Computing) students to the challenges and stimulation of research work, they will take the Undergraduate Research Opportunity Programme (UROP (Computing)) for two years -- taking modules CS2288 and CS3288 -- before they do their Honours Year research projects. While doing CS2288 and CS3288, TDP students are expected to be on attachment to the research laboratories of their UROP project supervisors.

TDP (Computing) students will also be strongly encouraged to pursue the Accelerated Masters Programme in the School of Computing.

5 Leadership Opportunities

- TDP students will plan and carry out their annual work plan of activities. SoC will provide appropriate support to the students.

- Given opportunities to organize talks and short courses for fellow students of the SoC.

- Given opportunities to start Special Interest Groups (SIGs) or newsletters

- Encouraged to participate in international competitions

6 Broad Exposure and Networking Opportunities

- Talks by industry leaders, renowned experts, academics

- Site visits and attachments to well-known companies, start-ups, and research establishments

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