Caribbean Science Foundation

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Student Program for Innovation in Science and Engineering (SPISE)

The Student Program for Innovation in Science and Engineering (SPISE) is an intensive four-week enrichment residential summer program for gifted Caribbean high-school students who are interested in studying and exploring careers in science and engineering. The inaugural 2012 SPISE represented the first milestone in the CSF's mission to help diversify the economies of the Region by encouraging more students to pursue careers in science and engineering, and to consider becoming entrepreneurs. The program is modeled after the well-known and highly successful MITES program at the Massachusetts Institute of Technology (web.mit.edu/mites). The SPISE provides a learning environment in which understanding the concepts and fundamental principles in several disciplines is reinforced over and above rote learning. Further, critical thinking and analytical and logical problem-solving approaches are emphasized in order to find solutions to complex problems that may not have been encountered before. Team work is yet another essential component of the SPISE experience, as are applying efficient study habits and time-management skills. All students participate free of charge, due to generous donations from sponsors. Key important partners of the SPISE are the University of the West Indies Cave Hill Campus, and the CXC. It is anticipated that students who complete the SPISE will eventually attend some of the best science and engineering universities in the world, and become scientific, engineering and business leaders in academia and industry within the Caribbean.

2012 SPISE

The inaugural 2012 SPISE was held in August at the Barbados campus of the University of the West Indies. Ten students from six different countries (Barbados, Belize, Jamaica, St. Kitts and Nevis, St. Lucia, and Trinidad and Tobago) successfully completed the busy four-week schedule comprising classes in calculus, physics, biochemistry, Mandarin, humanities (one Caribbean concept), as well as laboratory project work in electronics and robotics. The sponsors, whose support was critical for the 2012 SPISE, were Scotiabank, Williams Industries (Barbados), Light and Power Holdings, St. Lucia Electricity Services Limited (LUCELEC), MIT Sea Grant Program, Neal & Massy Foundation, Central Bank of Barbados, Caribbean Development Bank, Belize Telemedia Limited, National Gas Company of Trinidad and Tobago Limited, BG Energy Holdings Limited, and Mr. Nicholas Braithwaite's PETNA Foundation. The University of the West Indies (Barbados Campus) generously donated the use of their facilities, making the program possible. On the final afternoon of the program, in front of a packed and captivated audience, the students gave presentations on their projects in humanities, electronics and robotics that included demonstrations with metronomes clicking, numbers flashing, amplifiers playing music, and underwater robots navigating obstacles in a water tank. Dr. Basil Springer, in his Caribbean Business Enterprise Trust (CBET) column, referred to that afternoon as a 'magnificent, indeed awesome experience'. One of the press releases on the 2012 SPISE is reproduced below. For other press releases including photos of the students and their project demonstrations, please see the links at http://caribbeanscience.org.

2013 SPISE

Approximately 20 students will participate free of charge, with support from sponsors. SPISE 2013 will run from July 20 to August 17. Applicants must be at least 16 years of age but less than 18 years of age on July 1, 2013, and have completed CXC exams or equivalent in math and science subjects. Students from low-income households are encouraged to apply. Student, Teaching Assistant and Instructor application forms are posted on the CSF website (http://caribbeanscience.org) and are due on April 22, 2013. For students, letters of recommendation, transcripts and essays are required. Students living outside of Barbados must prove that they have valid passports at the time their application is submitted.

For information about sponsoring a student, please contact Prof. Cardinal Warde directly (warde.csf@gmail.com or 1-617-699-1281). The cost of sponsorship is approximately US$6,000 per student, and students are branded with the name of their sponsors.

The Barbados Advocate
Established October 1895

THE 2012 SPISE STUDENT PROJECT

ARE YOU A YOUNG CARIBBEAN STUDENT INTERESTED IN SCIENCE AND TECHNOLOGY?

If so, then soon you will be given the chance to enter into a program, that will not only teach you about various sciences, mathematics and humanities subjects, but also allow you to have hands on training in the making of certain electronics and robotics. **YES I SAID ROBOTICS!**

For four weeks, ten young students ranging in ages from 15 to 17, from across the Caribbean: Barbados, Trinidad and Tobago, Nevis, Belize, Jamaica and St.Lucia, got to explore their love of the sciences, as well as learn many new techniques and subjects.

During the 2012 Student Program for Innovation in Science and Engineering (SPISE), held last Friday at the 3Ws Oval, these ten students presented the various projects that they would have participated in.

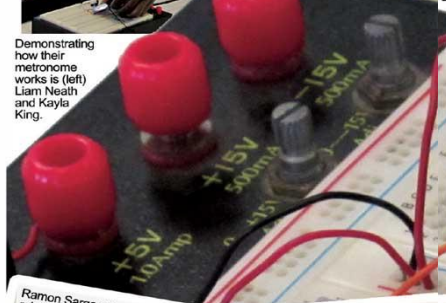
As noted by Professor Cardinal Warde, Interim Executive Director, Caribbean Science Foundation (CSF), the main mission of the CSF is to *"Assist with the diversification of the economy to the region, so we decided that the two ways to do that, is to have some education reform initiatives and also to basically encourage more science and technology based entrepreneurship."* And it was in light of this mission that the SPISE program was created.

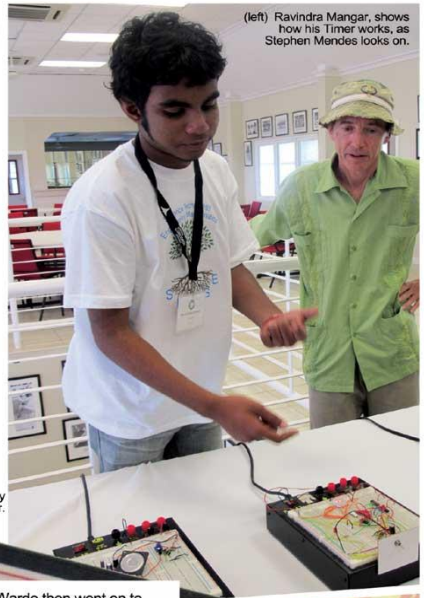
The program which is the organisation's first, is where a small group of dedicated individuals who are interested in science and technology are taken from around the islands and are then encouraged to ***'pursue their dreams to become scientists and engineers and to stick with it'.***

The students would have stayed at the University of the West Indies, Cave Hill campus and learnt subjects such as Calculus, Physics, Bio-Chemistry, Humanities, 'One Caribbean Concept', as well as Mandarin. Yet, that's not all, as they **also had two hands on projects, including robotics and electronics.**

As noted by Warde, the students were very busy as they worked hard over the four weeks and remained very dedicated. One of the goals of the CSF is to have more students take a very serious look at the idea of science, engineering and technology as career choices, as ofttimes they may opt to get into other fields.

Demonstrating how their metronome works is (left) Liam Neath and Kayla King.

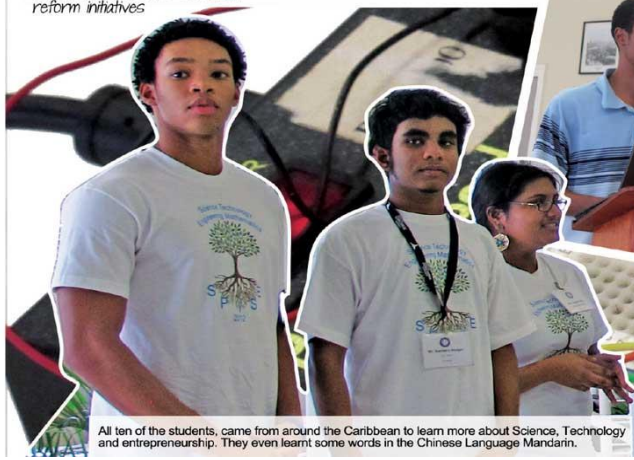




(left) Ravindra Mangar, shows how his Timer works, as Stephen Mendes looks on.

Ramon Sargeant, explaining the work on robotics the 10 students did in 4 weeks

Senator Orville Marville, introed the teams as they presented on the Konos, Mayans and Kalinas



All ten of the students, came from around the Caribbean to learn more about Science, Technology and entrepreneurship. They even learnt some words in the Chinese Language Mandarin.

So what plans does the CSF have to keep the students interested in both science and engineering?

"We believe that this program is only the beginning. These kids are already interested in science, so we are sort of preaching to the converted, but as you know, they can backside, as we say in Barbados and some of them might go off into other disciplines," said Warde, before continuing, *"So our goal is to stay with these kids; try to keep them engaged, even after they leave here. Get them first to apply to some of the best universities in the world, including local universities and stay with them over the 4 years of undergraduate school. Beyond that it might be a little bit difficult to stay with them into graduate school . . . we want them to take the fruits of science tech and engineering, all the way to the Masters."*

When asked what type of educational reform he would like to see in the Caribbean, he immediately highlighted the fact that engineering was missing in the region. *"It **should be taught earlier** in schools and taught better. Which means we need **more competent teachers**. Teachers should be trained better and so the first thing we would have to do, is start training teachers, so that they understand the material and teach it competently. **If they are excited and passionate about it, the students will follow,"*** he said.

The Interval Timer made by Ravindra Mangar.

Professor Warde then went on to explain that he believed the region needed to produce more graduates who are able to make and build things, then convert them into technology that can be **sold competitively across the globe.**

To that effect, it is important to grow these entrepreneurs from early, and help them to understand that **they can make it in the world, using science, engineering and technology.**

Professor Cardinal Warde, Interim Executive Director,CSF, delivering the welcoming remarks.

by Ashlee Cox