ROBOTICS AT DESTINATUS PRIVATE SCHOOL — 2018

Senior Classes (Grade 4 - 7)

Background

We offer an extra-mural activity in the form of a robotics, science and technology club. The vision of the club is to mentor learners in developing the mental and hands-on skills typical of the scientific-technical world. Such skills include abstract problem solving ability, spatial (three-dimensional) reasoning and planning, algorithm design, computer programming, and building technical artefacts such as electronic circuits, robots and various gadgets. We would like to introduce learners to the world of scientific discovery and technical innovation by discovery-based learning, where they tackle both concrete and abstract problems and solve them in team activities.

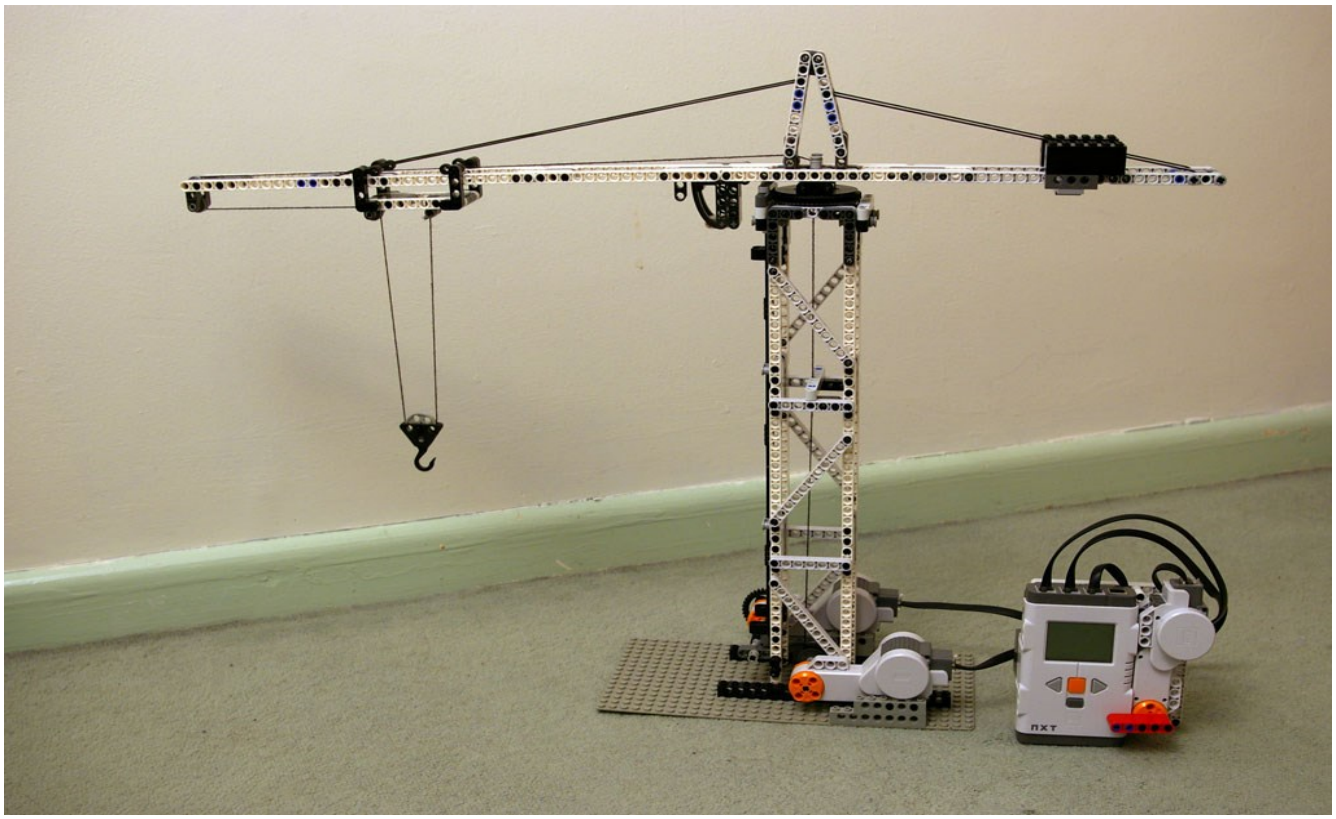
What we offer

We run the science club as an extra-mural activity at a frequency of one afternoon per week, on average eight weeks per term. Sessions would be about 60 minutes long for the Senior (Grades 4 - 7) class. The plan is to cover introductory robotics, and to help learners complete projects that match their skills and competencies. As such, the scope of what we do is open-ended, and each learner would be able to proceed at his or her own pace.

A typical (**senior** level) project (model crane) is shown on the next page. In order to build a model crane, we will take the learners through a number of steps, based on discovery and incremental improvement of the design, which is part of the problem-based learning design that we subscribe to. The steps that we will guide the learners through are as follows:

- Understand and conceptualise the basic functions and objectives of the artefact (A crane in this case).
- Define its design requirements—this is where the learner tries and fails to build a crane that can meet the specifications—for example the initial design might be too weak to lift a load.
- Think through the physics of the situation—understand concepts such as centre of mass, stability, forces, torque, strength of materials etc.
- Based on discovery and failure, learning will take place when the learner discovers how to overcome the initial problems.
- The learner will come to understand how the design requirements of the crane ties in with the physics and hence how to solve the design problem.
- Finally, the learner will learn to program the device to perform intelligently.

The science club will not be a place where the learners merely build models from a plan without any understanding of what they are doing. Our goal is to stimulate critical thinking and a love for learning by allowing the learner to try and fail, and then to improve based on what was learned. We will have small groups with two to three children per robotics set. In this way we can give individual attention at your child's level.



Day and time: The Grade **4 - 5** class runs on Thursday afternoons. This class will run from 15:15 to 16:15. The Grade **6 - 7** class runs on Wednesday afternoons . This class also runs from 15:15 to 16:15. The start date will be announced by email to parents who enrol their children. Please follow the registration process detailed on the next page.

Venue: Campus 2

We will accept children on a first come, first serve basis. If your child is interested, but the time does not suit you, please contact us. We will attempt to accommodate you if possible, but perhaps only later in the year.

Cost:

The cost would be R900 per term (8 sessions).

A registration fee of R70 is also payable.

Contact information:

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https://www.facebook.com/FutureLabScience/

ENTRY FORM—ROBOTICS AND SCIENCE CLUB

(DESTINATUS PRIVATE SCHOOL)

Please use this form and return by email or use our online registration at https://goo.gl/forms/goMwjalf8yLGZXFT2

☐ I want to enter my child for the first term of 2018

☐ I want to enter my child at a later stage, but please put me on the mailing list.

CHILD'S DETAILS:

SURNAME:…… NAME:……

GRADE:…… DATE OF BIRTH:……/……../ 20……

☐ BOY ☐ GIRL

Choose one session:

☐ Grade 4-5 class. Times 15:15—16:15

☐ Grade 6-7 class. Times 15:15—16:15

PARENT/GUARDIAN'S DETAILS:

SURNAME:…… NAME:……

CELL NUMBER…… LAND LINE (OFFICE HOURS):……

EMAIL ADDRESS……