

EXPERIENCE SWINBURNE ENGINEERING with AKORN Educational Services AN EXPERIENCE NOT TO BE MISSED



AKORN is pleased to announce that through a special collaboration with Swinburne University of Technology we are able to offer an opportunity for your school to participate in a **Yr 10 Engineering Students @ Work Workshop**

- Date: Thursday 20th June 2013
- Venue: Swinburne University-Faculty of Engineering & industrial Sciences-Hawthorne
- Time: 9:15 am – 2:45 pm
- Who: The opportunity for one team of six Year 10 students per school interested in learning about the various disciplines of Engineering and the exciting benefits they provide
- Cost: \$185 per school – Inc. program, morning tea, lunch, all materials & certificates

WHAT IS IT?

This is a **fantastic opportunity** for 60 students (10 teams of 6) to gain an understanding of engineering and of the various opportunities it offers. There will be a series of workshops offered to students that will each provide hands-on experiences. The students will be randomly placed in teams that will form one of three groups. Each group will participate in **either** one two-hour workshop along with two one-hour workshops **or** four one-hour workshops as shown in the following table.

Times	Group One (Max: 20 students)	Group Two (Max: 20 Students)	Group Three (Max: 20 Students)
9.00am	Registration	Registration	Registration 9.00-9.15
9.30am 10.00am	Product Design Workshop (Part 1)	Mechanical Engineering (One Hour)	Civil Engineering (One Hour)
10.30am	Morning Tea	Morning Tea	Morning Tea
11.00am 11.30am	Product Design Workshop (Part 2)	Civil Engineering (One Hour)	Mechanical Engineering (One Hour)
12.00am	Lunch	Lunch	Lunch
12.30pm 1.00pm	Mechanical Engineering (One Hour)	Product Design Workshop (Part 1)	Biomedical Engineering (One Hour)
1.30pm 2.00pm	Civil Engineering(One Hour)	Product Design Workshop (Part 2)	Robotics and Mechatronics (One Hour)
2.30pm	Event Conclusion	Event Conclusion	Event Conclusion

- Refer to next page for workshop descriptions

By having each team made-up of students from various participating schools, when returning to their home school – they will be able to present the “whole” picture to fellow-classmates and staff.

Attendance is strictly limited to the first ten schools responding to this notice.

To register please contact: Georgene Bridgeman, Akorn Educational Services
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WORKSHOP DESCRIPTIONS

Mechanical Engineering

Imagine you are jumping out of a plane, would you know how your parachute works? Students can learn more about air resistance by making their own parachutes. Students will design a parachute using a fixed carrying weight and one plastic bag. They will then create and test their design to come up with the best parachute to give their cargo a slow fall and soft landing.

Civil Engineering

Suspension bridges, with their tall towers, long spans, and gracefully curving cables, are beautiful examples of the work of civil engineers. How do the cables and towers carry the load of the bridge? Can a suspension bridge carry a greater load than a simple beam bridge? This simple project shows you how to find out. The goal of this project is to compare the strength of two simple bridge designs: a beam bridge vs. a suspension bridge. In a suspension bridge, the bridge deck is suspended from massive cables that stretch between the bridge towers, and are securely anchored at each end. The cables are under tension, while the bridge towers are under compression. For long spans, the suspension bridge is usually the most economical choice, because the amount of material required per unit length is less than for other bridge types. However, since suspension bridges are relatively flexible structures, stress forces introduced by high winds can be a serious problem.

Product Design Engineering

Laser cutters can be used to cut a variety of materials such as wood, plastic, and metal. Engineers use laser cutters as they work by vaporising material with a laser enabling precise shapes to be cut out of sheets or blocks and crafted to create a product. This is a workshop in Product Design Engineering where laser cutters allow your students to become producers, inventors and artists. Students will design an object using a CAD tool and then process the file to allow them to print their object on one of the machines available in the laboratory. Student will design and make, for instance, a photo frame in which they will take the finished product away at the end of their visit.

Biomedical Engineering

In this workshop students investigate the ways engineers are currently working with doctors and biologists to create replacement parts for the body. You will have the opportunity to work in teams to discuss the critical factors Biomedical Engineers need to think about when designing things for the body. Students will work within a team to develop their own ideas on how to create the perfect implant.

Robotics and Mechatronics

Students will construct a motorised robotic car from Lego pieces and then program the car to enable them to explore its operations, e.g. racing around the room, dodging obstacles, and following light sources. This workshop provides students with an understanding of robotics and mechatronics, and the assembly and programming of an autonomous robotic car.

