



## UTTARAKHAND STATE COUNCIL FOR SCIENCE & TECHNOLOGY

उत्तराखण्ड राज्य विज्ञान एवं प्रौद्योगिकी परिषद

आंचलिक विज्ञान केन्द्र (REGIONAL SCIENCE CENTER)

Department of Science & Technology, Government of Uttarakhand | विज्ञान एवं प्रौद्योगिकी विभाग, उत्तराखण्ड शासन

### **Training Program on Robotics**

**Venue:** Regional Science Centre (RSC), Dehradun  
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#### **About Regional Science Centre (RSC), Dehradun**

RSC Dehradun is an institution developed under the aegis of Uttarakhand State Council for Science & Technology (UCOST), Govt. of Uttarakhand and National Council for Science Museum (NCSM), Govt. of India, which was inaugurated on 3<sup>rd</sup> February, 2016. It is the resource centre for all sorts of people including students, tourists, science enthusiasts and researchers. It also works for science popularization, inculcating scientific temper among inhabitants and to supplement science education in the school of Uttarakhand.

There are three galleries and Science Park in RSC Dehradun. Frontiers of Technology Gallery, Fun with Science Gallery, and Science Park harbour numerous interactive exhibits to understand scientific phenomenon, developments in science and its impact on human civilization. The Himalaya Gallery is an added attraction to visitors which depicts exhibits on geology, geography, culture, biodiversity, tourism, traditional knowledge system and other related fields including prototype of holy *Amarnath Shivlingam*. RSC also equipped with following resources:

1. Taramandal (Inflatable Mini Planetarium) to explore direction, star, constellations, galaxies, planets etc.
2. 3D Theatre to show 3D film "SOS Planet"
3. Innovation Hub, which is set up to nurture promising innovative ideas sprouted in school students by providing them resources and technical input from experts.
4. Temporary Exhibition on Chemistry
5. Science Demonstration Lecture (SDL) Room
6. Auditorium of 250 sitting capacity
7. Conference Room & Library
8. Workshop for fabrication of exhibits and Store

RSC organizes various activities on Science & Technology and recently planned to organize five day hands-on training program on Robotics to school students in this summer.

#### **Hands-on Training on Robotics**

Human beings are hardwired to be curious and being curious is a major activity of childhood and young adulthood. No body have ever seen a student that was not curious about something. We, at RSC

intended to nurture such curiosity and creativity in students. Therefore, RSC Dehradun has recently planned to organize 5 days training program for school students of class 6-9<sup>th</sup> standards in its Innovation Hub facility. Working in the field of robotics is not only exciting for students but also provide ample opportunities for them to understand computer, electronics and mathematics.

Robotics is the branch of mechanical engineering, electrical engineering and computer science that deals with the design, construction, operation, and application of robots, as well as computer systems for their control, sensory feedback, and information processing. These technologies deal with automated machines that can take the place of humans in dangerous environments or manufacturing processes. Robotics brings together several very different engineering areas and skills. There is metalworking for the body. There is mechanics for mounting the wheels on the axles, connecting them to the motors and keeping the body in balance. It requires electronics to power the motors and connect the sensors to the controllers. At last it requires software to understand the sensors and drive the robot around. The proposed program will provide a hands-on training to students on robotics and certainly enhance creativity and problem solving skills of students through educational training.

### **Training Schedule & Charges**

Initially, we have planned to organize six trainings of 5 days each:

1. 19<sup>th</sup> to 23<sup>rd</sup> April, 2016
2. 3<sup>rd</sup> to 7<sup>th</sup> May, 2016
3. 17<sup>th</sup> to 21<sup>st</sup> May, 2016
4. 31<sup>st</sup> May to 4<sup>th</sup> June, 2016
5. 14<sup>th</sup> to 18<sup>th</sup> June, 2016
6. 21<sup>st</sup> to 25<sup>th</sup> June, 2016

<b>Course Structure</b>	<b>Topics Covered</b>
<ul style="list-style-type: none"> <li>➤ Lecture session</li> <li>➤ Design session</li> <li>➤ Fabrication session</li> <li>➤ Live testing session</li> </ul>	<ul style="list-style-type: none"> <li>➤ Working DC motors and actuators</li> <li>➤ Sensor integration with Microcontrollers</li> <li>➤ Embedded Systems and microcontroller logic</li> <li>➤ Use of IR, RF, touch and sound sensors for robotic applications</li> <li>➤ Embedded software development tools</li> </ul>

Each training program is designed for a group of 16 students in which four students from each school will be selected. Selection of trainees will be done by school itself.

Trainees will attend two hour course each day for the stipulated period in which they will be introduced with basics of robotics and trained with LEGO kits.

A certificate for training will be awarded at the end of the training. Visit of Science Centre will be facilitated to all the trainees.

Trainee need to submit Rs. 1,500/- as participation fee. The stipulated minimum fee will enable RSC to improve infrastructure and support various activities in the science centre. Trainees are advised to manage their travel and food during training.

### **For More Information, please contact following persons:**

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