

Liquid Propulsion Systems Centre

Pearl Jubilee celebration

HACKATHON LPSC Guidelines

The Liquid Propulsion Systems Centre (LPSC)

Liquid Propulsion Systems Centre (LPSC) / ISRO is the lead Centre for development and realization of earth-to-orbit advanced propulsion stages for Launch Vehicles and also in space propulsion systems for Spacecrafts. The LPSC activities and facilities are spread across its two campuses viz., LPSC Headquarters and Design Offices at Valiamala, Thiruvananthapuram and Spacecraft Propulsion Systems Unit at LPSC, Bangalore, Karnataka.

LPSC is vested with the responsibility of design, development and system engineering of high performance Space Propulsion Systems employing Earth Storable and Cryogenic Propellants for ISROs Launch Vehicles and Satellites. Development of fluid control valves, transducers, propellant management devices and other key components of Liquid Propulsion systems are also under the purview of LPSC.

LPSC started in a humble way with low thrust reaction control thrusters and SITVC systems for Satellite Launch Vehicle SLV-3, Augmented Satellite Launch Vehicle ASLV and graduated to the development of second and fourth stages with VIKAS engine and PS4 Engines for PSLV and GSLV. Thereafter, to achieve higher payloads to GTO, the highly technology intensive development of Cryogenic Engine and Upper Stage (CUS) was accomplished for GSLV. This was followed by the development of 4.0 m class large L110 liquid booster stage with clustered VIKAS Engines and indigenous development of C25 Cryogenic Stage for GSLV MKIII and the success was achieved in the first attempt itself. In the area of Spacecraft propulsion systems, from mono propellant systems for IRS spacecrafts and bipropellant systems for INSAT class spacecrafts. LPSC has reached great heights by developing flawless propulsion systems for Chandrayaan-1 and Mars Orbiter (MOM) missions. Currently, the development of state of the art Electric Propulsion System (EPS) is initiated and the first propulsion module has been successfully flown in GSAT 9. In addition to these developments, propulsion systems for technology demonstration like RLV-TD, Air breathing Propulsion, SRE, CARE module etc were also developed.

LPSC Valiamala is the Centre Headquarters, responsible for R & D, System Design/Engineering and Project Management functions. The Fluid Control Components Entity and the Materials & Mechanical Engineering Entity are located here apart from the Earth Storable & Cryogenic Propulsion Entities, handling the core tasks of the Centre.

LPSC Bangalore focuses on satellite propulsion. Design & Realization of Propulsion Systems, integration of spacecraft propulsion systems for Remote Sensing and Communication satellites, Development and production of transducers / sensors are other major activities at LPSC, Bangalore. Fabrication of launch vehicle stage tanks and structure at ASD/HAL is also coordinated and managed by LHWC at Bangalore.

Pearl Jubilee Celebrations

Liquid Propulsion Systems Centre had its inception on 1st June 1987 and is presently completing thirty glorious years as the lead ISRO Centre for development and realization of liquid propulsion systems for launch vehicles and spacecrafts. In the glory of the past 30 years, the LPSC Pearl Jubilee celebrations which span for one year shall focus on initiation of new technological developments, infrastructure buildup, preservation of environment and beauty of the campuses, organizing various events for employees, family members, our partners in Industries, students and general public with the support of one and all.

Multifaceted programs are planned for celebrating this proud moment. As part of this, we are proud to extend a warm welcome to the students of 8th and 9th class students of Kerala to take part in the **Hackathon LPSC**.

Hackathon LPSC

A Hackathon is a gathering of programmers who collaboratively code to solve a specific problem set in an extreme manner over a short period of time. Hackathons lasts for at least a few days - or over a weekend - and generally no longer than a week. While working on a particular project, the idea is for each developer to have the ability and freedom to work on whatever he/she wants.

Here the target audience is selected to be students of 8th and 9th standards. The Hackathon is primarily to train the students in aspects of programming using the popular Arduino and Raspberry Pi boards so as to give them a feel of control applications related to robotics, automation and internet of things. It is a residential program of 4 day consisting of three day training by eminent faculties and 1 day problem solving/project work.LPSC reserves all rights to modify the program.

Why you should be a part?

Hackathon LPSC is aimed at generating scientific temper in budding minds of students and to impart programming skill to them and is a great opportunity not only for the technical content involved, but also for the entire future of the student. It is not configured merely as a technical **Hackathon LPSC** but there are opportunities for the students to interact with the eminent scientist of the country. This program is fully funded by LPSC.

By associating to this event, students will be imparted with programming skill and a know how on Arduino and Raspberry Pi. These single board computers and micro controllers are two leading technologies in the field of control, automation and Internet of Things(IOT). Hence this will open up a new horizon for the young minds to flourish and a hand full of memories to cherish for ever.

Arduino is an open-source electronics platform based on easy-to-use hardware and software. Arduino boards are able to read inputs - light on a sensor, a finger on a button, or a Twitter message - and turn it into an output - activating a motor, turning on an LED, publishing something online. You can tell your board what to do by sending a set of instructions to the microcontroller on the board.

The Raspberry Pi is a series of small single-board computers developed in the United Kingdom by the Raspberry Pi Foundation to promote the teaching of basic computer science in schools and in developing countries.[4][5][6] The original model became far more popular than anticipated,[7] selling outside of its target market for uses such as robotics.

Who can participate?

Students of 8th and 9th standard of schools in Kerala can participate. The primary application for participation should be done by schools through their principal.

How to Apply?

The schools interested in participating this contest needs to register by email to *hackathon@lpsec.gov.in* with details as below. **The entries will be accepted till 11.59pm on 20th Nov, 2017.**

Name Of School :
Place :
Email iD :
Contact number of school :
Contact number of Principal :
WhatsApp number of the Teacher in charge for this program. :

Selection of Candidates

The schools are required to conduct a brief screening exam for interested students of 8th and 9th class. Question papers and keys will be provided by LPSC. This should be evaluated to find out two students who are eligible for the second round on-line exam. The photographs of the written exam and the details of the successful students should be emailed. Those two students are required to appear for the second round on-line exam, conducted by LPSC. More detasils will be announced later.

Hackathon Days

The Hackathon is planned to be conducted in the last week of December 2017 during the Christmas holidays. This is a fully residential program. This is a fully sponsored program by LPSC. The venue is at Thiruvananthapuram set by LPSC. These days are not only filled with technical stuff to ignite these budding minds, but also has eminent scientist interactions and visits. The participants will be awarded with Exciting prizes and Certificates.

Contact Us

You can find more details regarding the contest in the Pearl Jubilee Celebration page at www.lpsec.gov.in. Any query regarding the contest may be forwarded to our email id, contest_hackathon@lpsec.gov.in.