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Tinkering Lab Technical Workshops Series – 2018

Three Days Intensive Workshop on

Hardware Skills for the Hobbyist

- Organized by Venture Center -

Learn	Get hands-on experience withthe following categories of tools: • Measurement tools • Fasteners and clamps • Hand tools • Cutting tools • Polishing and grinding tools • Drilling and tapping • Power tools • Soldering and desoldering
Organized by	• Tinkering Lab at Venture Center
For whom	• Tinkerers, Hobbyist, Prototyping enthusiasts • Innovators & Entrepreneurs • Students with an intent in tinkering
When	**21st March to 23rd March 2019 | Time: 1600 – 1830**
Where	Lecture Theatre, Venture Center, 100 NCL Innovation Park, Dr. HomiBhabha Road, Pashan, Pune-411008
Contact	***Technical queries***: MsSayali |020-25865877/75/76 | sayali@web.venturecenter.co.in ***Logistical queries***: MsLipika | 020-25865877/75/76|eventsdesk@venturecenter.co.in
Cost	Fees: Students with valid id card – Rs.3000/- Others – Rs. 6000/- *Note: Fees once paid is not refundable under any circumstances **Limited seats: 9 seats** Note: Organizers reserve the right to accept or refuse or delay registrations so to optimize the composition of the group and hence maximize learning for all participants. **How to apply?** • Apply online at: http://bit.ly/2oF5oOF • Participation to the workshop will be based on your application and inputs from the faculty. After reviewing the organizers will confirm your participation by sending you an acceptance mail • Email of acceptance > verification > Payment > Seat confirmation

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Introduction

Do you love fabricating your own equipment/experiments?Would you prefer fixing gadgets yourself instead of making repeat trips to a service center?This workshop introduces basic hardware skills useful for the hobbyist, and provides hands-on sessions with the tools, along with a discussion of various functionalities. This workshop combines insightful lectures with practical lab exercises to reinforce key concepts.

Workshop Outline

- Safety training: Safety goggles, gloves, respirator, face shield, ear muffs. Power tool safety.
- Measurement tools: Screw gauge, Verniercalliper, level gauge, inclinometer.
- Combination/try square, dial gauge, measuring tape.
- Fasteners and clamps: Types of screws and screwdrivers, washers and nuts.
- Rivets and riveter. Bar clamp, C-clamps, vice grip. Zip ties and hose clips.
- Types of adhesives and tapes. Glue gun. Heat gun.
- Hand tools: Plier, chisel, types of hammers, spanner.
- Cutting tools: Handsaw, hacksaw, aviation snips, snap-off knife, glass cutter.
- Polishing tools: Metal files, random orbital sander (types of sandpaper).
- Drilling and Tapping: Drill driver and electric drill, types of drill bits.Centre punch.
- Power tools: Dremeltool, Jig-saw.
- Soldering and desoldering.

Mandatory: All participants should wear thick-soled safety shoes. No jewellery or long-sleeved/loose clothing permitted. Long hair (females) should be tied.Stringent action will be taken for violation of safety instructions.

Workshop includes

- Theory sessions, demonstrations and hands on lab sessions
- Access to restricted website with online compilation of resources
- Workshop includestea/coffee.
- Certificate of participation issued by Venture Center
- Membership in mailing list to follow-up on workshop and intimation of relevant events/ funding/ opportunities from Venture Center.
- One-year free reference membership to Venture Center Library (http://www.vclibrary.org/)1-year Free Reference membership of Venture Center Library
- 30% discount on DIY membership for Tinkering lab and Prayashala for 3 months

***Please note, the participants will have to arrange for their own travel/local transport and accommodation.**
General information and useful contacts regarding Pune city are available on: http://www.venturecenter.co.in/puneguide/

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Workshop Schedule

Time (hrs)	Topic and Contents	Venue	Faculty
Day 1			
1600 – 1615	Welcome and background of Venture Center Introduction to Workshop	300 Protoshop	Dr. V Premnath
1615 – 1830	Safety in the Workshop. Measurement tools, Hand tools and Soldering. Clamps and adhesives. 1. Make a holographic prism using plexiglass. 2. Use a glass cutter. Cut a square out of wood and nail it in the centre. 3. Learn soldering and desoldering.	300 Protoshop	Dr. ChiragKalelkar
Day 2			
1600 – 1830	Screws, tapping and drilling. Power tool safety. Rotary drill. 1. Drilling into wood: Countersinking screws, and making holes using different types of bits. 2. Tapping and drilling into nylon. Classification of screws. 3. Rivet two plexiglass sheets and removal of rivets.	300 Protoshop	Dr. ChiragKalelkar
Day 3			
1600 – 1815	Washers and nuts. Cutting tools, polishing and grinding tools, multipurpose rotary tool. 1. Use wall plugs for mounting eyebolts onto brick. 2. Use of a jigsaw: Cut a rectangular notch in wood. 3. Use of Dremel tool to carve in wood.	300 Protoshop	Dr. ChiragKalelkar
1815-1830	Feedback and Valedictory	300 Protoshop	Dr. V Premnath

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Speakers (in alphabetical order of last names)	
 ChiragKalelkar	Dr. ChiragKalelkar did Ph.D. in Physics from Indian Institute of Science, Bangalore in 2006. He worked as Faculty Research Associate at the University of Maryland (2006-2008), Enhanced Post-doctoral Fellow at the National Chemical Laboratory (2008-2009), visiting Post-doctoral Fellow at the Raman Research Institute (2010-2011) and as Research Associate at the Massachusetts Institute of Technology (2011-2012). DrKalelkar works on aqueous foams. Presently, DrKalelkar is an Assistant Professor at the Indian Institute of Technology, Kharagpur.
 Premnath Venugopalan	Dr. Premnath is currently the Head- NCL Innovations, Head -Intellectual Property Group at NCL, Scientist-Polymer Science & Engineering Division at NCL and Director-Venture Center. He has helped found and be the first Director of Venture Center, CSIR-Tech (a technology commercialization company), Orthocrafts Innovations (degradable synthetic polymer based biomed products start-up) and BiolMed Innovations (silk based biomaterials start-up). He holds a B.Tech. from the IIT-B and a Ph.D. from the MIT, USA. He has also been a Chevening Technology Enterprise Fellow with the Centre for Scientific Enterprises, London Business School and Cambridge University, UK. He brings with him considerable experience in technology development and commercialization (two successfully commercialized families of biomedical products), incubation and innovation management, working with start-up companies (in Cambridge-UK and India) and engaging with large corporations on research and consulting projects as project leader.

About the organizers	
	About Tinkering Lab The Tinkering Lab is a facility developed and managed by Venture Center, NCL Innovation Park, Pune, India. The main aim of the Tinkering Lab is to help inventors and entrepreneurs to build prototypes of their ideas and generally "tinker" around exploring new ideas. The focus is on electronics, instrumentation and optics besides related prototyping and design. For more information, visit http://tinkeringlab.co.in/
	About Venture Center Entrepreneurship Development Center (Venture Center) – a CSIR initiative – is a Section 60 company hosted by the National Chemical Laboratory, Pune. Venture Center strives to nucleate and nurture technology and knowledge-based enterprises by leveraging the scientific and engineering competencies of the institutions in the Pune region in India. The Venture Center is a technology business incubator supported by the Department of Science & Technology's National Science & Technology Entrepreneurship Development Board (DST-NSTEDB). Venture Center focuses on technology enterprises offering products and services exploiting scientific expertise in the areas of materials, chemicals and biological sciences & engineering. For more information, visit http://www.venturecenter.co.in/