

Vigyan Ashram Status Report

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- Curriculum mapping workshop for ATL teachers at Hyderabad
- Teacher training program for Master Trainers from West Bengal
- Vigyan Ashram team participated in the Conference on 'AI for Social Sector'

A] Solar Dome Dryer Showcased @ National Conclave on Rural Technology@ Narmadalaya (MP)

Vigyan Ashram was co-organiser for National Conclave on Rural Technology held during 9th to 11th December at Narmadalaya (Madhya Pradesh). We had demonstrated 'Solar dome dryer' for red-chili in the exhibition. We have also demonstrated other technologies viz. AKXY home composter, microbial consortia for agro-waste composting, millet-based food products. Dr. Yogesh Kulkarni delivered talk on 'Technology Acceleration Platform for Rural Innovation' in the conclave.

We had shown live demonstration of chilly drying using Dome dryer. Solar Dome Dryer won 3rd prize in the 'Upcoming technology innovation' category.



B] World Soil Health Day celebration and Tissue Culture Lab progress (DST-SUNIL project)

- One day training & field demonstration was organized for 10 polyhouse farmers at Krushi Vigyan Kendra, Narayangaon on 5th December. The field visit was organized on the occasion of 'Soil Health Day'. A soil testing report was distributed to the farmers along with guidance on use of organic bio-fertilizer and pesticides.
- Three Units of climate control sensor & data logger units are installed for field demonstration & testing. These units are installed at polyhouse farmers in Retwadi (Kharpuwadadi) village of Rajgurunagar block. We are getting temperature & humidity readings on cloud storage for further analysis and climate control system development for open-ventilated polyhouse.



Soil Health Card Day

- iii) Tissue Culture Lab: Shrutika successfully completed two stages of banana tissue culture propagation. She is implementing learning of 'Vivekananda Biotech Institute' (VIB-Kolkata) & communicating progress with instructors of VIB.

C] Field visits for Learning experience:

There were multiple field trips organized for DBRT students in this month. On 13th, all DBRT students & staff visited KISAN-2024 an agriculture exhibition at Moshi (Pune). Students of home & health department visited 'Bhimthadi Yatra' on 26th Dec. Students of electrical section visited wholesale market in Pune city 27th Dec. Students of workshop section visited sugar-factory (31st Dec).



D] Atal-Tinkering-Lab (ATL) & DIY lab update:

i) VA Team conducted a ATL curriculum mapping workshop during 10th to 14th December at Hyderabad. VA team members, 16 teachers from Andhra-Pradesh, Telangana and Karnataka and UNICEF state education team participated in the workshop. They did shortlist and refinement of ATL activities during the workshop.

ii) UNICEF has captured a design thinking journey of designing a 'paddy dryer' in ATL lab at Zilla Parishad High school (Vijayawada, Andhra Pradesh). The video can be found on:

<https://www.facebook.com/share/p/15uGWLscCv/> .

iii) **Regional training workshop:** A regional training workshop for hub and spoke ATLs in 6 districts (Bapatla, Guntur, Krishna, NTR, Eluru, Palnadu) was conducted during 9th to 11th December. Total 34 ATL teachers from



ATL Curriculum Mapping Workshop

12 Hub ATLs and 22 spoke schools attended this training to learn skills in sensor application, basics of coding, digital fabrication etc. for conducting students activities in labs.

iii) **Engineering students mentoring workshop:**

A 4 days hands-on training workshop for engineering college students from 7 colleges of JNTU (Jawaharlal Nehru Technical University) was conducted during 18th to 21st December at PVP Siddhartha Engineering College & ZPHS, Penamaluru. Total 42 student & 7 faculty members attended the training to learn activity flow for ATL lab, school students mentoring need, using digital fabrication tools & basic electronics for project. Shri. Sudarshan (Education consultant from UNICEF) & Dr. G.R. Bhagyasri (SCERT) guided students on the objective of internship & their role.



Engineering College Students Mentoring Workshop

Telangana:

State level teacher's training workshop: A state-level training for hub ATL-lab teachers was conducted at ZPHS Karmanghat during 16th to 18th December. Total 31 Hub ATL teachers across Telangana participated in this workshop. Hands-on activities on Paper circuits, Resin art, home automation using humidity sensor and LCD display etc. were conducted during training.



Regional training workshop: A Regional level ATL in-charge teacher's training was conducted at TGMS, Anantharam during 5th to 7th December. Total 12 teachers (5 Hub and 7 spokes) from Mahabubabad region attended the workshop and learned application of basics electronics, Arduino program board, string art etc. Teachers also clarified their doubts about role & responsibilities of hub labs, maintaining ATL dashboard etc. and admin issues.

Karnataka:

Hub ATL training workshop: A Hub ATL teachers training workshop was conducted at Karnataka Public School (KPS) Kalasa, Chikmagalur during 19th to 21st December. A total of 34 teachers (26 Hub ATL and 8 Spokes ATL teachers) attended the training to learn application of TinkerCad, LDR sensor-based project and electronics circuit design skills.



Online Sessions: Apart from this, team also conducted online training sessions for ATL teachers & students:

Date	Topic	Link
4 th December (TS)	Tinkercad and paper folding using Pepakura	Click here
6 th December (KA)	Introduction To Scratch Programming	Click Here
3 rd Dec (AP)	Vehicle Speed Measuring Device Using IR Sensors	Click Here
31 st Dec (AP)	Tinkercad And Pepakura- Designing And Creating A Folding Model	Click Here

Vigyan Ashram ATL team from all states worked together in Pune from 24th – 31st Dec. They worked on finalizing content based on the ideas generated during curriculum workshop.

Do-It-Yourself (DIY) lab update: During December, DIY lab conducted 3 training workshops for 'little-tinkers'. Following are some of the highlighted learning of students as -

Training dates	Place	Learning activity	Participants
Tinkering with recycled stuff @ 16 th & 17 th December	Mahesh Vidyalaya, Pune	Learning Newton's laws by building rubber-band powered car using trash CDs	90 Students
Tinkering with Art & Craft @ 22 nd December	IBT school, Vahangaon	Designing a 'shadow-box' & learning basic electrical circuits	20 students (Class 7 th & 8 th)
DIY for Christmas celebration @ 26 th December	DIY lab Pune	Making of musical instrument and animation with <i>Scratch</i> software	6 Students

Apart from this regular membership, students learn image recognition, data visualization, basic electronics, made periscope, tangram etc. through hands-on learning activities.

E] ASMITA project updates: After installation of sewing machines, Asmita unit is getting momentum. Women started coming regularly and started learning new items. Following orders were completed in this month.

Apron & head cap (16 units), Curtains (15 units). Napkin (15 units). Beside this, women trainee learned following items: Men's Kurti, Anarkali dress, Use of embroidery machine, Ladies trouser and pocket stitching.

Asmita team also conducted embroidery workshop for five IBT schools near Talegaon area.



F] DIC & Technology Development Updates

i) **Black-Soldier-Fly (BSF) based composting & poultry farming:**

- a) Mahesh successfully processed 25.85 Metric Tons (MT) of wet waste at Rajgurunagar Municipal Council to produce 18.3 kg BSF larvae. Yield is still very lower than expectation due to Rodent Infection.

- b) 600 poultry chicks (Kaveri breed) were distributed to 17 farmers in Asane village (Dimbe region) as backyard poultry enterprise. On field training for proper housing, feed management and vaccination will be provided to all farmers.
- c) Mahesh Shinde participated in the 3-days Climate Champions workshop organized by Earth-On Foundation at Tapovan, Nadia, West Bengal. Workshop was held from 11th to 13th December to provide incubation support for climate-focused social entrepreneurs. Mahesh presented his idea of 'Black Soldier Fly' (BSF) based poultry feed formulation.

ii) Tejaswini has completed heat-balance study for polyhouse structure. She has found that polyhouse at Vigyan Ashram (surface area 384 M²) absorbed 87 kJ/sec heat. To nullify this heat gain, 38.5 gm/sec water is required to be evaporated. The two exhaust fans displace air with 12.33 m²/Sec with water evaporation rate of 49 gm/sec. Theoretically evaporation cooling should lower the temperature by 5^oC. But actually, only 1^oC drop in temperature was observed. This might be due to heat transfer through soil radiation or trapped air in the polyhouse. We are working on designing polyhouse automation system and this data is useful for the same.



Polyhouse heat balance study

iii) Red-Chilly dryer:

A field trial of 'Solar Dome dryer' was conducted at Narmadalaya institute (Khargoan, Madhya-Pradesh) campus during 8th to 12th December. Trial conducted on 200 kg red-chilli. Trails showed 55 kg water loss in 3 days (18.3 kg/day) with 42-45 °C drying temperature. The trial discontinued due to lower temperature in drying chamber. Reasons for lower temperature was shadow from nearby building and foggy hours etc. The dryer is shifted to Nandurbar area of Maharashtra state for further trials and modifications.

iv) Other research-fellow projects:

- In life-science lab, Megha calibrated 'flame photo-meter' for analysis of potassium for soil samples. She also worked with Pranit to test 4 soil samples for farmers and prepared 400 units of H₂S water-testing bottles.
- Indian Institute of Tropical Metrology (IITM, Pune) team visited VA campus on 25th December for installation of multi-layer soil temperature sensor. This Sensor will help to estimate soil moisture levels at different level (6 to 60 inch) for better irrigation & weather prediction data collection.



Megha performing DO test



BSF breeding chamber @ ashram



Mahesh @ Eco champion workshop

Visit website maintained
by Vigyan Ashram

www.dsttara.in

Technology Application
for Rural Area's

G] Introduction to Basic Technology (IBT - SF) program updates:

IBT Maharashtra:

- i) Following special workshops were conducted for 6 schools in Talegaon (Pune) region.
 - Wikipedia publication: Skills learned by students, desktop publication, scanning & Open Character Recognition (OCR) creation, in Marathi language.
 - Carpentry: Basic skills in wood cutting, joining, polishing for making simple articles such as name plate, key holder etc.
 - Embroidery: Hand embroidery skills for making various designs on cloth.
 - Graphical design: Using Canva software for designing posters, making visiting card, food labels etc.
 - Basic electronics & RC robot: Making simple electronic circuit, Remote Control (RC) robot, application of sensor.
- ii) Employee Volunteering: 20 employees from Schaeffler India volunteered for training of students in Nigade, Vahangaon and Salumbre IBT schools. They conducted hands-on activities with students & provided career guidance.
- iii) IBT students from 5 Schools supported by Schaeffler India visited Vigyan Ashram (Pabal campus), Nehru Tarangan (Mumbai), Science Park (Pimpri-Chinchwad) and Krushi Vigyan Kendra (Narayangaon). Total 305 students participated in visit.
- iv) IBT students in agriculture section of Dhamari, installed a drip irrigation system for 300 trees in their school premises. Students learned basic plumbing & micro-irrigation system installation skills through this activity.



Workshop on Graphic Designing



Schaeffler India employee volunteering activities

- v) Students in engineering section of Narayangaon school fabricated a cycle parking stand for school premises. Students of class 9, fabricated it while learning metal fabrication skill like cutting, bending, welding, painting.

Learning-By-Doing (LBD-STARS Forum) and STEM program:

- In the month of December, team has conducted 6 residential training programs at Lucknow. Total 537 teachers participated in the training. They learned hands-on activities from agriculture, food processing, basic electronic and mechanical workshop section in 4 days training.
- Apart from this, 4 online sessions were conducted and videos shared on you-tube channel. Session covered topics like making curd, making popcorn, kite making & musical instrument.

Master Trainers from West Bengal for training on STEM-SF @ Vigyan Ashram:

A hand-on training program for Master trainers from West-Bengal state was held at Pabal campus & DIY Lab (Pune) from 16th – 22nd Dec. There were eight science teachers from Govt. schools from Murshidbad district. In addition, 5 field team members from STARS Forum were part of the training. These teachers had undergone training at Pabal on teaching STEM in the classroom. Participants also visited IBT schools, IISER (Pune). Muktagan Exploratory, Jnana Prabodhini to understand different approaches to conduct STEM training in schools.



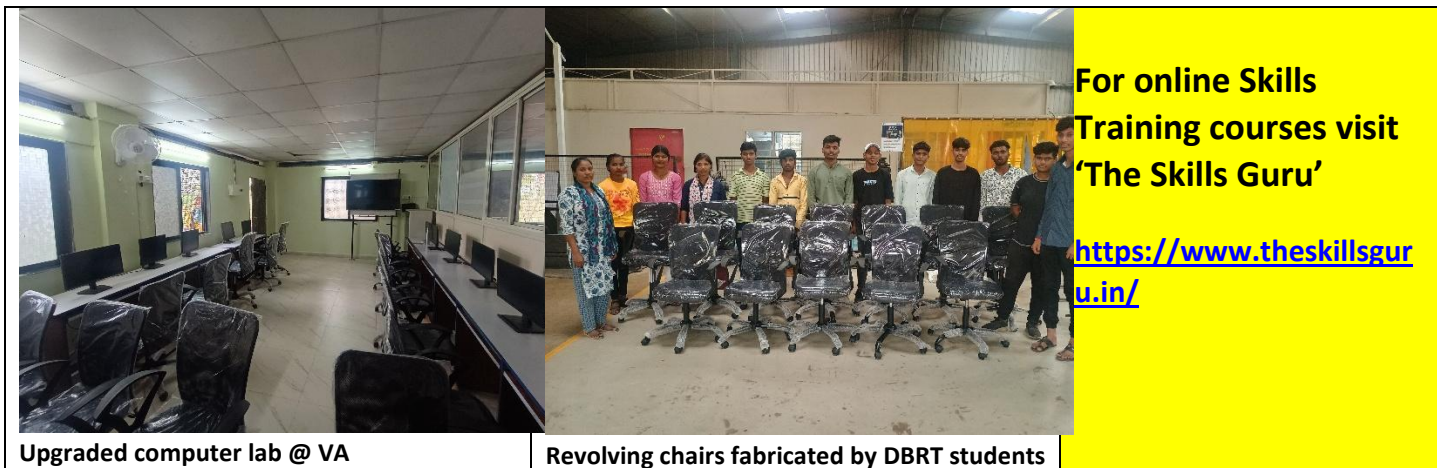
H] Inauguration of IBT program & upgradation of computer laboratory (STARS Froum):

IBT program at Hon. Baburao Genuji Pingle Vidyalaya, Gulani (Tal- Rajgurunagar, Dist-Pune) was formally inaugurated on 12th December at the hands of Mrs. Uma Krishnan (Manager-Corporate Sustainability, TATA Technologies). The infrastructure facility (tools & equipment, furniture etc.) and recurring cost for program is supported by TATA Technologies.

Similarly with the support of TATA Technologies and STARS Forum, we got new computers and smart screens for computer lab and classroom. The facility will be useful for conducting courses on advanced computing & Artificial Intelligence (AI) application.



Mrs Uma Krishnan inaugurating IBT program @ Gulani



Upgraded computer lab @ VA

Revolving chairs fabricated by DBRT students

For online Skills Training courses visit 'The Skills Guru'

<https://www.theskillsguru.in/>

I] Conference on 'AI for Social Sector'

STARS Forum organised its 15th Annual conference at BAIF, Pune on 6th & 7th Dec. Theme of the conference was 'AI for Social sector'. Vigyan Ashram was co-organiser of the conference. Vigyan Ashram team members Dr. Yogesh Kulkarni, Mr. Ranajeet and others participated in the conference. 102 participants from 7 states participated in the conference. One of the objectives of conference was to bring conceptual clarity and understanding of Artificial Intelligence and its potential especially for social sector. Mr. Vivek Sawant (MKCL), Mr. Rahul Kulkarni (Samagra), Dr. Ganeshan (IIT, Pawai), Ms. Deepa Chaudhary, Dr. Yogesh H Kulkarni were the eminent speakers. Participants learned few commonly available tools like chatGPT, NOTEBOOKLM, DALL-A etc. in the conference.



Inauguration of the conference

Participants at STARS Forum conference

I] DBRT skill training update: Following are some of the highlights of students learning during the month of December (VATF):

- **Energy & Environment section:** In electrical section, students learned installation of concealed wiring at new RCC slab work of new-hostel. Students learned fixing wiring casing-pipe, making electrical connection etc. while spending Rs.5,990/- on material. Students also learned basic wiring & TV screens fixing while installing 3 screens, tube lights and fans in computer lab and auditorium hall. Value of total community service for was Rs. 25,412/- for the month.
- **Home & Health section:** Student processed 10 Kg Amla to make candy, supari and muramba. They also processed 70 kg bakery flour for making bread and 6 kg Tamarind sauce. Total value of their community service was Rs.9,875/-
- **Computers & service sector:** In computer section students are learning new skills using online courses. They are also learning various AI apps e.g.s Plantix (for pest management), reroom.ai (interior design), Leonardo.ai (image generator) apart from regular Microsoft Excel, blogging and poster making.

- Girls are learning beauty parlour skills viz. hair styling, bridal make-up, waxing and saree dressing skills in beauty & wellness section.
- **Workshop section:** New hostel building's stair case fabrication was completed by the team of 4 students. They first designed staircase in CAD (*Solidworks*), calculated material requirements and fabricated it while learning welding, metal cutting skills. Total cost of it was Rs. 83,889/- including labour charges of Rs.16,786/-. Team of 13 students, assembled 15 revolving chairs. Total value of their work was Rs.54,870/-. Students also fabricated a Smart-TV stand for computer lab, learned RCC construction while participating in the work of new slab making work at hostel.



Learning about RCC slab on site

- **Agriculture & Animal husbandry section:** In farming section, students learned vermicompost skills, fertilizer dose calculation and pest management skills. Students harvested 800 kgs of Potato from 15 Gunta of land. They planted potatoes in October with investment of Rs.9,830/-. They earned gross profit of Rs.16,000/- while learning various farming skills. Students also planted 1 kg fodder maize and harvested 40 kg of Papaya, 450 kg fodder maize and 60 kg Napier grass.
- **Students' internship & career counselling:** A short-term (1 to 2 month) on-field internship started for DBRT students. In December, 7 students placed in welding workshop, electrical and food-processing units. Similarly a career counselling session started with Mr. Vinit Deshmukh (trained youth counsellor).



Potato harvesting

J] Entrepreneurship Development Program (EDP) updates (VATF):

Hero of the month:

- Mr.Vishal Garud started a 'Pritesh Food Products' a millet food products manufacturing & marketing enterprise at Shrikrushna-nagar, Chatrapati Sambhajinagar. Vishal is participant of 'Millet-based enterprise' training. He is getting social media promotion, offline marketing linkage support through EDP. He has invested Rs.7,00,000/-.

Activities of EDP Section:

- Saurabh & Vishal conducted 1 day awareness workshop on career opportunities 'Skill training and entrepreneurship' for students of 'Manvya organization' (Pune) on 14th December.

ii) WSHG training workshop: A 3 days 'entrepreneurship development' training workshop was conducted for Women Self-Help Group (WSHG) members supported by Seva Sahayog Foundation at Chalisgaon (Dist- Jalgaon). Training was conducted during 30th December to 1st January, with the aim of training members in identification of business opportunity, SWOT analysis, cost calculation, business plan etc. skills through hands-on activities. Training was attended by 20 WSHG members. We will provide necessary post-training support to trainees in collaboration with AFARM & Seva Sehyog Foundation.



EDP training @ Chalisgaon

ii) Webinar for technology awareness:

- A webinar on 'Business opportunities in hydroponic farming' was conducted on 14th December. Total 116 participants attended the webinar.
- A webinar on 'digital marketing' was conducted on 28th December. Webinar was attended by 38 participants to learn basics of new tools & channels of digital marketing, effective campaigning, costing breakup etc. Mrs. Nikita Agarwal (TT Academy, Chinchwad, Pune) guided participants as expert facilitator for this webinar.

Marketing linkage & mentoring support:

- During 5th to 7th December, EDP department participated in 'Ehsaas NGO Mela' organized by SPJIMR, Andheri, Mumbai. Event was aimed to provide marketing linkage to women led social enterprises. Mrs. Ashwini Tanksale (Milli Grain Cookies), Mrs. Deepali Zodage (Shipra Foods) and Ms. Rutuja Vishwasrao (Annapurna Foods) participated with their food products and made a sale of Rs. 30,190/-.
- Design team provided 'enterprise promotion & licensing support' to 18 enterprises through poster, social media promotion & enterprise registration - licensing (Udyam: 2, FSSAI: 1).
- On 20th December, a field demonstration of 'solar water pump' was conducted at Pabal campus for farmers & field staff of 'Torana-Rajgad Organization'. This solar pump is Direct Current (DC) powered reciprocating water pump. Pump is assembled & marketed by ReNew (a startup started by our EDP Mentee).



Demonstration of Solar Pump

KJ Other tit-bits:

- i. Dr. Arun & Mahesh attended 3-day social-entrepreneur training workshop at IIM, Ahmedabad during 4th to 6th December. Our 'BSF project' got selected for incubation support. Bootcamp covered topics like designing business plan, marketing, linkages with industry expert under 'Schaeffler India Fellowship' program.
- ii. Suhas presented VA work on 'Rural community development through techno social collaboration' in AICTE ATAL FDP organized by Chh. Shahu College of engineering, Chh. Sambhajinagar on 7th Dec.
- iii. A paper on "Fostering Innovation and Inclusivity: Opportunities, Challenges, and Way Ahead through Vigyan Ashram's School Innovation Programs", was selected for 5th International Conference on Creativity and Innovation for grassroots. This paper was submitted by Kishor and Komal.
- iv. Team of volunteers & employees of Kranti Foundation (Shirur, Pune) visited Pabal campus on 17th December. They work with underprivilege & tribal students and wish to collaborate for skills training & EDP.
- v. Yogesh Onkar (project manager- EDP) resigned from his position to pursue better carrier option. We wish him best luck future endeavours.
- vi. Weather record – Rainfall of the month – 00 mm (Total: 596.44 mm), Max temp-32.00° C, Min Temp – 9.00° C, Humidity –82%, Water height in well– 3.05 M.
- vii. Energy consumption record- Electricity unit – III Phase-995 units, I Phase import- 2393 units, Export- 152, Solar generation (off-grid)-55 units, DG used – 03:30 Hrs, Biogas- 38.46m³ (dung used 961 kg)
- viii. Animal Husbandry section update – Milk production – 457 Kg (Gross profit Rs:4665.00).
- ix. Online visitors: www.vigyanashram.com – 1135 (Organic search- 602, Direct search-533). Campus tour visitors:208.



Dr.Arun and Mahesh @ IIM-Ahmedabad

KJ Data Report: <https://tinyurl.com/59vjs792>

((Work at Vigyan Ashram is supported by: Asha for Education, Praj Foundation, EATON Foundation, LTI-Mindtree, SPA Education Foundation, UNICEF, TATA Technologies Pvt. Ltd, MAHLE Engineering Services Pvt. Ltd, Schaeffler India, Texol Engineering Pvt Ltd, INDUSA Endowment, Savitribai Phule Pune University, Dept. of Science & Technology, La-Foundation, The Prabhu Trust, STARS Forum and many individuals and foundations).

Photo Gallery:



STARS Forum conference co-hosted by Vigyan Ashram



'Learning by doing' teachers training @ Lucknow



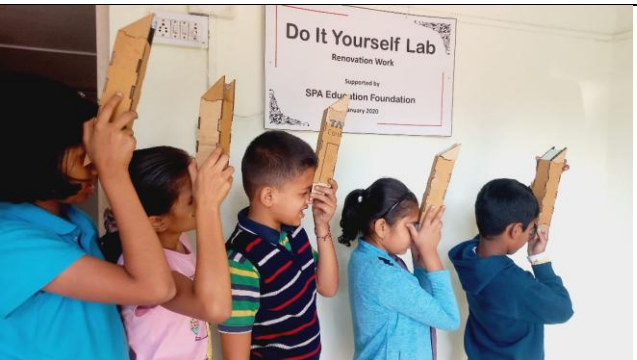
DBRT students visit to wholesale market



ASMITA project



DIY Lab activity



DIY Lab activity

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