

Vigyan Ashram Status Report

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Month of Festivals and Celebration @ Vigyan Ashram

Atmosphere in Vigyan Ashram is lush green with good monsoon rains. Campus & hostels are buzzing with new students and lots of energy. During the day, students were busy in their classes. In the evening, there were rehearsal for cultural programs for 'Independence Day' celebration.

78th Independence Day, was celebrated at Pabal campus with full enthusiasm. DBRT & DIC students performed

dance, drama, folk songs in the cultural program. All girls

dance performance and drama by

EDP team was a show stealer. After cultural

program; staff & students had a friendly volley-

ball competition. Home & Health students

distributed Ashram-made chocolates.

On 14th August, students & staff

planted new saplings, cleaned

scrap-yard as 'a Shram-daan' activity. Rakshabandhan festival was celebrated on campus on 19th Aug.

On 27th Aug, Dahi- Handi was organized. DBRT students played street-dance with dhol-tasha and made 3-layer human-pyramid. This year, girls team also tried to make human pyramid to reach Dahi-handi.



B] Make-A-Thon for learning advanced skills i) For Industrial Training Institute (ITI) students :

Vigyan Ashram has upgraded its workshop with advanced facilities like Tig Welding, Plasma cutter, CNC, Power coating, 3D printing etc. Such facilities are not available in many rural ITIs. Therefore, we have decided to conduct 5 days training 'Make-a-thon' for ITI students.

The 1st batch of Make-a-thon was conducted between 20th to 24th August. 15 students of 'Welder & fitter' (2nd year) trade from Ghodegaon Government ITI participated in the training. To demonstrate their learning students fabricated laptop-desk, book shelf and lead-acid battery trolley. MAHLE Engineering Services India provided financial support to this training.

ii) Make-a-thon for rural girl students:

During last academic year, we have successfully conducted 5 make-a-thon for girls from science colleges. La-fondation sanctioned five more Make-a-Thon for 100 girls. First batch of 26 girls from Tikaram Jagannath arts, science, commerce college, Khadaki (Pune) participated in the Make-a-thon from 6th-10th August. Girls learned CAD modelling, Arduino programming, basics of sensor application, 3D printing etc. skills while working on different project ideas. The program is becoming popular and many colleges are showing interest for participating in the Make-a-Thon.



Make-a-Thon for Rural Industrial Training Institute

Government ITI participated in the training. To demonstrate their



Make-a-thon for rural girls

C] DST project review meeting at Dehradun

We have two ongoing projects supported by Department of Science & Technology (DST). A review meeting of the project was done by Executive committee of DST on 22nd and 23rd Aug at Himalayan Institute of Medical Science (HIMS) Dehradun, Uttarakhand. Yogesh Kulkarni & Swapnil along with team of Development Alternative (DA, New Delhi) presented work done under TAP-RISE project. Ranajeet & Suhas presented work done under SUNIL project. Both SUNIL & TAP-RISE project completing its 1st year of implementation.

A promotional film made for TAP-RISE (<https://www.youtube.com/watch?v=cJ3aXhYOvBs&t=2s>) was shown during the meeting.

DJ DBRT skill training update:

DBRT course started on 10th July. All students underwent their induction in July. From 1st Aug, they were divided into 4 groups. i) Engineering, ii) Energy & Environment, iii) Agriculture – Animal husbandry, iv) Home & Health. They will rotate between the sections after every 2 months. They will learn all basic skills in the respective section. Three girls from Chattisgarh joined on 8th Aug and four girls' students from Assam joined on 24th Aug for DBRT course.

Home & Health section:

- i) We have collected health data like BMI, blood group, Hemoglobin, weight and height etc for all students. They also visited KEM hospital in Pabal village to cross check their readings.
- ii) Students learned process flow of sugar-syrup based preservation techniques while preparing fruit-jam, sauce, syrup and chikki.



Students learning bakery skills

Students processed 40 kg of dragon-fruits for making jam (2.5 kg) & syrup (10 kg). Students supplied 150 chocolate-candies for 15th August program and processed 69 kg of bread-flour for supplying bread to kitchen. Their total community service earning was Rs. 17350/- during August month.

Workshop section: Students learned use of various metal fabrication tools like bench-drill, pipe-cutter, grinder, arch & Co₂ welding, operations of lathe & milling machine etc. Students also learned SI & metric units while constructing brick wall at new tailoring section & classroom roof respectively. They also fabricated a ladder for water tank, stand for dryer. Total value of their community work is Rs.35967/-.

Energy & Environment: Students learned electrical switch board fitting for house wiring. Students prepared 16 switch boards against contract order from local electrical shop. They also learned making of LED strip-light while making 2 decorative stripes. Students repaired two High Pressure (HTP) pumps and water-pump while learning motor-rewinding skills. Total value of their community service was Rs.16890/-.



DBRT students learning construction skills

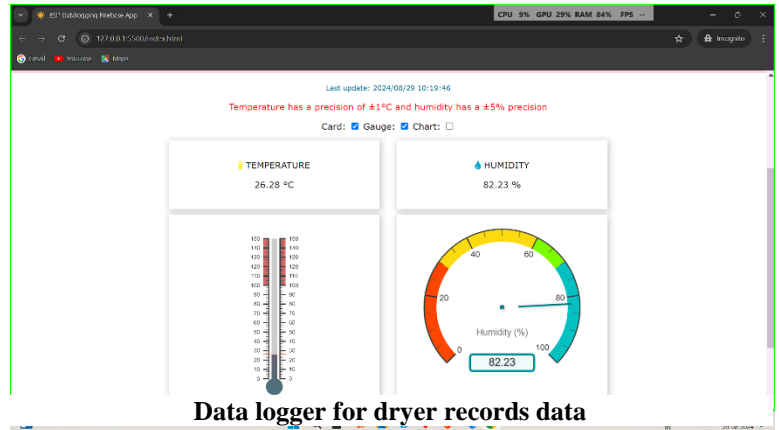
Agriculture & Animal husbandry: Students harvested 1200 kg maize fodder. They sowed 2 kg seed on 26th June with Rs.2115/- cost of cultivation. Students also harvested 13 kg capsicum from polyhouse and learned pruning of guava plants. In the polyhouse, students learned fertigation while dosing Gliricidia (*Gliricidia*

sepium) ark + MgSo4 and Potash Solubilizing Bacteria (KSB) & Phosphorus Solubilizing Bacterial (PSB) microbial culture.

E] Technology Development project & DIC updates:

Red-Chilly dryer:

- Abhijit & Prasad started data collection for solar dome dryer for red-chilli drying. For a batch of 200 kg of red chili, 140 kg of water needs to be removed. In the present dryer, we are able to remove 21 kg of water per day (6-hour of drying period per day). From energy calculations; 131.7 KJ energy was harvested by dryer from Sun for 58.35 g per minute water evaporation.



Now we are working on optimizing drying process with placement of exhaust fans & air circulation fans on drying trays.

- Pranit & Suhas resolved an issue with the temperature sensor & data logger. They also worked on restructuring user interface (UI) for making it more user-friendly and visually appealing.

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

- BSF based waste processing is started at Rajgurunagar dumping yard. Mahesh processed 5831 kg municipal waste and produced 105.6 kg of BSF pupae in August. All pupae were used for increasing egg production at breeding chamber facility in Pabal campus. He is facing issues of rats & birds in BSF rearing. He is working on repairing bird net & fixing tin-sheets as rat-trap.
- Pranit completed Q-GIS (Quantum Geographic Information System) mapping for backyard poultry farming beneficiaries in Ambegaon region of Pune. QGIS mapping will help us in proper documentation of project interventions & recording impact.



Polyhouse climate control system development:

- Suhas and Ayush conducted experiments to test new algorithm to calculate humidity inside polyhouse based on 3 parameters – outside temperature, outside humidity and inside temperature. Due to higher error & cost involvement in the 'digital humidity' sensors, this method is adopted & tested for polyhouse data loggers. By this method an outside temperature & humidity data is fetched from open-source metrological data along with actual inside temperature to calculate precise humidity

calculation. Ayush developed algorithm & code to determine real-time humidity with this method. (Ayush blog link- <https://vadic.vigyanashram.blog/2024/08/16/observing-from-all-tools-available/>)

- Pratik started recording pest infection data for yellow-mite and thrips infection on capsicum crop in polyhouse with respect to temperature & humidity levels. Data will be useful in developing Artificial Intelligence (AI) based pest-predication system.

Other research-fellow projects:

- Fab-Academy: Mr. Sumit Thakare completed his Fab-Academy course. He got graduated in an online graduation ceremony conducted at FAB'24 global fab conference & symposium held at Puebla (Maxico) during 3rd to 9th August.
- Rutuja conducted experiments on barnyard-millet (Bhagar) for preparation of dosa, thalipith, dhokla pre-mixes. Bhagar is good source of minerals (iron, magnesium, phosphorus) & also preferred as fasting-food. Initial trials showed encouraging results & she is working on standardising recipes. Rutuja also participated in two millet processing training programs as a technical instructor at Sangolla & Latur from 21st to 23rd August.
- Pranit Kamble attended 'polyhouse farming & nursery management training program' at the KVK Narayangaon during 21st to 24th August.
- 5 employee volunteers from Eaton India Innovation centre (Pune) visited Vigyan Ashram on 7th August to provide technical support on polyhouse sensor, sanitary pad incinerator project.
- Anjali Ghadage completed her research fellowship. She worked on 'instant idly-mix & roasted soyabean recipes. Neha Jethwani & Ayushya Maury (student intern under IITB Living-lab project) also completed their internship.
- Tejaswini Patil (Agril B Tech) joined DIC fellowship program. Apart from this, a batch of 5 students from Dr. BSKKV agricultural engineering (B Tech) also joined 4 months internship program.



Dosa from barnyard-millet (Bhagar)



Visit of Eaton Volunteers

F] Faculty Development Program (FDP):

'Seed the Change: Vigyan Ashram approach in design thinking & entrepreneurship' residential workshop for faculties of higher education institution was conducted at Pabal campus during 28th August to 1st September. Training was organized in collaboration with Maharashtra State Faculty Development Authority (MSFDA). Total 13 faculty members from engineering, architecture, Science & Commerce discipline participated in the workshop. They learned implementation 'design-thinking' methodology (empathy, defining problem, ideation, prototype, proof-of-concept etc.) in higher education. Our alumni entrepreneur Mr. Sunil Bhondage (Greeny-

the-great), Mr. Sidhesh Sakore (Agro-rangers) and Ms. Kalynai Chavali (Sahrudaya) shared their journey of innovation & entrepreneurship with participants (VATF).

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

i] Training on manufacturing of Mahua-Flower collector: On 10th & 11th August, a hands-on training program on fabrication of 'Mahua-flower collector' was conducted for NGO 'Aarohan' (Jahwar). Mahua (*Madhuca longifolia*) flowers are one of the important non-timber forests produce for tribal community. Its flowers collected from ground (below tree) gets less price. This innovative flower collecting umbrella was designed & fabricated by Vigyan Ashram in 2016. EDP & workshop department team trained 4 members of WSHG in stitching of green-shed net, attaching necessary support & hanging it to tree for flowers collection.



ii] Millet processing workshop:

EDP team had conducted a webinar & two hands-on training programs on 'millet processing' in August. A free webinar was conducted on 11th August to provide scope of millet farming & processing in India. It was attended by 100+ participants (webinar recording - <https://youtu.be/YPDvuM3-62c?si=yLDoytKBODf10edF>) The hands-on training workshop was conducted in association with AgroZee Organics Pvt. Ltd. on 24th & 25th August and 31st August – 1st September. Workshop was attended by 38 participants to learn skills in making of various millet value added products like premixes, crackers, cookies, chiwda etc.

A special session on online marketing was also conducted by Mrs. Pragati Gokhale (founder of <https://www.marketmirchi.com/>) for trainee participants.



Training on Millet processing

Marketing linkage & mentoring support:

- Yogesh Onkar visited 'Vandhaan Kendra' at Kolhewadi (Junnar) to provide on field technical & marketing linkage support. 'Vandhaan Kendra' farmers have started milk processing unit. Presently they are using traditional method for Khowa, Ghee etc. preparation. EDP section is planning an advanced dairy technology based training program.
- Yogesh & Saurabh visited Vanchit Vikas Santha (Ahmednagar) and Sai Shraddha Foundation on 28th August to explore possibilities in collaboration for EDP trainings.

- Ganesh attended training workshop on "Understanding Pathways to Improve Producers' Roles in the Bamboo Value Chain" at Nasik. Training was organized by GIZ, Skillgreen and Pragati Abhiyan (Nasik) to discuss scope in technology intervention & marketing of Bamboo cultivation.
- A new enterprise registration & licencing support provided to 5 enterprises (Udyam Certificate-3, FSSAI License-2).

Hero of the month:

Mr. Anil Panchal started an electricals & electronics business by the name of "Aditi electrical & electronics" At-Lohgaon, Tal Bololi, Dist.-Nanded. Anil attended 'Basics of solar PV installation & maintenance training workshop' & also getting marketing support under EDP program from last 6 Month.



Mr Anil Panchal : Hero of the month

H] Introduction to Basic Technology (IBT) program updates:

IBT Maharashtra:

i) 3D printing & sensor application training: IBT instructor's training on 3D printing & sensor application (electronics) was conducted during 12th to 14th August at Pabal. Training was attended by 17 instructors to learn basic CAD designing (TinkerCAD), 3D printing, user of Arduino programming board, using sensors etc.



IBT Co-ordinators training @ Pabal

ii) School Head-masters & Coordinator Training: The IBT Coordinator training program was held at Vigyan Ashram, Pabal on 16th August 2024. Training was focused on achieving sustainability in IBT implementation through community outreach, documentation of best-practices etc. Training workshop was attended by 24 school-administrators.

iii) Suyog & Ajikya visited IBT schools at Madaj (Dharashiv district) on 20th & 21st August. With the help of local instructors & students, they set up IBT lab. Madaj is running IBT program from 1999. But the labs and tools became too old. We are very thankful to Mrs. Anita Dandekar for helping



Safety door by Gulani IBT dept

Madaj school in purchasing new tools and for new setup.

Students learning highlights-

- Students of IBT school Gulani (Pune), fabricated a safety-door for their school computer classroom with the help of school instructor. Students learned basics of metal fabrication skills like measurements, metal cutting, welding, painting etc while earning a community service of Rs.12500/-.
- Students of Home & Health section at Khadaki IBT school, prepared more than 1000 hand-made Rakhis & sold them for Rs.4196/-. Students put up stall at 'gram panchayat' office on 15th August with beautiful posters designed using Canva software.



Soak pit making activity @ Salumbre

Students earned net profit of Rs.2594.00 through this activity. Rakhi making & sells activity was also organized by 10 more IBT schools in Talegaon & Pune region.

- Students at Dhamari IBT school fabricated 53 units of book shelf for their classrooms. They learn metal sheet-bending, welding, painting skills through this work. Total value of their community service was Rs.2,65,000.00
- Students of Salumbre IBT school, organized an animal health checkup & vaccination camp in school with the help of local veterinary doctor. Total 160 animals were checked for foot & mouth, lumpy skin etc. diseases. Students learned various disease, vaccination practices & importance of record keeping through this activity.
- Students of Vahangaon IBT school made a LED display board for their school weather station. Students designed display board for real-time temperature-humidity display while learning sensor application, soldering, Arduino programming etc skill with local instructor.



Visit to LBD program @ Nandgram

Learning-By-Doing (LBD) @ U.P (STARS Forum):

1. Dr. Yogesh Kulkarni visited Kaila Balak school and Composite school, Nandgram, Gazhiyabad on 21st August. Visit was for mentoring of LBD team and instructors in the school.
2. We are preparing base line questionnaire for evaluating LBD program in new schools.



Teachers training @ Nasarapur (Karnataka)

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

i) Regional Teacher Training workshops @ Andra-Pradesh: An advanced teachers' training workshop was conducted at ZPHS Govindapalli, Nandyala during 12th to 14th August. Training was attended by 6 Hub ATL teachers and 4 spokes school ATL teachers. Teachers built various STEM based projects using robotics, IoT based home automation, use of Scratch programming and mobile based AI application.

ii) Regional Teacher's Training workshops @ Karnataka: During 20th to 22nd August training workshop was conducted at KPS Narsapura ATL hub school. The training was attended by 24 hub school teachers from Karnataka. We covered topics, from the basics of Arduino to IoT applications.

iii) Online session for ATL staff & students: Following online session were conducted in August.

Date	Topic	Link	ATL state
06/08/2024	Designing and Prototyping: Part 1- Introduction to 2D drawing and 3D designing	Click Here	Andra-Pradesh
13/08/2024	Designing and Prototyping: Part 2- Introduction to 3D printing	Click Here	Andra-Pradesh
20/08/2024	Electronic Display System using 7 segment display	Click Here	Andra-Pradesh
21/08/2024	13 Quality Indicators for Teachers	NA	Telangana
28/08/2024	Walking through AIM Dashboard	NA	Telangana
02/08/2024	Designing and Prototyping: Part 1	Click Here	Karnataka
09/08/2024	Designing and Prototyping: Part 2	Click Here	Karnataka
23/08/2024	13 Quality Indicators for Teachers	Click Here	Karnataka
30/08/2024	Arduino Programming	Click Here	Karnataka

Do-It-Yourself (DIY) lab update: Apart from regular weekly tinkering classes to membership students, following important training workshops were conducted by DIY lab as –

i) Resin Rakhi making: On 15th August, DIY lab conducted an epoxy resin art based rakhi making training. Training was attended by 15 participants to learn molding & casting, epoxy resin property, mixing etc. Students learning can be found on- <https://youtu.be/jTYcZEIVOMk>

ii) Ganesh decoration project activity: DIY students build a learning project through sensor application for 'Ganesh decoration'. They used line-follower robot, IR sensor-based fountain to showcase 'Ganesh pradakshina to Shiva' in a very artistic & beautiful project. Video presentation link - <https://youtube.com/shorts/dx3X067h8f0?feature=share>



I] Project ASMITA & Wikipedia update:

Construction of shed for ASMITA project is in progress. Fabrication of side wall is completed. DBRT students started construction of brick wall and WC unit. Students are also working on partition board fixing and wall plastering. Trainee women are practising stitching of 'school uniform jackets' and 'Modi-Jacket' from expert trainer Mr. Saurabh Pathare (Wagholi, Pune). They also learned design & sticking patterns of blouse and different type of pouches.



Tailoring class under Asmita project

J] Other Tit-bits:

- i. Wikipedia girls team completed scanning for 2853 pages from 6 Marathi books.
- ii. Tata ProEngage volunteers Mr. Chetan Kahate, Ms. Marion Jhunja, and Mr. Soumya Mukherjee started working on making design files of composter, dryer and BSF breeding chamber. This is part of online-employee volunteering initiative from TATA group of industries.
- iii. UNICEF conducted 'Spot check' account audit for ATL program on 13th -14th Aug at Pabal.
- iv. Bhushan Rothe (DBRT-Workshop section instructor) resigned from his post for better career prospects. We wish him best luck for future endeavours.



Mr Gajanan Londhe (NCST-NCERT) visiting Vigyan Ashram and Dhamari IBT program on 14th Aug



Ms Geetanjali Sonam Wangchuk from Himalayan Institute of Alternatives (Ladakh) visited on 8th Aug

- v. Dr. Yogesh Kulkarni visited Sanjivani University, Kopergaon on 30th Aug. He was a Guest of honour for Induction program for new engineering students.
- vi. Weather record – Rainfall of the month – 151.75 mm (Total: 452.56 mm), Max temp-34.00° C, Min Temp –19.00° C, Humidity –90%, Water height in well– 5.40 M.
- vii. Energy consumption record- Electricity unit – III Phase-729 units, I Phase import- 1317 units, Solar on-grid export- 18.7, Solar generation (off-grid)-51 units, DG used – 9:40 Hrs, Biogas- 58 m³ (dung used 1161 kg)
- viii. Animal Husbandry section update – Milk production – 461 Kg (Gross profit Rs: 4470.00). Goat farm – on 12th August 55 kg breeding buck (Boer breed) died due to jaundice like intestine disease.
- ix. Online visitors: www.dsttara.org – 1081 (Organic search-800, Direct search-218), www.vigyanashram.com – 1308 (Organic search- 697, Direct search- 611). Campus tour visitors- 40.

KJ Data Report: <https://tinyurl.com/mr2yhktd>

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Photo Gallery:



Various ATL Regional workshops in Andhra, Karnataka and
Telangana

DBRT students in action



Make-a-thon for students from Tikaram Jagannath arts, science, commerce college, Khadaki (Pune) @
Vigyan Ashram, Pabal

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