

Vigyan Ashram Status Report

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A] Inauguration of 'Advanced Mechanical & Electrical workshop' facility

An 'Advanced Mechanical & Electrical workshop' facility and audio-visual classroom facility was inaugurated on 7th Oct. Mr. Milind Godbole (President, Mahle Engineering), Ms. Shibi Mathew, Mr. Ashutosh Deshpande (Head-Engineering services) and other eminent delegates inaugurated the facility. Guests interacted with DBRT students after the inauguration. The upgradation of facility was conducted with the financial support of MAHLE Engineering Services India Pvt Ltd CSR funding. Workshop section has 3D welding table, tools for metal & wood fabrication, powder-coating and CNC turning machine etc. Electrical lab got new furniture & tool sets. New conference room is setup with the support of M/S Mahle Engineering. We are thankful to them for their support.



B] Diwali workshop for Elders

Team @ DIY Lab conducted Diwali workshop for elders with neurological challenges at Tapas Elder Care on 28th October. The senior citizens made mini-Diwali lanterns, tea-light holders, crafted beautiful paper Jharokhas and also painted diyas. We were able to celebrate the spirit of joyousness with the senior citizens and thankful to them for their blessings. Over 50 senior citizens participated in the workshop. Details of activity are available on YouTube: <https://youtu.be/K9TBX7LFQDY>



C] Polyhouse farmers training & installation of data-loggers

A training program on 'soil nutritional management for polyhouse farming' was conducted for selected farmers of Kharpud village on 28th October. Training was part of 'improvement in protected cultivation' project under DST-SUNIL program. Mr. Yogesh Yadav (Subject Matter Expert- KVK Narayngaon) guided farmers on fertigation doses, use of organic pesticides while reducing cultivation cost etc. On-field discussion & field visit was conducted with 15 polyhouse farmers. A temperature & humidity sensor with display & data-logging facility is installed at polyhouse of three farmers. The climate data collected from these farmers will be used for building Artificial Intelligence (AI) based climate control & pest prediction system.



D] Training of 'Atal Tinkering Lab (ATL)' teachers in Andhra / Karnataka and Telangana

ATL teachers training and mentoring is one of the main activity. We are conducting 'Regional level' teachers training workshop. These workshops are conducted for 10 days, 3 times in a year. These are hands on workshop followed by online mentoring sessions. UNICEF and respective State Govt through Samagra Shiksha are providing financial support for the training. We are also engaging engineering college students to work in the ATLs for their internship. Students get academic credit for their work at ATL.

Following workshops are conducted by VA-ATL team in the month of October.

i) Teachers training @ GTWAS (B), Talarsingi, Paderu, Alluri Sitarama Raju District ; 17th Oct to 19th Oct 2024

Participants 44 (38 Male, 6 Female)

ii) Teachers training @ APMS Chirumammila, Nadendla Mandal, Palnadu Dist 21st Oct to 23rd Oct 2024; Participants 35 (24 Male + 11 Female)

iii) Teachers training@ Paramahansa Yogananda Vidyalaya, Kutheganipalli, Santhipuram Mandal, Chittoor Dist. 28th Oct to 30th Oct 2024. Participants: 57 (39 Male, 18 Female)

iv) A consultation on ATL Mentorship Program with Engineering Colleges, organized in collaboration with BCDE and JNTU campuses on 23rd and 24th October 2024 with 31 faculty members from 31 engineering colleges.

v) Low cost Makers space training for KGBV schools in Telangana State was conducted from 16th to 18th Oct at KGBV School, Jinnaram, Sanga Reddy District, Telangana. 12 teachers from 10 KGBV schools from 10 districts of Telangana.



E] Technology development & Design Innovation Centre (DIC) updates: (DST-SUNIL project)

i) Red-Chilly dryer: During the October month, Abhijit & Prasad added internal circulation fans in 'solar dome-dryer' for improving its efficiency. Four (4) fans of 14 watt were placed on the dryer periphery while 8 fans of 14 watt added below the drying tray stack. A drying rate of 6.6 kg/hr was achieved for saturated sawdust with weight loss of 40 kg/day. We are expecting a higher drying rate (up to 60 kg per day) for red-chilli field drying trials.



ii) Akash along with DBRT agriculture section students started data collection for 'Plant-Architecture' project.

They are collecting plant growth parameter data (on leaves size, leaf angle, shoot pitch, number of node etc.) for 10 vegetable & flower crops. The data will be used for generating 3D model of plants using computerised programming (https://baileylab.ucdavis.edu/software/helios/plant_architecture_doc.html). The work is part of Agro-Voltic project in collaboration with SunSeed APV company (www.sunseedapv.com).



Agrivoltaics Field Experiment



Measuring Width



Measuring Pitch



Recording Trips and Mites



Measuring Shoot length



Measuring Radius of stem

iii) Polyhouse climate control system development:

Tejaswini and Arun completed assessment of 'polyhouse sun heat' captured study. For this, they recorded temperature rise in the polyhouse from 11:00 AM to 1:00 PM while calculating theoretical assumption based on Stefan-Boltzmann's law of thermal radiation. For Vigyan Ashram polyhouse, 'Calculated net energy gain' is 113.21kJ/s after absorption by soil and LDPE paper emission. Total quantity of water evaporation required to counter net energy gain is further calculated. The data will help us in automation of polyhouse fan-pad system based on external climatic conditions.

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

- In October, 8.57-ton bio-waste was converted into compost using Black Soldier Fly (BSF) larvae, resulting in a yield of 70 kg of BSF pupae. The processing was affected by lower breeding rate due to excessive heat production in dark-chamber section of breeding cage. The excessive heat production issue is resolved by installing fan-pad evaporative cooling system in breeding chamber.
- At Rajgurunagar Municipal Council (RMC) waste dumping ground; work of tin-sheet side wall is completed. We are still facing problem of rats (greater bandicoot rat) attacks on larvae and working on trying different solutions viz. solar fencing, use of rodenticides, creating physical barriers etc.
- On 17th & 18th October, Ganesh visited back-yard poultry farmers at Sakhar village cluster (Velhe block). He guided farmers' on adoption of 'egg incubation' and 'poultry feed-mill' technologies. In Sakhar cluster (9 villages) more than 40 farmers have adopted backyard poultry farming model with bamboo & MS cage based housing structures.

Other research-fellow projects:

- Siddhant completed LPG based sanitary pad incinerator (5 pad capacity) outer casing fabrication, fitting of LPG furnace work. Testing of automated ignition system is at the final stage of field trial. The unit will be installed at 'Jnanprabodhani Harli (Solapur)' school.
- Prasad attended the PELF SOLIDWORKS Innovation Day 2025 exhibition on 22nd October at Pune. The workshop showcased the latest features and enhancements of SOLIDWORKS 2025, aimed at elevating the design experience and advancing product development capabilities.



Larvae Separator @ Rajgurunagar



Testing of incinerator in making

- Akash Farade, completed 2 months DIC-internship program on 30th October. He worked on 'plant-architecture' project.

TAP-RISE project update:

- TAP-RISE team completed on-boarding of 'AKXY home composter' technology on Online Network Digital Commerce (ONDC) and other popular (snapdeal, Rubaru, Mapple mall etc) platforms.
- Food nutritional value testing of Mahua Flower based products developed by Madhya-Pradesh Vigyan Mahasabha (MPVS) was done.

F] Entrepreneurship Development Program (EDP) update

Event management training: A two days training on 'opportunities in event management enterprise' was conducted on 5th & 6th October. Training was conducted in collaboration with Times & Trends Academy (TTA), Chinchwad. Event management is new trending business opportunities in cities, small towns. Total 11 aspiring entrepreneurs attended training to learn skills in basic interior design, balloon & flower decoration, food-catering etc. through hand-on activities & expert experience sharing (VATF).



Training on Event Management

Marketing linkage & mentoring support:

- Diwali Festival Exhibition: EDP alumni Ms. Rutuja Vishwasrao (Proprietor- Anapurna Food products) participated in 'Diwali Festival Exhibition' at Chinchwad during 17th to 20th October. She exhibited & sold millet-based value-added products, Moringa powder fortified products. These products were prepared with DBRT students at Pabal campus. Students also participated in the exhibition as on-field training.
- On 22nd October Saurabh visited alumni entrepreneur Pranita Khirid, Sunanda Mandekar and Sangharsh Kadam in Pune and Pimpri-Chinchwad to provide on-field technical guidance and mentoring support.
- Yogesh Onkar visited entrepreneur at Parbhani and Nagpur district during 23rd to 28th October. He met Mrs. Kunta Galande (village- Phulkalas), Mr. Mahadev Dukre & Mr. Aniket Dukre (village-Pathari) in Parbhani district on 23rd October and also visited officer of Pradhan Mantri Formalization of Micro Food Processing Enterprise (PMFME) scheme on 24th October. On 28th October, Yogesh Onkar visited Mr. Prafulla Vanjarkar (Tea enterprise at Nagpur) to provide on-field enterprise mentoring support.
- A food product label design & social media marketing support provided to 4 new enterprise. Udyam registration (2 enterprise) & FSSAI licensing (2 enterprise) support provided to 4 new enterprises in October month (VATF).



Diwali Exhibition

G] DBRT skill training update:

Diwali holidays were scheduled from 25th Oct – 5th Nov. There was an internal target to earn maximum money from 'community service'. This will help students to purchase gifts while going home for Diwali. Therefore, the month was busy at ashram. Following are some of the highlights:

Agriculture & Animal husbandry section: In the farming section, students learned basics of hydroponics farming by planting lettuce & spinach seedlings in DWC & NFT system.

They also learned basic farming operations like soil preparation, fertilizer dose calculation, irrigation methods etc. while planting 100 kg potato on 20 gunta land. Students harvested 150 kg papaya & 60 kg Napier fodder and also worked in soil analysis lab to test 9 soil and 1 water sample.

Workshop section: In workshop section, students learned 'working principle of metal welding, drilling and cutting operations'. They also learned engineering drawing while learning basic commands of CAD software (Solidworks). As learning & community service activity; students completed wall painting work of new tailoring unit (work order cost-Rs.17,799/-), fabricated 3 new dining table for Kitchen (work order cost Rs.18,322/-), Door fabrication (work order cost Rs.3,772/-), water proofing auditorium (work order cost Rs.17,920/-). Total cost of collective community service was Rs.70,814/- (including students earning of Rs. 17,352/-).

Home & Health section: In Home & Health section, students were busy in preparing 'Diwali Faral' a traditional sweet & namkeen. Students prepared various traditional food items like laddoo, chiwda, chakali etc. They packed it as per the customer need and sold in Pabal village. Students also processed 15 kg raw Amla to make Amla Juice (5 kg), candy (5 kg), powder (500 gm). As regular practice activity, students processed 46.5 kg bread flour to make bread, cookies. Total sale of food products in October month was Rs.16,520/-.

Energy & Environment: In this section, students learned installation & service-repair of CCTV units. They installed new DVR (Digital Video Recorder) & serviced 5 cameras in agriculture section & students hostel. Students also learned installation of water pump while repairing pump at EDP section. Students did basic overhauling of Diesel Generator (DG) set and started electrification work of new tailoring unit. Total value of community service was Rs.19,000/-.

Service sector: New beauty & wellness learning activity started for DBRT girls. A basic 'beauty parlour' training has been established at girls hostel for training. In October, three training sessions were conducted for girls. Apart from this, student also learned singing, origami art activities and presentation skills using CANVA, Microsoft Power-point etc. software's in weekly seminars.



Applying fertilizer to potato field.



Installing electric motor

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

i) IBT Headmasters & coordinators meeting: On 8th October, one day 'Project review' meeting was held with 10 Principal and IBT coordinators of 10 schools at Talegaon. This meeting was held mainly to develop proposal for next year. These schools are implementing IBT program from last 3 years with the support of 'Schaeffler India Pvt Ltd' CSR initiative. New proposal to implement New Education Policy (NEP) and challenges with respect of day-to-day activities were discussed during the meeting. Dr. Yogesh Kulkarni & Mr. Gaurav Chaudhari anchored the discussion with school principals (S.F).



IBT HM Meeting @ Talegaon

ii) Preparation of Technovation: 40 IBT schools registered for this year's Technovation challenge. The Technovation exhibition event will be held on 22nd November at JPNC, Pune.

iii) IBT Instructor training program: A 4 day residential training for the IBT schools was conducted from 23rd October 2024 to 26th October 2023 at Vigyan Ashram, Pabal. Total 28 IBT instructors from 13 schools participated in the training.



IBT instructors training @ Pabal

Students learning highlights-

- Students of Sumati Balwan School (Katraj, Pune) organized 'Diwali Bazar' an open-house exhibition of IBT products on 17th October. More than 600 people visited exhibition and appreciated student's enthusiasm. Students earned community service of Rs.15,500/- by selling various products to guests.
- Students of Kohinde school fabricated & sold 1 unit of 'coconut breaker & water collector' for Rs.5000 to nearby temple.
- IBT students at Salumbre, Kohinde Shivali and Shirgaon organized 'Diwali Exhibition' in school. They prepared food-items, LED strip lights, painted Diyas, Sky lanterns etc. as learning activities. Students learned valuable soft-skills in presentation, sales, accounting etc. during the exhibition. Total value of their community service was Rs.20,025/-.
- Students at Nirgudsar School, learned application Light Dependant Register (LDR) and basic programming with Arduino. Students are preparing a science project with LDR application & wanted to learn it in the school. VA trainer helped in understanding its science & field applications.



Diwali Exhibition @ Shivali IBT school

- Two online technical sessions were conducted for IBT instructor in October month. 1st session was conducted on 'solar PV application' on 5th October while 2nd session on TinkerCAD was conducted on 19th October.

I] Learning-By-Doing (LBD) and STEM program:

- A 'Train the Trainer' (TOT) training workshop was conducted for selected 14 masters trainers at SIRD, Lucknow during 17th to 19th October. The Master trainers will work as a trainer for 2400 LBD teachers training. We have scheduled total 24 trainings of 4 day duration between October – March. Training will cover 2400 school teachers where LBD will be implemented.
- First batch of training was completed from 21st – 24th October with the participation of 85 teachers. Dr. Yogesh Kulkarni, Mr. Ranajeet Shanbag, Mrs. Komal Raut, Mr. Prashant Dubey and others were the main resource person for the training. SIRD officials and Samagra / UNICEF officials also visited during the training.
- Team is working on developing 'STEM based activities' in Bengali language. They are also mapping these activities with state board science & mathematics books (SF).



Training of Master Trainers



Inauguration of LBD training

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

DIY lab makers celebrated Diwali festival with 'Joy of Making'. Following are the some of the highlighted learning as –

- On 19th & 25th October, 23 students from Kitsungi maker space enjoyed 'Toy making' and 'Designing Jharoka frame' while learning of recycling, art-craft etc. (activity video link- <https://youtu.be/2muoY7dYHAI>)



Toy making @ Kitsungi Makers Space

- On 26th October, 7 young tinkers designed 'Diwali sky-lanterns' by using 3D design software and fabricated it with paper, cardboard, LED lamps etc (activity video link- <https://youtu.be/5KY-bHrvksl>)

Apart from this, regular membership students also made Light Dependant Resistance (LDR) based Diyas, Sky-Landers with motion sensor etc. project as their regular learning activities.

At Pabal campus the *bachha* company (tinker aging 7 to 12 yrs) learned basic electronics by making paper-piano circuit, Diwali lanterns and simple pressure switch for water-pump.



Diwali Lantern made by team @ DIY Lab

KJ Update on ASMITA & Wikipedia project:

- Wikipedia team completed scanning & proof-reading of 2553 pages from 7 volumes of 'O Bharat- Newspaper'. Its Wikipedia publication link - https://commons.wikimedia.org/wiki/Category:O_Bharat
- The wall construction, wall-painting, construction & tiling of WC unit completed for the 'Women-led tailoring unit' under ASMITA project.
- As a part of 'sewing & stitching' training team of instructor & students completed work of table-runner (11 units), aprons & head-caps (23 units), decorative wall-hangings (10 units, decorative curtain (25 mtr).

LJ Other tit-bits:

- Suhas & Abhijit attended 'Annual Monsoon Workshop' organized by Indian Institute of Tropical Meteorology (IITM), Pune on 18th October. New technology interventions, research advancement in weather monitoring were displayed in workshop along with experts' sessions.
- Prasad participated in the "Stakeholder Workshop for Sustainable Rural Development" organized by the Centre for Technology Alternatives for Rural Areas (C-TARA) at IIT Bombay on 4th & 5th October at IIT (Mumbai). Workshop aimed to discuss possibilities of collaboration in empowering rural communities.
- Team of fab-lab interns and DBRT students fabricated 1 unit of UV-lamp base low cost water filter and delivered to Dr. Fuke in Rajgurunagar.
- Abhijeet and Mahesh attended social leadership training workshop on 2nd October. It was organized by Leadership Development Centre at Jnana Prabodhini, Pune. The program is focused on developing leadership and teamwork skills through a series of engaging group activities designed to encourage collaboration among diverse participants.



Dassera Pooja @ Workshop

- V. Yogesh, Ranajeet, Suhas and Pranit visited NavGurukul on 29th Oct to learn about their training program.
- VI. Weather record – Rainfall of the month – 62.38 mm (Total: 596.44 mm), Max temp-33.00° C, Min Temp –16.00° C, Humidity –91%, Water height in well– 4.10 M.
- VII. Energy consumption record- Electricity unit – III Phase-744 units, I Phase import- 2315 units, Export- 68, Solar generation (off-grid)-103 units, DG used – 04.30 Hrs, Biogas- 38m³ (dung used 950 kg)
- VIII. Animal Husbandry section update – Milk production – 255 Kg (Gross loss Rs: 7350.00).
- IX. Online visitors: www.dsttara.org – 995 (Organic search-479, Direct search-347), www.vigyanashram.com – (Organic search- 483, Direct search-512). Campus tour visitors – 252.

KJ Data Report: <https://shorturl.at/5Ju0w>

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Photo Gallery:



Hero of the month:
Mrs. Kajal Korade started 'Samruddhi Tel Ghana' cold-press oil extraction enterprise At-Jambhut village Tal-Shirur, Dist.-Pune. She is EDP 'food processing enterprise' training alumni and also getting on-field technical consultancy & marketing support from past 10 month.



DBRT Students : Repairing Electric Fan



Diwali Exhibitions @ 24 schools in UP implementing 'Learning by Doing' LBD program



LBD Students doing Nursery in Kulgaon, UP school

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