

Vigyan Ashram Status Report

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A] Fabrication and testing of Grape Dryer (VATF) :

We are working on testing of grape dryer designed and developed by Mr.Ameya Kulkarni (DIC alumni and ICT Ph.D student). The work is sponsored by Marathi Vidnyan Parishad. Fabrication of grape dryer is completed along with the air-flow arrangement, controls (blowers and fan timer switches), and grape pretreatment system (water tanks with heaters).



A drying trial with 2.5 tons of grape's loading was conducted from 2nd to 13th April. Grapes were sourced directly from farmers from Sangli. During the trial, grape moisture content was reduced from 84% to 16% in an 11-day span (with 3 days of rainy spell, which extended drying time by 3 to 4 days) to make raisins. Experiments showed this system can reduce drying time by 45% as compared to commercial drying practices. (Traditional drying period is more than 15 days]. Raisins produced are of golden-green colored & electricity consumption was 2.5 kVA per batch. Further trials of grape and onion are planned for standardizing protocol & economics.



B] Testing drying efficiency of different solar cabinet dryers:

We are using different types of solar dryers at Pabal campus. In the month of April & May, there is maximum solar radiation. Hence Dyaneshwar & Rahul tested drying efficiency of 4 solar dryers on campus. Field trials with fresh-onion loading showed that Box type polycarbonate top & side-walls dryer is efficient with 20.26% drying efficiency followed by Box type polycarbonate top dryer (19.53 %), Solar dome dryer (18.66 %) and Circular cabinet indirect heating dryer (4.13 %).



Vigyan Ashram has developed expertise in design and development of various dryers. We are providing services to select, design and fabricate appropriate dryers for SHGs and Farmers.

C] DBRT students joined for two months internship (VATF) :

Internship in the month of April and May is a part of DBRT course. Students are placed with our alumni entrepreneur around Pabal for two months. This gives us an opportunity for students and teachers to finalize his/her career path. 40 students from this batch of 52 students have been placed for 2-month summer internship from 1st April. Eight girl students and four boys are given internship assignment on Pabal campus itself. DBRT teachers are regularly visiting them at the places of internship.



Internship @ Dairy



Internship @ FRP shop



Internship: Fabrication

Students' internship highlights:

- Yash, Shitij and Sahil are joined 'Kunjir Dairy & Milk Processing'. It is milk processing plant of 3000 lit/day @ Urali-Kanchan. Sahil & Shitij are learning Khoa and Panner making skills; while Yash is working on milk collection & selling counter.
- Ganesh & Varat are placed at Acrytech solutions (Pune) an acrylic laser cutting industry. Swapnil placed in 'Saburi Enterprise' a Fibre Reinforced Plastic (FRP) industry (Wadgaon-sheri, Pune).
- Hrutik & Laxman joined OM Fabrication at Allephata (Pune). They are getting good hands-on experience on fabrication of agri-tools, onion-storage racks, ventilators etc.
- Ketan, Dinesh, Rohidas and Dishant placed at Gurudatta Electrical Manchar (Pune) for learning domestic electrification & home appliance repair work.



DBRT students : Drying of Chikku flakes

Pabal campus highlights:

- Niramay Kishor Shakti leadership workshop:** 8 DBRT girl students along with their instructor Mrs Reshma attended 'Kishori Shakti leadership workshop' at Pune from 27th to 30th April. It was residential camp organized by Niramay. Girls' students learnt various life skills and leadership skill like decision making, team-work, creative thinking through activity-based games, exercises, yoga, dance etc.
- Home & Health section:** DBRT students used solar dryer extensively to dry onion (15 kg), methi leaves (14.6 kg) and pooran ready-mix (3 kg). They also worked on grape drying project for treatment 2500 kg fresh grapes, harvesting & grading raisin. As a part regular bakery training, they processed 35 kg flour to

make bread for kitchen breakfast. DBRT girls documented their learning in a short video film <https://www.youtube.com/watch?v=FqGIYGaxjLs> ; Girls students put up food products stall in the Pabal market on 21st April 2023 and sold 5kg kismiss.



New Idle grinder and steamer for kitchen

iii) **Electrical section:** Hrushabh & Sudam installed new Idli grinder and steamer in kitchen. They also repaired & installed 2 CCTV cameras in campus. Yash & Guran installed 3-Phase electrical connection for grape-dryer. Total value of on-campus community service was Rs.34830.00

iv) **Agriculture & Animal husbandry section:** Students are regularly feeding & milking in dairy & goat farming unit. Student harvested 15 kg brinjal from vegetable plot. Students also worked on repair of evaporative-pad cooling and fogging system in the polyhouse.



Maintenance of polyhouse

v) **Workshop section:** Sahid, Shiva & Sunny fabricated a fodder-manger for goat farming unit from scraped plastic drum.

vi) Maharashtra State Board of Technical Education (MSBTE) officers visited Pabal campus on 25th April for on-site inspection. We have applied for skill-training course accreditation for 4 different courses in Electrification, Solar PV installation, Welding fabrication & Food processing section.

D] Entrepreneurship Development Program (EDP) update (VATF):

- Bamboo Poultry cage fabrication workshop: Ganesh conducted 1 day on-field workshop for poultry farmers in Sakhar village (Velha, Pune). He demonstrated low-cost bamboo-based poultry cage for 50– 60 birds. We are working with Raintree Foundation in 9 villages of Velha region for poultry-based livelihood rural enterprise development.
- One day training workshop was conducted on 4th April for 10 farmers of 'Panjabrao Deshmukh Farmers Group-Pabal'. Registration with Mahadbt-farmers portal, Solar Pump (KUSUM) Yojana, Soil Analysis etc topics were discussed in workshop. Farmers collected 18 soil samples and submitted for analysis in soil-lab.



Poultry cage using bamboo

On-field mentoring:

- On 15th April, Ganesh visited Mrs.Swati Gawandi (Karad, Satara) and Pranit Kamble (Kurundwad, Kolhapur) for on field mentoring & follow-up support. Mrs.Swati & Pranit are EDP students and established home-based spices & solar drying enterprises respectively.
- On 17th April, Ganesh visited Yelara Project Society (YPS, Jath, Sangli) and IBT school at Nagaj for promotion of EDP & DBRT skill training programs.

- Bhanudas visited Raviraj (Ajara, Kolhapur) on 18th April. Raviraj is a student of EDP-Goat farming training beneficiary. Bhanudas guided him for feed management, breeding practices etc.
- Vishal & Bhanudas visited DBRT (2021-22 batch) student Pratik & Anirudh (Ambapwadi, Kolhapur) on 17th April and Vinayak Thanekar (DBRT 2019-20 batch) at Panhala (Kolhapur). They have started their metal fabrication enterprise after completing DBRT course.
- Vishal also visited Helpers of Handicapped (Kolhapur), Srujan Anand Foundation, Manora Foundation, Dr.V T Foundation in Kolhapur and MaanDeshi Foundation, Sushilatai Paranjepan School in Satara for DBRT & EDP promotion.
- A new enterprise registration support provided to 8 enterprises (Udyam Certificate-3, FSSAI Licence-3, Pan Card-2)
- SPJMR student Mr Prakhar Jain completed his internship in EDP dept for one month. He did the work of making business plan, documenting success stories, prepared leads management sheet in this period.



Pratiksha - Well Done Marketing Services

Hero of the month:

Mrs.Pratishtha Pokharkar started daily sundries & toiletries manufacturing enterprise at Pimpalgaon-Khadki (Ambegaon, Pune). Pratishtha has established 'Well-done marketing services' a door-to-door distribution business in past 2 yrs. She wanted to start manufacturing of hand-wash, liquid soap etc. but facing technical issues. DIC unit helped her to standardised liquid-soap formulation. Pratishtha has invested Rs.50000/- for manufacturing unit.

Mr. Kuldeep Chavhan started 'Dharti Dhan Jivamrut' (Wada,Tal-Junner,Pune) an organic fertilizer enterprise. He is getting technical mentoring & digital marketing support in EDP. He has invested Rs.600000.00 in venture with approx Rs.20000/- groos-profit/month.



Mr Kuldeep Chavan : Organic fertilizer enterprise

More @ EDP on <https://startupsarathi.vigyanashram.online/>

E] Wiki-Conference India-2023

Vigyan Ashram's Wiki-Girls team participated in Wiki-Conference India-2023 from 28th to 30th April at Hyderabad (Telangana). Komal, Priyanka & Pooja participated in the conference. They represented Marathi language group. Conference was attended by Wiki-Volunteers from India and few South Asian regions countries. Pabal team presented their work, learn from other teams & inspired to contribute more in Marathi language domain.

Wiki-team also participated in the Proof-read-a-thon. Team of 9 girls from Vigyan Ashram completed proof-

reading for 3824 pages. Priyanka Chaudhari own 1st prize with 3260 points while Nikat Inamdar own 2nd prize with 2050 points. ([Indic Wikisource proofread-a-thon April 2023/Result](https://indic.wikisource.org/wiki/Proofread-a-thon/April_2023/Result)).



F] Do-It-Yourself (DIY) Lab and Strengthening Atal Tinkering Labs (ATL) :

i) On 25th April, Mr. Sheshagiri (UNICEF educational consultant), Ms Brinda & Ms. Apoorva Bhaskar ((Y-Hub CEO) visited the Telangana state ATL training lab. The purpose of the visit was to discuss future engagement with Y-Hub for effective utilization of the state ATL training center.

ii) A state level ATL training lab is established at KPS Narsapura School (Dist-Kolar). The lab has tinkering & training facility with advanced tools like 3D printer, vinyl cutter, robotic kits, hand-tools for fabrication etc. The lab is formally handed-over to school & opened for students on 20th April. Smt B. B. Cauvery (IAS, State Project Director, Samagra Shikshana, Karnataka), Mr. Madhusudan Sheshagiri (Educational consultants), Smt. Namita Rao (Consultant UNICEF), Mr. Narayan Swami (School principle), Mr. Ranajeet Shanbhag (Vigyan Ashram) were present on the occasion. The ToR (Terms of Reference) document was signed by the SPD, the school HM, UNICEF and Vigyan Ashram. Summer camps for ATL instructor & students will be conducted in this lab in the coming months.



Ranajeet and Sumit with Karnataka State Director Education

iii) A boot-camp for ATL field teams from Andhra, Karnataka and Telangana was conducted at Do-it-Yourself (DIY) lab during 16th and 30rd April. Field teams had designed hand-on activities for summer camps, prepared inventory list & training content for summer camps.

DIY, Pune Updates: Regular students of DIY lab learnt following skills in this month -

- Paper gun making (12th April)- Children made a paper gun using waste material. They learned the mechanism and now they are planning for making the same using PVC pipes. (Video link-<https://youtu.be/3rOr-Hc8G40>)
- Best out of waste- Projects using waste cardboard, MDF and plywood. Students made different artifacts using waste material. (Video link-<https://youtu.be/06Cd50-q-Y>)
- Student also learnt laser cutting (1st-5th April), Marble maze game (8th April), Radio with MDF (19th April), calculation of seed germination rate (29th April), Basics of Arduino programming (16th April). One student also joined to learn to make solar cooker. He was guided by is to follow design thinking process.
- Digital fabrication camp was conducted for three days for 10th passout students. Students learnt 3D designing & printing, laser cutter operations and basic electronics with Arduino UNO.



G] Design Innovation Centre (DIC) project updates:

i) Tissue culture training: Ranajeet & Ashwini visited Shri. Chhatrapati College, Junner during 9th to 27th April. They completed 9 training sessions to learn hands-on skills viz. lab disinfection, glassware cleaning & sterilization, MS media preparation during these sessions.

ii) Akshada completed 'protein analysis' for 'Pooran ready-mix' made from sprouted lentils (Chickpea). As per Kjeldahl analysis, 55 % protein was found in sprouted lentil Pooran as compare to 35 % in non-sprouted grains. She also analysis Dhokla ready-mix (3.11%), corn fodder silage (7.55%) protein content.

iii) Black Soldier Fly : Sumedh & Mahesh installed humidifier & a data-logger in Black Soldier Fly (BSF) breeding chamber to maintain its humidity at 60-65 %. For humidity AHT sensor with 3D printed casing is used. AHT sensor is cheaper, effective and durable as compare to BME280. By controlling humidity & temperature BSF egg yield has increased to 125 gm/day (earlier its was 10 to 30 gm/day).

iv) Gaytri & Sumedh fabricated a 'school-bell' with wifi-module for automated time-zone correction. They also modified program for 'Sprouter' motor.

v) Mayuri Ghorpade and Divya Wadkar (Msc, Physics students of YCIS, Satara) completed 1 month summer internship projects. They worked on grape drying, solar water heater & PV panel efficiency comparison project.

vi) Dr.Dhanaji Kale joined DIC to conduct research on biomass pyrolysis and making biochar.

vi) Fab Academy updates: Sanjay and Pushkar completed assignments on input devices, molding and casting and networking and communication. They made a 'Jalebi Making' machine as part of their 'Make a machine' assignment. They gave a presentation on 12th April for 'Jalebi maker'. More details on this machine available here - <https://fabacademy.org/2023/labs/vigyanashram/students/pushkar-suryawanshi/assignments/machineweek.html>



5 days old larva

H] Introduction to Basic Technology (IBT) updates:

IBT in Maharashtra:

i) Annual review meeting: IBT review meeting of all Vigyan Ashram team members was held at Pabal on 11th and 12th April. We have taken stock of progress made during the last academic year. Issues in implementation, academic difficulties and strategies for next year was discussed.

ii) During the month of April, IBT students were busy in largely annual examination & submissions. Following are some of the activities:

- Headmasters meeting: Meeting of headmasters and coordinators for 10 IBT school was held at Dnyanada Vidyamandir, Narayangoan on 21st April 2023. Sachin and Mahendra discussed admin and academic issues and challenges in IBT implantation.
- Mr.Sachin and Ms. Archana visited Tung and Shirgaon IBT school on 20th April to review progress of the program during the academic year. They also met with School management committee to discuss administration issues & next academic plan of program.



HM Meeting @ Narayangoan

- Dr. Yogesh Kulkarni visited Sangise and Salumbre IBT schools on 26th April to review the progress of the program and discuss issues with management.
- Suyog, Sachin & Ganesh visited 'Baburao Genuji Pingale Patil Vidyalaya' Gulani (Tal-Khed,Pune) on 25th April to discuss IBT program implementation SOP, infrastructure requirement etc. School administration is interested in adopting IBT program from coming academic year.
- Mr.Digvijay chouhan , student of SP Jain Institute of Management (Andheri, Mumbai) conducted Impact assessment of IBT school. His internship of 1 month was concluded on 7th April. He studied New English school, Dhamari, Dada Maharaj Natekar school, chikhali, Hirkani Vidyalaya, Gawadewadi.
Major findings are :
 - i) Avg marks of IBT students are 76.67% against non IBT students scoring average marks of 65.47%.
 - ii) Reduced absenteeism on IBT days. Positive feedback about IBT from parents and alumni.

Work Centric Education

IBT is not a typical vocational program. It tries to integrate 'work and education'. Many times, it became hard for us to explain 'How academics can be learned from work activities?'. We have got such example from students of Dhamari IBT school. They beautifully explained work of preparing a shed and how they learn material selection, drawing and calculation during the process. You can watch the video on https://www.youtube.com/watch?v=0UVz8l48_NU

Students' learning activity:

- IBT students at Sangise School fabricated safety-door for their workshop section. Students identified this need while planning summer vacation activities. Students learn community service of Rs.2500 for fabrication of 3*6 ft door. They also checked & repaired other in school before summer vacations.

IBT U.P (Stars) : Project from Unicef was over in March 23. We are waiting for next sanction. Reports, success stories and audit report were submitted. We are also working with Unicef officials for proposal for next academic year. On ground activities could not takes place due to budgetary constraints and annual exams in the schools.

I] Other tit-bits:

- i. Vigyan Ashram is awarded with 'S.T.Taskar award' by Marathi Vidnyan Parishad. The award was given at the hands of Padmabhushan Dr J.B Joshi on 30th April in a function held at Mumbai. Dr.Yogesh Kulkarni and Mr.Ashok Kalbag accepted the award on behalf of Vigyan Ashram.
- ii. Dr.Yogesh Kulkarni gave a presentation at G20 -C20 round table on the theme 'Vasudhaiv kutumbakam' organised by Vivekanand Kendra on 26th April.
- iii. Dr.Yogesh Kulkarni was panellist and have online presentation at G20-C20 working group on 'Life (Lifestyle for Environment) working group and under sub theme 'Grassroot innovations and lifestyle' on 8th April.



- iv. Weather record – Rainfall of the month –19.11 mm (Total: 954.88 mm), Max temp-37.00° C, Min Temp –15.00° C, Humidity –41 %, Water height in well– 3.35 M.
- v. Energy consumption record- Electricity unit – III Phase -859 unit, I Phase import-158, Solar generation- 2031.00. DG used – 3.35 Hrs.
- vi. Animal Husbandry section update – Milk production –913 Kg (Gross profit- Rs.17517.00) , Goat – 6 kid average weight gain 114.16 gm/day
- vii. Biogas produced-53.00 M³ (Dung used- 1060.0 Kg)
- viii. Online visitors: www.dsttara.org – 846 (New visitor-744, Repeated-82), www.vigyanashram.com – 1001 (New visitor-798 Repeated-203). Campus tour visitors –188.

KJ Data Report: <https://rb.gy/b2ny0>

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Photo Gallery:



DIY lab activities



Jalebi making machine trails : Fab Academy



Inspection by board of vocational education for Welder fabricator, electrician and solar technician courses.



New curd maker made in the Fab lab for kitchen

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www.vigyanashram.com ; <https://vigyanashram.online/>