

Vigyan Ashram Status Report

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A] Atal Tinkering Lab (ATL) instructors training:

A two days training for Atal Tinkering Lab (ATL) teachers were held on 2nd & 3rd August 2019. Workshop was attended by 18 ATL instructors from 13 different schools from Maharashtra. Workshop covered topics viz. Importance of tinkering labs in school curriculum, selection of proper tools / equipment, motivating students for community-based science projects, documentation & administration of ATL etc. This training workshop was conducted with the support of Savitribai Phule University Pune (SPPU) under Design Innovation Centre (DIC) project. It was first workshop in series of 3 workshops with aim of reaching to 50 ATL labs in Maharashtra.



ATL Training workshop participants

B] 15th August : Independence day celebration :

Vigyan ashram celebrated Independent day with usual enthusiasm. Celebration started with 'Shramdaan' on 14th August afternoon. Students & staff surveyed VA campus and selected 4 locations for beautification & plantation. We collectively contributed approx. 250 Hrs (30 man days). We did cleaning of area around campus, rebuilding common seating places, planting 100+ samplings & protecting them with barbed wire. On 15th August cultural program was organised after flag hosting ceremony. DBRT & DIC students presented drama, group dances, songs with full enthusiasm. A performance of 'tribal dance' by DBRT girls from Madhya Pradesh & 'Engineers career' dream by DIC students were the show stealer of the day!



Independence Day cultural program celebration.

C] Commissioning of water-pipe line & polyhouse :

We have commissioned water pumping & pipe-line from *thitewadi* reservoir. Due to good rains, Thitewadi reservoir is filled to its capacity after 2 years of gap. Its big relief for farmers & Vigyan Ashram. A pump set was installed on the reservoir to pump water upto farm tank. We are planning to store 40 Lakh lit water in the farm tank on the campus by the end of next month.

Similarly work of polyhouse was completed with installation of fan-pad system for climatic control. We will be planting capsicum crop on 200 M² area and remaining area will be used as for tissue cultured plants hardening unit. Trials of tissue culture production has started with banana & sugarcane trial production. A tissue culture lab establishment, water pipe-line & climatic control polyhouse system is a part of Bajaj Auto CSR support for 'Modernization of Agriculture section' Project.



Water from Thitewadi reservoir



Fodder plot on Gray water recycling



Sample tissue culture plants.

D] TOT on 'Learning while doing'

Training of trainers (TOT) workshops was conducted for teachers from 'Pragat Shikshan Santha, Phaltan' and 'Centre for Youth Development & Activities (CYDA) Yarwada, Pune during 7th to 9th and 27th to 30th August respectively. Training was attended by 12 & 13 instructors from PSS and CYDA respectively. They learnt basic skill of making candles, making of cake, basic of electricity, basic of carpentry & civil construction and linking it with regular school curriculum. These trainers will implement basic skill based activities in their respective schools.



TOT participants performing various skill during training.

E] IBT Update :

IBT activities are taking place in full speed in IBT schools in Maharashtra & Chhattisgarh. Three new schools joined IBT network. These schools are from Pune district & supported by L & T infotech CSR. Following are some of the highlights from IBT program –

i) Students of Punarutthan Samarasta Gurukul, Chinchwad learnt fabrication of rain gauge on 24th August. This learning activity was conducted as a staff volunteer initiative from L & T infotech. Total 30 students from 8th standard learnt concept of measuring rainfall by making of rain gauge by using simple tools & material from 14 staff volunteers of L&T Infotech.



IBT students learning fabrication of rain gauge.

ii) 3D printing workshop- Students of 9th std. from Swami Vivekanand Vidyalaya, Asade (27th & 28th Aug) and Zilha Parishad Madhyamik School, Nande (9th, 16th and 23rd Aug) learnt 3D designing & printing. Total 36 students participated in the workshop to learn designing & 3D printing. Students printed various science demo models like Amoeba cell, Methane molecule and gift articles like Key-chain, flowerpot, Name-plate etc.

iii) Make-some-thing week was observed in seven IBT schools, under PRAJ foundation supported 'model IBT schools program' during 7th to 18th August. The activities were planned with the objective of creating excitement about IBT program and joy of making to improve interest in IBT program. These schools conducted various activities like scrap collection rally in village, making of rakhi from waste, preparation hand wash etc. These schools earned community service of Rs.39464 by selling products made during these activities.

iv) IBT Chhattisgarh-

• IBT students of Bijapur portacabin prepared

80 Kg of Sweet Bundi Mixer for 15 August Independence Day celebration. Total community service amount Rs.16000/-.

• IBT students of Bijapur potacabin prepared

and sold approx 450 Rakhi and earned Rs. 2300 on the occasion of Raksha Bandhan.



IBT students with their rakhi's selling stall.

F] DBRT Updates:

• DBRT workshop students fabricated furniture for three newly started IBT Schools. They fabricated kitchen desk (3 units), kitchen sink table (3 units), workshop grinder stands (3 units), engineering workshop tool box (5 units) and Electrical section tool box (1 unit). They learnt various basic metal fabrication skills and also earned community service of Rs. 33899.00 including labour charges of Rs.3595.00

• Students in Home & Health section learnt making of sauces, bakery products, cake making, chikki making etc food processing techniques. Peanut chikki prepared with fortification of dried moringa leaves & linseed have got very good feedback & acceptance from consumers. Sahydri School (wada, rajgurunagar) has given bulk supply order to H & H section for this chikki for their hostel. In August

students sold 16 Kg chikki (worth Rs.2360) to Sahydrri School. H & H student Jayant Jadhav is coordinating manufacturing & supplying this chikki to School on weekly basis.

- Agriculture & Animal husbandry students planted finger guard (तोंडली) on 1 gunta area. They are maintaining this plot as 'demo plot' for their academic study. They have also planted bajara and Lucerne in newly made fodder plots.
- Monsoon rains at Pabal provided wide learning opportunity to Energy & Environment section students. They did variety of maintenance work on campus to learn single & three phase connections, battery maintenance, repair of DOL starters, earthing works etc. They earned community service of Rs. 10685 while doing this maintenance work.



G] Technology development & DIC Update:

i) Dassault system La-Foundation supported composter development project-

- Field trials of housing society composter – Field trials of society composter (50 to 100 flats) were successfully completed at Sidharth housing society (Aundh), Ashray housing society (wadhu) and Madhuban Kitchen (Ranjangaon). We had processed more than 600Kg of bio-waste per day to generate 1034 Kg compost.
- A social media campaign was conducted in Pune city for disseminating composting technology. More than 200 individual & housing societies contacted us for field demo & trials. We have planned to conduct demo at selected housing societies to reach these inquiries.
- A new design housing society composter is developed. This design is based on feedback from field trials of earlier design. New composter is specially designed for societies with 15-20 housing units. It has a hexagonal mixture with auto-rotation facility. Once waste & compost culture is mixed with this mixture (5 to 10 min) then it can be filled in composting bags/ trays for further composting. This composter is less costly & requires less maintenance than earlier design.
- Liquid composting culture- After successful trials of composting culture in liquid form (broth) at Bhor municipal corporation dumping ground & housing societies. DIC student Ms.Swapnali conducted trials to reduce its cost. She used soybean de-oiled chucks as culture *media* by replacing it with peptone. It reduced cost of liquid broth from 130 Rs/ Lit to just 13 Rs/ lit. It will help a lot to produce it on larger scale. We will be conducting its field trials at municipal corporations dumping ground.

Vigyan Ashram's
Solution on Wet waste management
In association with
Dassault Systemes-La Fondation
"Society Composter"

Key Points:

- Compost in 7 days
- Based on BARC Technology
- Free from Smell
- Special bags for aeration.

Subsidy Provided (Up to 40%)

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Priority to the societies with 15-20 flats

Hurry up... Hurry up... Hurry up...!!!

ii) Trials were started for plastic pyrolysis unit. Initial trials were unsuccessful due to problems of heating elements & electrical supply. After replacing heating element 2 trials were conducted on Polystyrene Styrofoam (PS) and Poly Ethylene Terephthalate (PET) waste. Following are the trial results-

Experiment No.-1					Experiment No.-2				
Feed Type	Plastic- PET(Poly Ethylene Terephthalate) bottles				Feed Type	Plastic- PS(Polystyrene) Styrofoam			
Quantity	3 kg				Quantity	1.6 kg			
Temperature (°C)	520 °C (According to Literature)				Temperature	455 °C (According to Literature)			
Vessels Temperature (°C)	V ₁	V ₂	V ₃	V ₄	Vessels Temperature (°C)	V ₁	V ₂	V ₃	V ₄
	44	34	31	29		54	34	31	30
Product	Oil (ml)	Gas (m ³)	Char(g)	Unconverted (g)	Product	Oil (ml)	Gas (m ³)	Char (g)	
	25	1011	385	482		1100	183	305	
Product Conversion (%) (Considering density of oil is 1 kg/m ³)	0.83	33.7	12.83	16.06	Total conversion (%)	99			
Total conversion (%)	64 (Losses-36 %)				Conversion (%) (Considering density of oil is 1 kg/m ³)	69	11	19	
Problem	<ul style="list-style-type: none"> Heating was improper because heater are not working We got Set temperature 375 °C and Reactor Temperature 430 °C 				Problem	-			
(Note: Above data satisfy only mass balance not gives energy balance)					(Note: Above data satisfy only mass balance not gives energy balance)				

Further trails are planned to document performance of other plastic aggregates & workout energy balance of system.

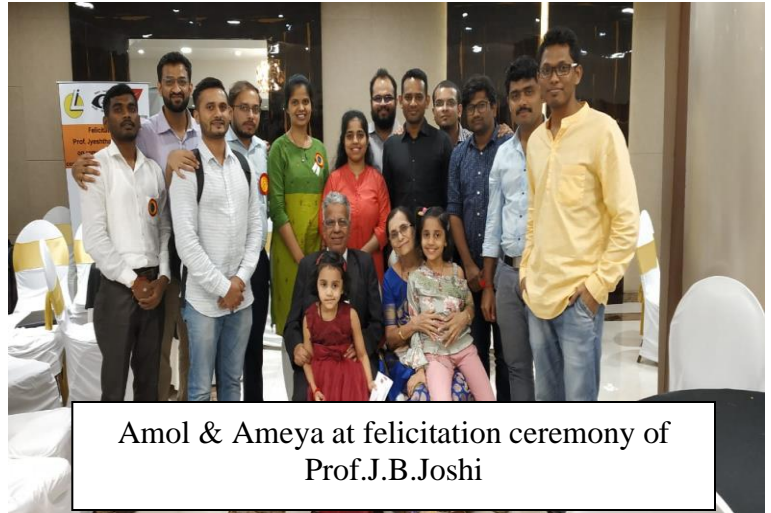
- iii) **New Admissions to DIC** : Seven (7) new students Sachin Purohit, Aman Patil, Arti Khamkar, Vipul Shinde, Tejswini Chaudhari, Rahul Kanojia, Ms.Vanaja joined DIC during August. They will be working on their respective internship projects.
- iv) A new version of **Autofarm Datalogger** was fabricated in the FABLAB. This model is standalone unit and is designed for temeperature & humity data logging with solar powered battery backup, GPRS module based cloud storage and new (Bosch BMP 280) sensor. Currently its installed in VA campus polyhouse for testing its reading accuracy. Data available on this link : <https://thingspeak.com/channels/852641>
- v) Ranajeet conducted farmers training session on 'nutritional management & fodder treatment' to tribal farmers at Kharpud village near pait (Tal-Rajgurunagar, Dist-Pune) on 6th August . A training was organized by MPCCT under support program of Department of Science & Technology (DST), Tribal-sub-plan support.
- vi) Project *titali* training workshop- On 24th August, one day workshop was conducted to learn making of articles from waste cloth. 11 students attended workshop to learns basics like designing of soft toys, sticking types, decoration etc. They are also conducting practice session 3 days / week and making various articles from waste cloths.
- vii) **Entrepreneurship News** : A success story of Raghappa Chaughule (DBRT 2005-06 batch student from Mangalveda Dist-Solapur) was published on 26th August in 'Gramin Udyojak' series of Agrowon newspaper.



New version Autofarm datalogger

H] Other tit-bit –

- i) Ranajeet & Supriya attended DIC review meet at SPPU on 8th August. They presented work done by VA spoke centre to Shri Aashish Chauhan (MHRD official) and understood future prospect of DIC program.
- ii) Dixit & Amol participated in felicitation function of 'Padma Busham' Prof.J.B Joshi on his 70th birthday. Program was organised by Marathi Vigyan Parishad. Dr.Arun Dixit gave a presentation on work carried out at Vigyan Ashram under guidance of Prof.J.B.Joshi.
- iii) Ranajeet visited Shriram College of Engineering, Paniv (Tal-Akluj, Dist-Pune) and Jnan Prabhodhani, Harali, Dist- Osmanabad to guide students on 'Design Innovation Centre' concept on 20th & 21st August.
- iv) Mother Teresa Fellowship (MTF) students/volunteer visited VA campus on 28 & 29th August . They took part in campus activates & studied learning methodology while working with DBRT / DIC students.
- v) Dr.Yogesh Kulkarni is on leave for 2 months. He is selected for 'Maker Residency' program titled 'Brain that comes back to veneto for future' in Italy. He will be working in the incubation center & co-working space in Veneto region in the month of Aug and Sept 2019. Mr.Ranajeet Shanbag will be In-charge Director during absence of Dr.Yogesh Kulkarni.
- vi) Sachin Punekar visited shri.M.Visvesvaraya Rain Water Harvesting Theme Park at Bengaluru on 28th August along with other teammates from Development Alternative (DA), New Delhi. They were on visit to Bengaluru to meet experts for 'Technology Acceleration Platform' project.
- vii) Mrs.Pallavi Shanbhag conducted session on menstrual cycle and personal health for DBRT girl students in campus on 18th August.
- viii) Weather record – Rainfall of the month -122.76 mm (Total – 539.15mm) ,Max temp-29.72 °C, Min Temp – 22.24 °C , Humidity – 89.16 % , Water height in well – 4.96 Meter.
- ix) Energy consumption record- Electricity unit – III Phase -1072 units , I Phase Export- 140 units, Import- 943 units. Quality of power : Number of interruptions :181, Normal voltage : 70.87 % No supply : 9.49 % , low voltage : 8.35 % , No data: 11.29 %.
- x) Biogas consumption – Dung used- 00 Kg, Gas produced- NIL xii) Two wheeler – 550 Km, petrol consumption – 9.17 Lit
- xi) Total visitors to www.vigyanashram.com – 1386 (New visitor – 1150 Repeated-236) www.dsttara.in : 1363(New visitor –1198 Repeated- 165)



Amol & Ameya at felicitation ceremony of Prof.J.B.Joshi

Data Report:

https://drive.google.com/open?id=0B_Jk2xLqAXjcWTRGT0ZtR0NjcDZoSUt5QjM0VzZpUHM2WktJ

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Photo Gallery:



Students learning making of soft toy's from waste cloth



DBRT students learning water testing



IBT Bijapur students selling their rakhi's to villagers



3-D printing workshop in IBT School



Sachin at Rain Water Harvesting theme park



Ranajeet at Shriram Engineering College (AriL.Btech)

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