SVKM's Institute of Technology

Maharashtra Solvent Extraction Private Limited, Dhule

Duration of MoU: From 10/01/2018 to Till Date

Nature of MoU: Academic/Research Funding/Workshop/Internships

List of Activities conducted under above MoU in Academic Year 2022-23.

Sr. No.	Date	Duration	Title of Activity	Nature of Activity(Expert Talk/Training/Internship etc.)	No. of Participants
1.	11th Jan 2023	01 Year	Project proposal titled "Development of Dome shaped Passive solar Desalination System using 3D Printed Perforated Absorbers"	Research Funding	01

Name, Designation and Signature of First Party

Principal

SVKM's Institute of Technology, Dhule

Maharashtra Solvent Extraction (P) Limited

Name, Designation and Signature of Second Party

Director

॥ श्री ॥
Subject to Dhule Jurisdiction

MSEL

MAHARASHTRA SOLVENT EXTRACTION (P) LIMITED

(A Govt. Recognized Export House)

ISO 9001 : 2015
22000 : 2018
FOOD SAFETY & HACCP CERTIFIED COMPANY

E-132, M.I.D.C., Behind S.T. Workshop, Dhule - 424 006 (M.S.) • E-mail : sspl_dhl@yahoo.com
Phone : 02562 - 281601, 281531 • **TAN - NSKM04320B** fssai Lic No. - 10012022001229
CIN No. U15143MH2004PTC144592 • UAM No.:MH09C0000278 • SEO No.1803-C Dated 14/03/05
GSTIN - 27AADCM8466G1Z5 **PAN No. - AADCM8466G**

Date: 11/01/2023

Dr. Amol Badgujar
Assist. Prof., Mechanical Dept.
SVKM's Institute of Technology, Dhule

Subject: - Administrative Approval & Financial Assistance in favour of SVKM's IOT's Mechanical Engineering Departments research project entitled, ***"Development of Dome shaped Passive Solar Desalination System using 3D Printed Perforated Absorbers"*** against CSR funds.

Dear **Dr. Amol Badgujar**,

We are pleased to inform you that Maharashtra Solvent Extraction (P) Limited, has sanctioned an amount of **Rs. 6,35,000/-** as financial Assistance against CSR funds for the above-mentioned research project, with a duration of two year from the date of issue of this letter.

In case you leave institution before completion of project, amount spent on the project will be added to your dues. At the end of academic session, you have to submit your report along with outcome copy.
Please note that your performance will be considered in any subsequent research support that you submit to the Institute. Any books/software/journal to be purchased in the name of the institution and after the completion of this project or if the faculty leaves the organizations it needs to be submitted to the College/ Departmental Library. We will also take your research performance into consideration at the time of your promotion/confirmation.
The equipment will be the property of SVKM's IOT and will remain with the respective department. A clearance needs to be sought from the Head of the Department after the completion of the project. For purchase of any item under the project, proper process & documentation should be followed as per institute policy.

We shall assess you on the project outcomes as described in your proposal.
Best Wishes,

Maharashtra Solvent Extraction (P) Ltd. DHULE

Mr. Sanjay Agrawal
(Director)
Maharashtra Solvent Extraction (P) Limited, Dhule

Shri Vile Parle Kelavani Mandal's
Institute of Technology, Dhule.
Survey.No. 499, Plot No. 02, Behind Gurudwara, Mumbai - Agra Road,
Dist. Dhule, Maharashtra, 424001 Phone No.: (02562) 297801, 297601
Web : svkm-iot.ac.in Mail : IOTDhule@svkm.ac.in

Date: 18 / 01 / 2023

To,
The Director,
Sanjay Soya Private Limited,
E-131/1, M.I.D.C, Awdhan, Dhule 424006 (MH)

Subject: Application to seek Financial Assistance for the project proposal entitled "***Development of Dome shaped Passive Solar Desalination System using 3D Printed Perforated Absorbers",*** in Department of Mechanical Engineering, SVKM's Institute of Technology, Dhule.

Dear Sir,

I am writing to submit my application for the Financial Assistance in support of my proposed research project titled "***Development of Dome shaped Passive Solar Desalination System using 3D Printed Perforated Absorbers".*** As a passionate academic researcher, I am dedicated to advancing knowledge in this area and believe that this project holds substantial promise for significant contributions.

I have attached a detailed project proposal that outlines the project's objectives, methodology, timeline, and budget. Additionally, my qualifications include PhD in Mechanical Engineering from IIT Bombay and 7.5 years of experience with expertise in Material Science. I am confident in my ability to execute this project successfully and yield valuable insights.

Securing the Financial Assistance would significantly impact the advancement of knowledge in Mechanical Engineering and provide opportunities for additive manufacturing and 3D printing. The grant funds will be utilized efficiently and effectively in line with the proposed budget.

I have already explained this project to the principal of our institute and got his approval for the application process. This project will significantly contribute useful knowledge for students and faculties. Thank you for considering my application and am grateful for the opportunity to apply for this grant.

Sincerely,

Dr. Amol Badgujar
(Asso. Prof., Mechanical Department)
(Amol.Badgujar@svkm.ac.in; Mob.+91 9420790961)

Dr. Hitesh Thakare
(HOD, Mechanical Engg.)

Dr. B. S. Chaudhari
(IQAC Coordinator)

Dr. N.P. Salunke
(Principal, SVKM's IOT)

Shri Vile Parle Kelavani Mandal's
Institute of Technology, Dhule

Research Proposal

Academic Year: 2022-2023 **Date:**09.01.2023

Broad subject area	Additive Manufacturing	**(Principal Investigator)**
Title of the proposed project	Development of Dome shaped Passive Solar Desalination System using 3D Printed Perforated Absorbers.	
Faculty Name (Principal Investigator)	Dr. Amol Badgujar	
Designation, Department	Assistant Professor, Mechanical Engineering Department	
Co-investigator	Prof. Yogesh Sonawane	
Contact Details:	9420790961 (Principal Investigator) 9975708447 (Co-investigator)	

- **Theme/Domain/Area of research**

  Manufacturing / Solar Desalination

- **Brief description of the nature of work proposed.**

  The sudden increase in the global population, coupled with a concurrent scarcity of natural water resources, has led to a shortage of fresh, drinkable water. This has evolved into a pressing concern regarding the availability of freshwater, demanding urgent resolution. The situation is becoming intense in remote areas with poor access to electricity. In the present project, we propose designing and development of passive solar desalination system utilizing unique perforated semispherical structures to enhance the water evaporation rate. The perforated structure is expected to enhance the absorption of solar radiation by providing a high surface area compared to the planer. The semispherical nature of the system is expected to reduce installation orientations. We propose to develop a unique perforated structure utilizing an innovative 3d printing technique using food grade-safe Poly Lactic acid filaments. The proposed passive solar Desalination system is expected to provide 5 liters of clean safe drinking water throughout the day.

- **Brief Literature Review**

  The ongoing surge in population has led to a persistent escalation in the demand for freshwater, placing an unwarranted strain on the finite reserves of potable water, especially in backward arid areas. Desalination emerges as a viable solution, employing the principles

of natural evaporation and condensation to transform ocean water / brackish water into fresh water. Direct solar desalination technology represents a sustainable approach to convert saline water into potable water. The most common desalination systems are based on reverse osmosis, which involves forcing saline water through a semi-permeable membrane to remove salts and impurities. This involves extensive use of electricity [1]. Electro Dialysis uses an electric field to drive ions through ion-exchange membranes, separating salt ions from water [2]. Multi-Effect Distillation and Multi-Stage Flash Distillation utilize heat to evaporate seawater, with the vapor condensed into freshwater. Multiple stages are involved to enhance efficiency [3,4].

The most used desalination systems are Solar stills where solar radiation transforms the water source to vapor and trapped vapors are transformed into clean water. These solar stills vary in performance depending on the designs. Often these solar stills are required to be oriented in certain directions and angles for optimal performance [5,6]. Liang et al [7] proposed the use of porous 3D graphene oxide-based form structures to enhance steam generation capacity. Here capillary effect and enhanced surface area are provided by 3d foam structure which resulted in better thermal performance. Ghasemi et al [8] discussed solar steam generation by heat localization using fibrous carbonaceous materials for trapping heat and enhancing the thermal efficiency of desalination systems. Chao et al [9] presented a novel approach where mesostructures derived from wood are used to enhance the thermal efficiency of steam generation by providing substantially large surface area. A UK-based company, Solar Water Plc., is installing the world's largest dome-shaped water desalination plant [10] which is expected to produce at cost of $ 0.34/m^3. In the present project proposal, we take inspiration from 3D structures and semispherical absorber structure which enables efficient capture of solar radiation from all directions.

- **Problem definition**

  The clean safe drinking water should be available to all in affordable and appropriate quantities. But remote villages in India specifically in remote Adivasi regions do not have access to clean water. They must be dependent on brackish water from wells. Our objective is to develop a facile solar-driven passive system to produce clean safe drinking water.

- **Objective of proposed research**
  a. Design and Development of a facile passive solar desalination system with perforated semi-spherical dome-shaped absorber structure
  b. Designing perforated solar absorber structure with optimal spacing and diameter
  c. Developing a prototype desalination system with 1 liters of drinking water output
  d. Upscaling the prototype to capacity of 5 liters per day
- **Proposed Methodology**
  a. **Design:** The system's design consists of identifying optimal geometry of the desalination system, including a perforated dome, dome cover, and storage tank for

brackish water. The critical design parameters are spacing and size of perforations on semispherical dome structures.

b. **Fabrication of Prototype:** The Fused Deposition Modelling (FDM) technique is proposed for the fabrication of absorber the structure. The FDM promises flexibility in terms of the geometry of the absorber dome. Initially, we will fabricate a prototype of 1-liter capacity and perform the testing.

c. **Testing and Characterization:** The prototype will be tested for water purification/ evaporation rate, TDS and presence of any biological contents such as bacteria/viruses.

d. **Scale-up of the Prototype:** Based on testing outcome, we will update design and will fabricate the solar desalination system of capacity at least 5 Litres.

- **Expected outcome**

1. Facile Solar driven Passive Water desalination system with drinking water output of 5 liters per day

- **Work plan**

Sr. No.	Methodology \ Proposed Work	Time Schedule
01	Detailed Literature Review	0-1 months
02	Design of Perforated Dome Structure	2-3 months
03	Fabrication and Assembly of Preliminary Prototype of Desalination System	4-6 months
04	Testing of Prototype for Purification rate, TDS and other biological parameters	7-8 months
05	Upscaling of Prototype to increase the capacity of desalination system	9-10 months
06	Documentation and Report Making	11-12 months
07	Presentation in reputed international conferences/ Publications in Scopus Index Journal	11-12 months

- **Deliverables and Cost associated.**

S.No	Component	Cost Associated	Description
i	3D printer	600000	For fabrication of a Desalination system storage tank and perforated structure
ii	PLA Filaments		

iii	Semi-spherical Transparent Dome (Glass and Polymer)	Rs. 5000	For materials required design and development of a compost and a landfill
iv	Other Characterizing / Testing Instruments	Rs 5000	For measurement of TDS, PH and other biological testing to check drinkability of water
v	Presentation in reputed international conferences	Rs. 25,000	Paper Presentation in Reputed International conference and Journal Paper Publication
Total		**Rs. 6,35,000**	

- **References**

[1] Shannon, M. A., Bohn, P. W., Elimelech, M., Georgiadis, J. G., Mariñas, B. J., & Mayes, A. M. (2008). Science and technology for water purification in the coming decades. In Nature (Vol. 452, Issue 7185, pp. 301–310). Springer Science and Business Media LLC. https://doi.org/10.1038/nature06599

[2] Strathmann, H. (2010). Electrodialysis, a mature technology with a multitude of new applications. In Desalination (Vol. 264, Issue 3, pp. 268–288). Elsevier BV. https://doi.org/10.1016/j.desal.2010.04.069

[3] Fundamentals of SaltWater Desalination. (2002). Elsevier. https://doi.org/10.1016/b978-0-444-50810-2.x5000-3

[4] Al-Mutaz, I. S. (2020). MSF challenges and survivals. In DESALINATION AND WATER TREATMENT (Vol. 177, pp. 14–22). Desalination Publications. https://doi.org/10.5004/dwt.2020.24908

[5] Tiwari, A., Rathod, M. K., & Kumar, A. (2022). A comprehensive review of solar-driven desalination systems and its advancements. In Environment, Development and Sustainability (Vol. 25, Issue 2, pp. 1052–1083). Springer Science and Business Media LLC. https://doi.org/10.1007/s10668-021-02040-5

[6] Karagiannis, I. C., & Soldatos, P. G. (2008). Water desalination cost literature: review and assessment. In Desalination (Vol. 223, Issues 1–3, pp. 448–456). Elsevier BV. https://doi.org/10.1016/j.desal.2007.02.071

[7] Liang, H., Liao, Q., Chen, N., Liang, Y., Lv, G., Zhang, P., Lu, B., & Qu, L. (2019). Thermal Efficiency of Solar Steam Generation Approaching 100 % through Capillary Water Transport. In

Angewandte Chemie International Edition (Vol. 58, Issue 52, pp. 19041–19046). Wiley. https://doi.org/10.1002/anie.201911457

[8] Ghasemi, H., Ni, G., Marconnet, A. M., Loomis, J., Yerci, S., Miljkovic, N., & Chen, G. (2014). Solar steam generation by heat localization. In Nature Communications (Vol. 5, Issue 1). Springer Science and Business Media LLC. https://doi.org/10.1038/ncomms5449

[9] Jia, C., Li, Y., Yang, Z., Chen, G., Yao, Y., Jiang, F., Kuang, Y., Pastel, G., Xie, H., Yang, B., Das, S., & Hu, L. (2017). Rich Mesostructures Derived from Natural Woods for Solar Steam Generation. In Joule (Vol. 1, Issue 3, pp. 588–599). Elsevier BV. https://doi.org/10.1016/j.joule.2017.09.011

[10] **News**: https://wired.me/science/environment/desalination-solar-dome-saudi-arabia-neom/

Signature of the Head of the Department

Research Committee Remarks: Recommended.		
Signature Dr. S. B. Randhavane. **Panel member 1:**	**Signature** Dr. Vishal Mayal **Panel member 2:**	**Signature** Dr. B. S. Chaudhari **Panel member 3:**

TECHNO SCIENTIFIC COMPANY

102/7, Shreyas, P.B. Sule Marg, Wadala, Mumbai – 400 031
Phone: 022-24183853 Fax: 022-24183853 Email: teknobby@gmail.com

TAX-INVOICE

Principal, Shri Vile Parle Kelavani Mandal's SVKM 's Institute of Technology Survey No. 499, Plot No. 2, Behind Gurudwara, Mumbai Agra Highway, Dhule - 424001 Customer GST No : 27AABTS8228H1Z8 Customer State : Maharashtra State Code : 27	Inv. No	001/2023-24
	Date	03/04/2023
	P.O. No. Vendor No. Dated	4600046216 107155 23/03/2023
	GST Rate	18% GST
	Contact person	Mr. Abhishek Mahajan – 9421530787 (Stores Officer)

Payment Terms : 100% against delivery.

Shipped To : Dhule

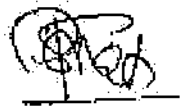
Sr. No.	Items	HSN Code	Qty	Unit Price Rs.	Total Amount Rs.
1	**MAKE3D.in Make Pratham 5.0** Desktop 3D Printer ***(500x500x500mm)*** – - Simplyfy3D software 1 user - Dual Extruder - Wifi operating + Camera. - Ball screws for above machine	84433290	1 No.	5,02,000/-	5,02,000/-
					5,02,000/-
	Plus 9% SGST				45,180/-
	Plus 9% CGST				45,180/-
				Total	**5,92,360/-**

In words **Rs. Five Lakh Ninety Two Thousand Three Hundred Sixty Only.**

Certified that the particulars given above are true & correct.

GSTIN No : 27AAIFT0787F1ZX
PAN NO : AAIFT0787F
State : Maharashtra (State Code # 27)
Bank Details : Bank of Baroda, Matunga branch, A/c No. 99190200000710
IFSC Code. BARB0DBMATU (Fifth character is Zero)
MICR No. 400012230

E.&O.E
For TECHNO SCIENTIFIC COMPANY



Terms: Goods once sold and delivered cannot be accepted back. Payment by crossed and order cheque is requested on receipt of consignment or as agreed. Payment to be cleared as per agreed terms otherwise 24% p.a. interest will be charged. Please inspect the goods immediately. Complaints if any must be intimated to us within ten days of receipt of goods, after which no complaints will be entertained. The above contract is Subject to MUMBAI Jurisdiction.

SVKM's Institute Of Technology
Survey no.499,Plot no.2,Behind Gurudwara
Mumbai Agra Highway, Dhule
Dhule 424002

Tel. :
Fax :
Email : purchase@nmims.edu
PAN : AABTS8228H
GST : 27AABTS8228H1Z8
User : SVITDMM01/23.03.2023

Purchase Order

Vendor : 107155 Techno Scientific Company 102/7,Shreyas P B Sule Marg Wadala (W) Mumbai 400031 Maharashtra Tel. No. : 24183853 GST No. : 27AAIFT0787F1ZX	**PO No. : 4600046216** PO Date : 23.03.2023 Your Reference : Quotation No. : TSC/Q/23 AUC No. : 14001075 Sub No. : 0 3D Printer - Dual Extruder	**Delivery Address :** SVKM Inst.of Tec. SVKM IOT DhuleMr.Abhishek Mahajan-9421530787 **Total Amt : INR 592,360.00**

Dear Sir / Madam,
Please supply following mentioned material in accordance with terms and conditions printed in this PO.

Sr. No.	Item Code & Description	UOM	Qty	Rate (INR)	Disc.	Amt(INR)
1	402885 3D Printer **Requirement Specification :** 3D printer with Ball screw,Wi-Fi and camara. Model:Pratham 5.0 **HSN Code.** 844332 **Delivery Details :** **Delivery Dt.** / **Quantity** / **Requisitioner** 10.04.2023 / 1.000 / Principal	EA	1.000	502,000.00		502,000.00
	CGST 9 %					45,180.00
	SGST 9 %					45,180.00
Amt. in words : Rupees Five Lakh Ninety Two Thousand Three Hundred Sixty Only					**Total :**	**592,360.00**

Commercial terms & Conditions :

Payment terms : Payment Against Delivery

Inco Terms : Free Dely.at Institute

Warranty : 1 Year

SVKM's INSTITUTE OF TECHNOLOGY,Survey No.499,Plot.No.2,Behind Gurudwara,Mumbai-Agra National Highway,Dhule-424001Contact Person- Dr.Hitesh Thakare-7820972717

Details of Installation and Commissioning: Installation vendor in scope

Penalty for breach of contract : Delivery-6 Weeks

Any Other terms : NA

General Terms & Conditions Overleaf

SVKM's Institute Of Technology
Survey no.499,Plot no.2,Behind Gurudwara
Mumbai Agra Highway, Dhule
Dhule 424002

Tel. :
Fax :
Email : purchase@nmims.edu
PAN : AABTS8228H
GST : 27AABTS8228H1Z8
User : SVITDMM01/23.03.2023

Purchase Order

Vendor : 107155 Techno Scientific Company 102/7,Shreyas P B Sule Marg Wadala (W) Mumbai 400031 Maharashtra Tel. No. : 24183853 GST No. : 27AAIFT0787F1ZX	**PO No. : 4600046216** PO Date : 23.03.2023 Your Reference : Quotation No. : TSC/Q/23 AUC No. : 14001075 Sub No. : 0 3D Printer - Dual Extruder	**Delivery Address :** SVKM Inst.of Tec SVKM IOT DhuleMr.Abhishek Mahajan-9421530787 **Total Amt : INR 592,360.00**

Terms & Conditions : ----

1) Please quote the PO no., Vendor no. on all Invoices & Challans
2) All the Goods are to be supplied strictly in accordance with description and specifications given.
3) The time quoted for delivery of Goods / completion of Services are to be strictly adhered to. This PO is liable to cancellation, if delivery is not effected by the due date.
4) Price quoted by Supplier and acceped by us are finial and no deviation therefrom will be accepted without our specific agreement in writing.
5) Any dispute arising out of this injury shall be deemed to have been arisen in Mumbai and is subject to adjudicated to the - Mumbai Court.
6) All the deliveries of Goods and its installation, if required, will be free to the point of delivery address, unless installation payments are expressely agreed mutually.
7) The supplier will provide the necessary original certification, if required by the Buyer without any escalation of price of Goods/ services.
8) PO placed for Works Contract will attract GST as per GST Act 2017.
9) All the Invoices submitted must bear PAN No and GST no. provided by councell
10) SVKM will deduct TDS at applicable rates pursuant to sections 194C/194J/194I and 194Q.
11) Declaration for compliance under section 206AB is required to be submitted along with the bills.

Prepared & Checked by

Accountant
SVKM's - Dhule Campus

Authorised Signatory

Principal
SVKM's Institute of Technology,Dhule

SHRI VILE PARLE KELAVANI MANDAL'S

SVKM's Institute Of Technology Dhule

Purchase Request / OB Approval Form

PRINT DATE : 16.03.2023 , TIME : 12:57:40

PR No./Date 10228295 / 16.03.2023	Nature of Item : Asset
Requisitioner Principal	**Dept. :** SIT Mechanical Engg

Sr. No.	Product Code	Name of the Item	Item description	UOM	Qty	App. Rate per unit	Total Value (INR)	Last PO No across SVKM	Last PO Rate (INR)
1	402885	3D Printer	3D printer with Ball screw,Wi-Fi and camara.	EA	1.000	592,360.00	592,360.00	4600025313 23.10.2018	400,000.00

Specs for last PO across SVKM: Aeqon 400 V3 Build size:400mmx300mmx300mm(LxWxH), Layer Thickness 100-250 microns,print heads:Single Nozzle, Filament Diameter:1.755mm Model material:engg. grade thermoplastic-PET, ABS, HIPS, PLA, TPU, Polycarbonate,Carbon Fiber, Woodfill etc.

Name of the Institute: **Narsee Monjee Inst.of Management Studies Mumbai**

Total PR Value **592,360.00**

Justification for Purchase by user dept. :

Requirement of 3D printer with Ball screw,Wi-Fi and camara Purchase for Mechanical workshop at SVKM'S Institute of Technology,Dhule.

Budget Head	Equipment
Budgeted Amt.	Rs. 5,292,471.00
Amt. Spent so far incld, current PR	Rs. 5,334,641.88
Balance	Rs. 42,170.88-

1 st Approval (Accounts)	By Tusharkumar Mahajan on 16.03.2023 at 12:56:19
2nd Approval (Institute Head)	

SHRI VILE PARLE KELAVANI MANDAL'S

SVKM's Institute Of Technology Dhule

Purchase Request / OB Approval Form

Details of Fund Management for Aided Schools / Colleges

Govt. Grant for proposed Purchase	Shortfall of funds	Balance Funds	Funding From Institute	Funding from SVKM
Mentor Approved / Rejected			OB Approved /Rejected	
Remarks :			Remarks:	
Sign		Date	Sign	Date

Incharge

SVKM & NMIMS Dhule Campus

Account Statement

SHRI VILE PARLE KELAVANI MANDAL'S INSTITUTE OF TECHNOLOGY DHULE
Survey No 499 Plot No 02
Behind Gurudwara-Mumbai
Agra HIGHWAY Dhule
Dhule
MAHARASHTRA
INDIA
424311

Cust. Reln. No.	79952383
Account No.	9913294148
Period	From 11/01/2023 To 11/01/2023
Currency	INR
Branch	DHULE
Nomination Regd	N
Nominee Name	

Sl. No	Date	Description	Chq. Ref. No./Ref. No.	Value Date	Withdrawal	Deposit	Balance	CR/DR
1	11/01/2023 4:54:14 PM	NEFT SBIN222007780422 Maharashtra Solvent Extraction Ltd	NEFTINW-0357683875	11/01/2023		635,000.00	901,604.81	CR
2	11/01/2023 3:31:11 PM	BY CLG INST 193278/09-01-23/AXIS/DHULE		11/01/2023		18,182.00	266,604.81	CR

Opening balance	as on 11/01/2023	INR 248,422.81
Closing balance	as on 11/01/2023	INR 901,604.81

Shri Vile Parle Kelavani Mandal's
Institute of Technology, Dhule.
Survey.No. 499, Plot No. 02, Behind Gurudwara, Mumbai - Agra Road,
Dist. Dhule, Maharashtra, 424001 Phone No.: (02562) 297801, 297601
Web: svkm-iot.ac.in Mail: IOTDhule@svkm.ac.in

UTILIZATION CERTIFICATE (UC)

Project Grant

1. **Title of the Project** : Development of Dome shaped Passive Solar Desalination System using 3D Printed Perforated Absorbers
2. **Implementing Department(s)** : Mechanical Engineering
3. **Date of Start** : 11/01/2023
4. **Date of Completion** : 30/11/2023
5. **Name of the Principal Investigator** : Dr. Amol Badgujar
6. **Name of the Co-investigator(s)** : Prof. Yogesh Sonawane
7. **Sanction order No. / Date** : 11/01/2023
8. **Total amount Sanctioned for Expenditure:** Rs. 635000/-
9. **Actual Expenditure incurred** : Rs. 635000/-
10. **Balance amount available (if any)** : Rs. 0/-

➢ **Utilization of Grant:**

Sr. No.	Component	Cost Associated (Rs)
1	Capital Equipment / Accessories	592360
2	Training & Testing	10000
3	Patent / Presentation/ Conferences	—
4	Traveling	9512
5	Miscellaneous	23128
	Total =	635000

Shri Vile Parle Kelavani Mandal's
Institute of Technology, Dhule.
Survey.No. 499, Plot No. 02, Behind Gurudwara, Mumbai - Agra Road,
Dist. Dhule, Maharashtra, 424001 Phone No.: (02562) 297801, 297601
Web: svkm-iot.ac.in Mail: IOTDhule@svkm.ac.in

UTILIZATION CERTIFICATE

Certified that out of ₹ 635000 grants-in-aid sanctioned under SVKM's Institute of Technology's institute research environment building activity, dated 11/01/2023, ₹ 635000 has been utilised for the purpose for which it was sanctioned and that the balance of ₹ 0 remaining unutilised at the end of the project.

Certified that we have satisfied ourselves that the conditions on which the grants-in-aid was sanctioned have been fulfilled.

Name & Signature of PI(s) with Date: Dr. Amol Badgujar ABadgujar 30/11/2023 Mr. Yogesh Sonawane. 30/11/23

Name & Signature of HOD with Date: 30/11/2023 Dr. Hitesh Thakare.

Name & Signature of Account officer with Date: CA. Atul Patwari. Patwari

Name & Signature of Principal with Seal: Dr. Nilesh Salunke. Salunke

Date: 26/03/2023

IQAC Cell, SVKM's Institute of Technology

UC has been accepted vide IQAC Cell, SVKM's Institute of Technology's institute research environment building activity, dated 26/03/2023

Signature .....

Name of IQAC Officer Dr. Bhushan Chaudhari.

Designation Ass. Prof.

Shri Vile Parle Kelavani Mandal's

Institute of Technology, Dhule

Survey No. 499, Plot No. 2, Behind Gurudwara, Mumbai-Agra Haighway, Dhule-424001 (MH)

Cash Payment Voucher

Voucher No. :- 2022-23/44	Date :- 26.03.2023

Name of Receipter : Dr. Amol Badgujar

Particulars	Debit (Rs.)	Credit (Rs.)
Project: Development of Dome shaped Passive Solar Desalination System using 3D Printed Perforated Absorbers.	10,000	
To Cash A/c		10,000

Narration :- Being cash paid against the Training of Faculties on Pratham 5.0 3D printer.

Rupees Ten Thousand Only

R

Checked By

Seal

Prepared By

Authorised By

SVKM's Institute of Technology, Dhule

Shri Vile Parle Kelavani Mandal's

Institute of Technology, Dhule

Survey No. 499, Plot No. 2, Behind Gurudwara, Mumbai-Agra Haighway, Dhule-424001 (MH)

Cash Payment Voucher

Voucher No. :- 2022-23/46	Date :- 30.03.2023

Name of Receipter : Dr. Amol Badgujar

Particulars	Debit (Rs.)	Credit (Rs.)
Project: Development of Dome shaped Passive Solar Desalination System using 3D Printed Perforated Absorbers.	9,512	
To Cash A/c		9,512

Narration :- Being cash paid against the Travelling Expenses Towards Inspection and Training of Dr. Amol Badgujar and Prof. Yogesh Sonawane at Make3D.IN facility.

Rupees Nine Thousand Five Hundred and Twelve Only

Checked By

Seal

Prepared By

Authorised By

Principal

SVKM's Institute of Technology,Dhule

Date 21/03/2023

To

Principal

SVKM's Institute of Technology Dhule

Subject: Sanction of Expenses towards Honorium of Resource Person for 3D printer training

Respected Sir,

With reference to subject mentioned above, one day Hands on training is planned for teaching and non-teaching faculties of department of Mechanical Engineering, tentatively on 13th April 2023. The resource person is Mr. Arbaz Reyan, Engineer, Make3D.in, Surat. Therefore I request you to sanction honorarium of INR 10,000/-for resource person as per policy of SVKM's IOT Dhule through MSEL funded project titled "Development of Dome shaped Passive Solar Desalination system using 3D Printed Perforated Absorbers" dated 11/01/2023.

Prepared by Dr. Amol Badgujar 21/03/23

Forwarded Through

Dr. Hitesh Thakare

Approved / Not Approved

Dr. Nilesh Salunke

Principal

SVKM's IOT Dhule

Contact

www.linkedin.com/in/rayan-arbaz-25452a161 (LinkedIn)

Top Skills

3D Printing
3D Scanning
Team Leadership

rayan arbaz

Production Manager at MAKE3D.in
Surat, Gujarat, India

Experience

Make3d.in

4 years 8 months

Production Manager
January 2023 - Present (1 year 8 months)
India

Senior Engineer
January 2020 - December 2022 (3 years)
India

Education

Gujarat Technological University (GTU)

Bachelor's degree, Mechanical Engineering · (July 2020 - May 2023)

jayvantrai harrai desai polytechnic palsana surat

Diploma, mechincal engineer · (2016 - 2019)

Date 21/3/23

To

Principal

SVKM's Institute of Technology Dhule

Subject: Reimbursement of Expenses for inspection and training on Parham 5.0 3D printer at Surat

Respected Sir,

With reference to subject mentioned above, **Prof. Yogesh Sonawane and Dr. Amol Badgujar** travelled travelling to Surat for inspection and preliminary training of Pratham 5.0 on 18/03/2023 and 19/03/2023. Therefore I request you to reimburse expenses for Outdoor duty and travel allowance as per policy of SVKM's IOT Dhule through MSEL funded project titled "Development of Dome shaped Passive Solar Desalination system using 3D Printed Perforated Absorbers" dated 11/01/2023.

Details of Expenses

Travel: Dhule to Surat and Surat to Dhule (230 x 2 x 17 = INR 7820)

Stay: 1 Night Stay in Hotel and Food (INR 1692)

Total = INR 9512

ABadgujar 21/3/23

Prepared by Dr. Amol Badgujar

Forwarded Through

Dr. Hitesh Thakare

Approved / Not Approved

Dr. Nilesh Salunke

Principal

SVKM's IOT Dhule

Shri Vile Parle Kelavani Mandal's

Institute of Technology, Dhule

Survey No. 499, Plot No. 2, Behind Gurudwara, Mumbai-Agra Haighway, Dhule-424001 (MH)

Cash Payment Voucher

Voucher No. :- 2022-23/42	Date :- 23.03.2023	
Name of Receipter : Dr. Amol Badgujar		
Particulars	**Debit (Rs.)**	**Credit (Rs.)**
Project: Development of Dome shaped Passive Solar Desalination System using 3D Printed Perforated Absorbers.	23,128	
To Cash A/c		23,128
Narration :- Being cash paid against the Procurment of consumable filament for 3D printer.		
Rupees Twenty-three Thousand One Hundred and Twenty-eight Only		

n

Checked By

Seal

Prepared By

Approved By

SVKM's Institute of Technology, Dhule

Tax Invoice

Date: 21/03/2023
Invoice No.: AK234

MAKE3D.IN

33,34 Tulsi Industrial Estate, Opp Akhand Ananad College,
Ved Road, Katargam, Surat - 395004, GUJ, IND
GSTIN : 24BPHPG7315H1Z2
Mob: 9313921036
Email : sales5@make3d.in
Web - www.make3d.in

SVKM's Institute of Technology
Dhule, Maharshtra.

Qty	Item	Description	Unit Price	TAX %	Total
14	filament	PLA+ Filament - 1 Kg	R1,400.00	18%	R19,600.00

Subtotal R19000.00
GST R3528.00
Total R 23128.00

Bank Details.
Account name - MAKE3D.IN
Account No. - 183605500704
IFSC Code - ICIC0001836
Bank Name- ICICI Bank (Katargam Branch)


Amplifier
Digital counter
Department of Mechanical Engineering
Institute of Technology, Dhule
Department of Mechanical Engineering
Research Grant
Principal Investigator (PI)
Pratham 5.0