Academic Year 2020-21

1. **Spreading Brightness Through Sustainability -Solar lamp and awareness training for rural areas.**

Index

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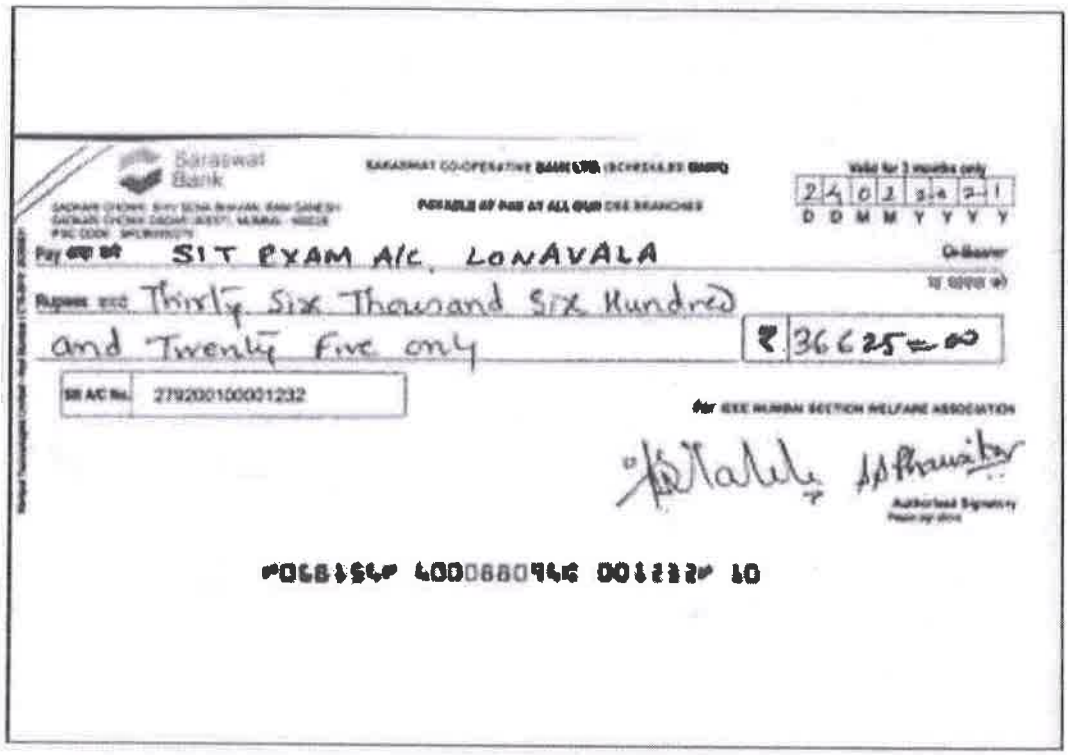
Research & Development Cell
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavla-410401

SINHGAD INSTITUTE OF TECHNOLOGY LONAVLA 410401

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Bank Cheque details



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SINHGAD INSTITUTE OF TECHNOLOGY
LONAVLA
410401

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Fund Utilization details

SINHGAD TECHNICAL EDUCATION SOCIETY'S

SINHGAD INSTITUTE OF TECHNOLOGY

(Affiliated to Savitribai Phule Pune University & Approved by AICTE, NBA, NAAC)

Sinhgad Institutes Gat No. 309/310, Kusgaon (Bk.), Off Mumbai - Pune Express way, Lonavala, Dist Pune - 410 401

PROF. M. N. NAVALE	DR. (MRS.) SUNANDA M. NAVALE	DR. M. S. GAIKWAD
M.E.(Elect.), MIE, MBA	B.A. MPM, Ph.D.	M.E., Ph.D.(Electronics Engg.)
Founder President	Founder Secretary	Principal

To

The Chairman,
IEEE Bombay Section.

Respected Sir,

IEEE SIT SB, Sinhgad institute of technology Sanctioned fund Rs 36,625/- from IEEE HAC. We spent this amount for the event Spreading brightness through sustainability - solar lamp and awareness training for rural areas.
We are submitting all expenditure details and event report to section.

Kindly go through the attachments.

Now we are requesting you to please release fund as early as possible.

Thanks and regards,

Dr. M S Gaikwad,
Principal,
SIT Lonawala

SINHGAD INSTITUTE OF TECHNOLOGY LONAVLA 410401

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Research & Development Cell
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Kusgaon (Bk.), Lonavla-410401

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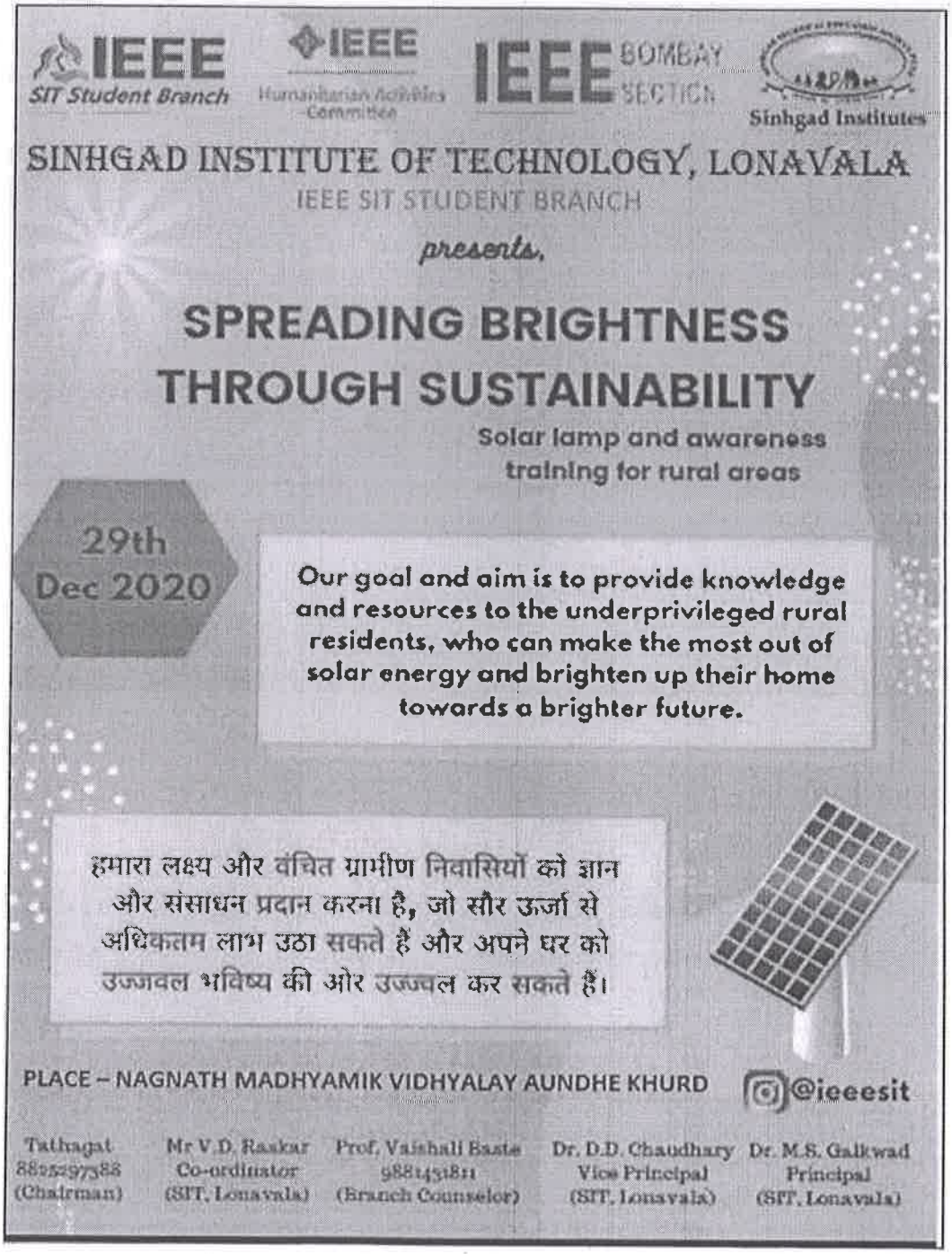
Sinhgad Institute of Technology, Lonavala

Event Poster



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Event Report

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Sinhgad Technical Education Society's

SINHGAD INSTITUTE OF TECHNOLOGY

(Affiliated to University of Pune and Approved by, AICTE, New Delhi.)
Gat No. 309/310, Kusgaon (Bk), off Mumbai - Pune Expressway,
Lonavala, Pune, 410401. Website : www.sinhgad.edu

TITLE: SPREADING BRIGHTNESS THROUGH SUSTAINABILITY.

Solar lamp and Awareness training for rural areas.2020-21

Objectives: To spread awareness among the rural people about sustainable resources and training them to make their own solar lamps.

Date : 29th December 2020

Day :Tuesday

Venue :Nagnath Madhyamik Vidyalaya, Aundhe, Khrud, Lonavala

Time :11:00 AM to 05:00 PM

Chief Guests:

1. Dr .Prof. Chanakya Kumar Jha
   Senior IEEE Member
   Chair Humanatraian Technology Activities, IEEE India council
   Member of Humanatrian activity commitee, IEEE r10 (Asia Pacific)
2. Mr Harish Patil (Member IEEE HAC)

Staff Coordinators:

1. Prof. Vaishali Baste (IEEE SIT SB Branch Counsellor)
2. Mr. V. D. Raskar

Resource Person:

1. Dr. S. B. Gholap (Associate Professor, E&TC department, SIT, Lonavala)
2. Mr. P. C. Latane(Assistant Professor, E&TC department, SIT, Lonavala)

Student Co-ordinators :IEEE SIT Student Branch

Solar Lamp Training and Awareness Program was conducted under: Student Branch of IEEE SIT, Lonavala

Activity Type: Training and Awareness Program

Target Group: People living in rural areas

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Lonavala, Pune, 410401, Website : www.sinhgad.edu

Brief Summary about Solar Lamp Training and Awareness Program:-

The IEEE student branch of SIT, Lonavala, organized the solar lamp training and awareness program on 29th Dec2020. This event especially targeted the people living in rural areas. The major objective of program was to train rural people to create their own solar lamps and to spread awareness among the masses about the use and advantages of sustainable resources available. Our chief guests, Dr. Prof. Chanakya Kumar Jha and Mr. Harish Patil addressed the participants about sustainable resources, their advantages and their beneficial uses in day-to-day life. More than 90 people have attended the training and awareness program, which made this event a great success. A team of teaching and non-teaching members supported the participants in making solar lamps, which led in good feedback from the masses. Complete program was interactive and satisfying. The training and awareness program was been conducted successfully.

Photographs of Activity:-

Inaugration pic

Sarsvati Poojan pic

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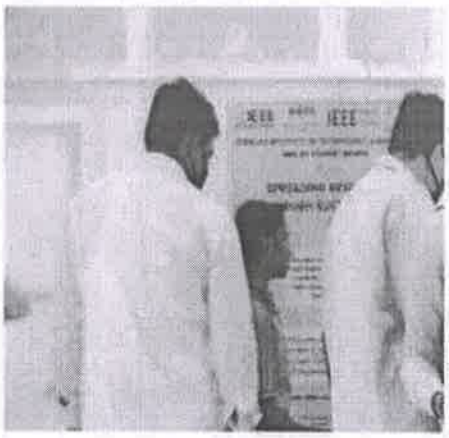
Welcome Speech

Felicitation of Guest

Solar making pic



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Gat No. 309/310, Kusgaon (Bk), off Mumbai - Pune Expressway.
Lonavala, Pune, 410401. Website : www.sinhgad.edu

औंढे खुर्द येथे सौरऊर्जा प्रशिक्षण कार्यशाळा

Conclusion: Participants learned about the uses and advantages of sustainable energy sources. People learned how to make their own solar lamp. The guests guided the participants well and cleared all their doubts.

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PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Attendance report

क्र.	नाव	फोन नंबर	सही
1	[illegible]	[illegible]	[illegible]
2	सोनाली / [illegible] संदीप शेळके (भाचा)	8390741102	[illegible]
3	आकांक्षा [illegible] (आजी)		[illegible]
4	सुमित शेखर सोनवले (नातीन)	9673278207	[illegible]
5	सारती कल्याण [illegible] (आई)	7850660913	[illegible]
6	[illegible] (भाऊ)	7410126075	[illegible]
7	रोहित [illegible] (आई)		[illegible]
8	[illegible] (भाचा)	8698747275	S. N.S.
9	[illegible] (मामी वडील)	8698747275	S. NS.
10	[illegible] (वडील)	9673 854459	[illegible]
11	[illegible] दिनेश [illegible] (वडील)	9922295558	[illegible]
12	अजय [illegible] (मुलगा)	7304152990	[illegible]
13	आकांक्षा [illegible] (मामी)	7378771917	[illegible]
14	[illegible] अशोक [illegible] (वडील)	9049741399	[illegible]
15	[illegible] (वडील)	9764546561	[illegible] 20
16	[illegible] (वडील)	9823491142	[illegible]
17	[illegible] (वडील)	7767984320	[illegible]
18	[illegible] शिंदे (भाई)	7378558710	[illegible]
19	[illegible] (आई)	7666757911	[illegible]
20	[illegible] कांताराम [illegible] (आई)	9922945921	रजनी कांताराम विश्वास[illegible]
21	[illegible] (काकी)	9922945921	रजनी कांताराम विश्वास राव
22	[illegible] (भाचा)	9673128538	[illegible]
23	[illegible] (आई) (७१)	-	
24	[illegible] शिर्के (आई)	9673768157	S.S.Shirke
25	[illegible] (आई)		
26	[illegible] माने.		[illegible]
27	[illegible] शेखर [illegible]		[illegible]
28	[illegible]		[illegible]
29	[illegible]		H B[illegible]
30	आदक श्वेता अंकुश		[illegible]
31	चव्हाण [illegible] संतोष.		[illegible]
32	[illegible]		[illegible]
33	राठोड अपेक्षा [illegible]		[illegible]

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MAHAGURU Page No.
Date: / /

अ क्र	लेखनमार्गाचे नाव		सही
34	वाडेकर मधुरी दत्तात्रय		
35	शेख शास्त्रिर खाब्बीर		
36	काचे संस्कृती रघुनाथ		
37	यादव कोचन राजू		
38	वाडेकर राजेश चुनाप		
39	सिद्धेश्वर विलास काके		
40	विलास संजय घुडे		

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Academic Year 2019-20

2. Synthesis and characterization of Ni(OH)2/rGO based nano composite deposited on Ni foam for NOx gas sensor

Index

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Gat No. 309/310, off Mumbai Pune Expressway Kusagaon (Bk), Lonavala Pune – 410401

Fund received details

SIT-Lonavala - (from 1-Apr-2019)
GAT NO. 309/310,
OPP. MUMBAI PUNE EXPRESSWAY
KUSGAON (BK.), LONAVALA
TAL MAVAL, DIST PUNE
State Name : Maharashtra, Code : 27
E-Mail : sitaccounts@sinhgad.edu

BANK RECEIPT Voucher

No **192000803** Dated : 10-Oct-2019

Particulars	Amount
Account :	
Univ Bcud Grant of Prasad Lokhande	1,50,000.00
Univ Bcud Grant of Pallavi Ahire (Abhonkar)	1,00,000.00

Through :
BANK OF MAHARASHTRA 60046979175

On Account of :
Sinhgad Institute of Technology, 1355-PUNE UNIVERSITY CAMPUS. - BCUD GRANT RECEIVED FROM PUNE UNIVERSITY FOR PRASAD LOKHANDE RS 150000/- & FOR PALLAVI AHIRE (ABHONKAR)

Amount (in words) :
INR Two Lakh Fifty Thousand Only

₹ 2,50,000.00

A.P.Chu

ACCOUNTANT
INSTITUTE OF TECHNOLOGY
9/310, Kusgaon (Bk),
Mumbai Pune Express Highway,
Lonavala, Dist. Pune - 410401.

Authorised Signatory

ATTESTED

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SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavla-410401

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Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Academic Year 2019-20

3. Obscuring the Outsourcing of code analysis in cloud by Source Code Transformations

Index

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Gat No. 309/310, off Mumbai Pune Expressway Kusagaon (Bk), Lonavala Pune – 410401

Fund received

SIT-Lonavala - (from 1-Apr-2019)
GAT NO. 309/310,
OPP MUMBAI PUNE EXPRESSWAY
KUSGAON (BK.), LONAVALA
TAL MAVAL, DIST PUNE
State Name : Maharashtra, Code : 27
E Mail : sitaccounts@sinhgad.edu

BANK RECEIPT Voucher

No : 192000803 Dated : 10-Oct-2019

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Account :	
Univ Bcud Grant of Prasad Lokhande	1,50,000.00
Univ Bcud Grant of Pallavi Ahire (Abhonkar)	1,00,000.00

Through :
BANK OF MAHARASHTRA 60046679175

On Account of :
Sinhgad Institute of Technology, 1355-PUNE UNIVERSITY CAMPUS, - BCUD GRANT RECEIVED FROM PUNE UNIVERSITY FOR PRASAD LOKHANDE RS 150000/- & FOR PALLAVI AHIRE (ABHONKAR)

Amount (in words) :
INR Two Lakh Fifty Thousand Only

₹ 2,50,000.00

A.P. Chun
ACCOUNTANT
SINHGAD INSTITUTE OF TECHNOLOGY
Gat No. 309/310, Kusgaon (Bk),
Off Mumbai Pune Express Highway,
Lonavala, Dist. Pune - 410401.

Authorised Signatory

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Sinhgad Institute of Technology, Lonavala

Fund utilization details

Savitribai Phule Pune University

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Assistance by SPPU for Project-based Innovative Research
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18TEC001623

Part B

Please attach this with Part B of proposal			
Project Information :			
Project Title	OBSCURING THE OUTSOURCING OF CODE ANALYSIS IN CLOUD BY SOURCE CODE TRANSFORMATIONS		
Board of Studies	Computer Science		
Faculty	Science and Technology		
Area of Specialization	Outsourcing Computations, Source Code Transformation		
Estimation Details:			
Budget Head	First Year Estimate	Second Year Estimate	Total Estimate
Equipments	75000.00	75000.00	150000.00
Chemicals and glassware	0.00	0.00	0.00
Books	7500.00	7500.00	15000.00
Field Work and Travel	7500.00	7500.00	15000.00
Contingency (including special needs)	7500.00	7500.00	15000.00
Hiring Services	52500.00	52500.00	105000.00
Annual Total	150000.00	150000.00	300000.00

Note: There should not be any identity on Part B of the Research Proposal

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Dr. M. S. GAIKWAD
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Sinhgad Institute of Technology, Lonavala

Project Proposal

Savitribai Phule Pune University

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Part- A

Principal Investigator Information :							
Name	Pallavi Pankaj Ahire						
Gender	Female	Date of Birth	30/06/1984	Designation	Lecturer	Age	34

Approval Details :				
Approval Type	Approval No.	Approval date	Designation	Valid from to Valid upto
Permanent	CCO/540	18/04/2007	Lecturer	01/07/2006 to 11/09/2018

Academic Qualification :						
Course	Institiue / College		University	Passing Year	Percentage	Class Obtained
M.E.	Sinhagd Institute of Technology,LOnavala		Savitribai Phule University of Pune	May-2012	7.37	First Class
PhD Degree Status	Continuation	Ph.D Date	08/08/2015	Title of Thesis: A Method Transformation of Source Code to Protect During Outsourced Code Analysis		

Co-Investigator Information :					
Name					
Designation		DOB		Gender	
Approval No.		Approval Date			
PhD Degree Status	NO	Ph.D. Declaration Date			
Title of thesis for doctoral degree					

Project Information :	
Project Title	OBSCURING THE OUTSOURCING OF CODE ANALYSIS IN CLOUD BY SOURCE CODE TRANSFORMATIONS
Faculty	Science and Technology
Board of Studies	Computer Science
Area of Specialization	Outsourcing Computations, Source Code Transformation
Project Category	Technology Development
Name & Address of Institute/University Department	Sinhgad Technical Education Society Sinhgad Institute of Technology Addr: Survey No 309/310 Kusgaon Bk Lonavala Ta: Mawal Dist: Pune Survey No 309/310 Kusgaon Bk Lonavala Ta: Mawal Dist: PunePincode: 410401
Institute location	Rural

Publication Details(Selected 5 publications are shown here) :						
JournalName	Volume	Issue No	ISBN	ISSN	Place	Pages

Patent Details(Selected 5 Patent are shown here) :					
Title	Patent No	Year	Assignee	Country	Pages

9/11/2018 8:40:09 AM

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Part- A

Research Projects :						
Investigator Name	Faculty	Project Title	Funding Agency	From Date	To Date	Type

Teaching Experiance:						
College/Org name	Type	UG/PG	Designation	From Date	To Date	Aprvl Date
Sinhgad Institute of Technology,Lonavala	Teaching	UG	Assistant Professor	02/01/2006	13/02/2014	18/04/2007
Sinhgad Institute of Technology,Lonavala	Teaching	UG/PG	Assistant Professor	02/01/2006	14/10/2015	
Sinhgad Institute of Technology	Teaching	UG/PG	Assistant Professor	02/01/2006	10/09/2018	

Bank Details :					
Pan Number	Name Of Account	Bank Name	Branch Name	Account No	IFSC Code
	Sinhgad Institute of Technology	Bank of Maharashtra	Lonavala	60046979175	MAHB0000075

Facilities required For the project :	
Facility	Yes/No/Not Required/ Full or Sharing basis

Equipment required For the project :		
Equipment Name	Equipment Model	Equipment Remark

9/11/2018 8:40:09 AM

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Part- A

To certify that:

i)General physical facilities required for proposed research work are available at the place, where project will be undertaken.

ii)I / We shall abide by the rules and regulations of University Research Grant Scheme and accept to be governed by all the terms and conditions laid down for this purpose in case assistance is provided to me/us for the said project.

iii)I / We shall complete the project within the stipulated period. If I / We fail to do so and if the BCUD is not satisfied with the progress of the said research project, the BCUD may terminate the project immediately and ask for the refund of the amount received by me / us.

iv) The above research project is not funded by any central government/state government/public sector agency during the period to which the grant relates.

Co- Investigator
(Name and Signature)

Principal Investigator
(Name and Signature)

Academic and Research Coordinator
(Name and Signature)

Principal/Director/Head
(Signature with Seal)

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Savitribai Phule Pune University

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18TEC001623

Part B

Please attach this with Part B of proposal			
Project Information :			
Project Title	OBSCURING THE OUTSOURCING OF CODE ANALYSIS IN CLOUD BY SOURCE CODE TRANSFORMATIONS		
Board of Studies	Computer Science		
Faculty	Science and Technology		
Area of Specialization	Outsourcing Computations, Source Code Transformation		
Estimation Details:			
Budget Head	**First Year Estimate**	**Second Year Estimate**	**Total Estimate**
Equipments	75000.00	75000.00	150000.00
Chemicals and glassware	0.00	0.00	0.00
Books	7500.00	7500.00	15000.00
Field Work and Travel	7500.00	7500.00	15000.00
Contingency (including special needs)	7500.00	7500.00	15000.00
Hiring Services	52500.00	52500.00	105000.00
Annual Total	**150000.00**	**150000.00**	**300000.00**

Note: There should not be any identity on Part B of the Research Proposal

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Dean
Research & Development Cell
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavla-410401

Academic Year 2018-19

4. IOT: Transformation in Engineering Education for Digital India

Index

Dean
Research & Development Cell
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavla-410401

SINHGAD INSTITUTE OF TECHNOLOGY LONAVLA 410401

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavla

Sanction letter and utilization details

Name of the College : Sinhgad Institute of Technology, Lonavala

Level of Seminar : State / National / International – 2 Days

Sanction Amount Rs. : Rs.1,00,000/- / Rs.2,00,000/- / Rs.3,00,000/- 180000/-

Total Admissible Expenditure Rs. 216935/-

Sr. No.	Budget Head	Ratio	Amt. as per Ratio	Admissible Actual Expenditure	Minimum of 3 & 4
	1	2	3	4	5
A	Honorarium & TA / DA	40%	86774/-	69350/-	69350/-
B	Research Paper / Publications	10%	21693/-	15900/-	15900/-
C	Academic Material, CD, Xerox	20%	43387/-	61815/-	43387/-
D	Hospitality, Cont. & Misc. Exp.	30%	65081/-	69340/-	65081/-
E	Total (A+B+C+D)				193618/-
F	5, 15 or 50% Deduction if any				29043/-
G	Total Admissible Exp. (E - F)				164575/-
H	University Contribution 75% of Admissible Exp. i.e. G x 75%				123431/-
I	Minimum of 75% or Sanction Amount				123431/-

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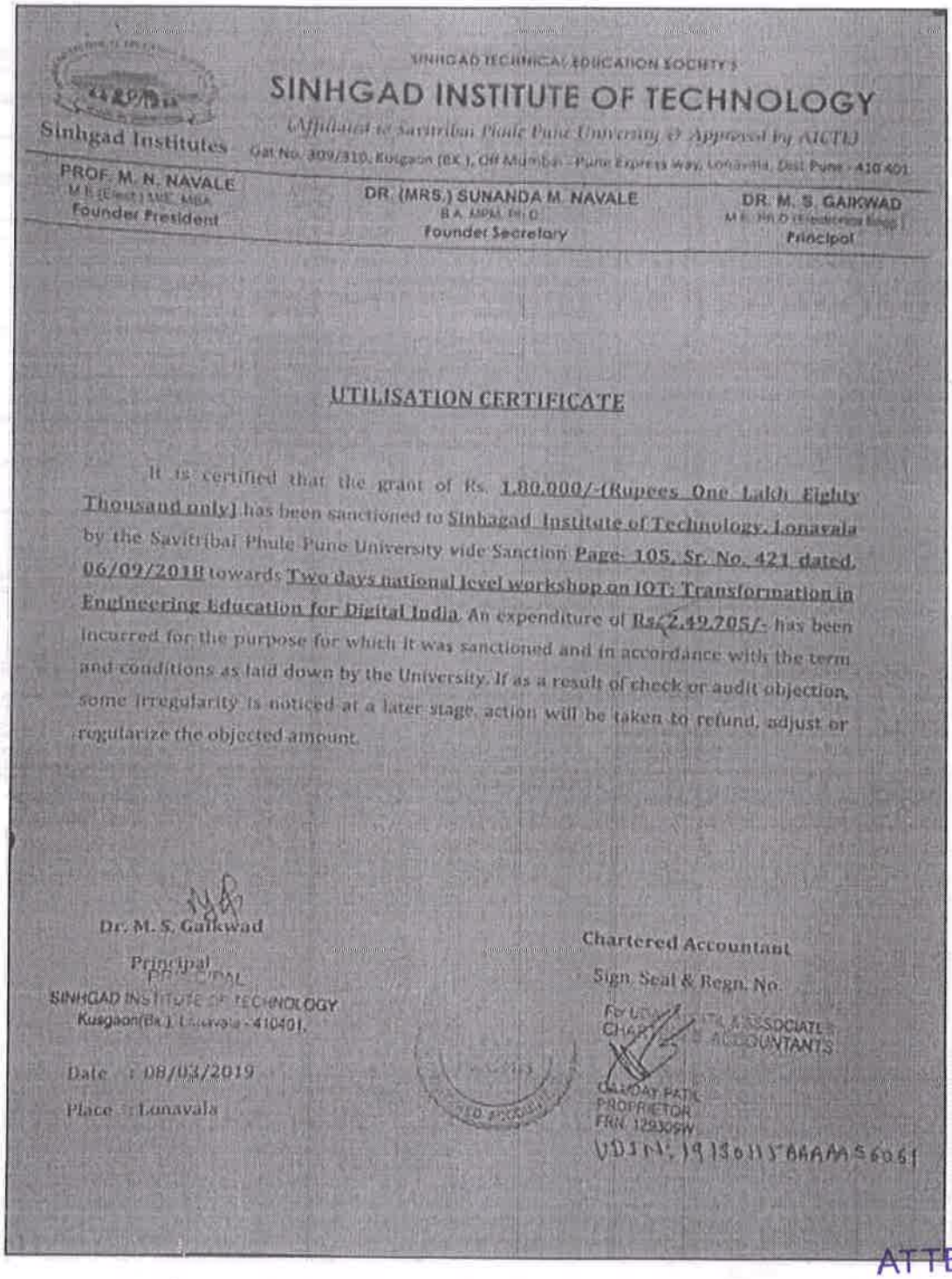
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavla-410401

SINHGAD INSTITUTE OF TECHNOLOGY LONAVLA 410401

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Utilization details



SINHGAD TECHNICAL EDUCATION SOCIETY'S
SINHGAD INSTITUTE OF TECHNOLOGY
(Affiliated to Savitribai Phule Pune University & Approved by AICTE)
Gat No. 309/310, Kusgaon (Bk.), Off Mumbai - Pune Express Way, Lonavala, Dist. Pune - 410 401.
Sinhgad Institutes

PROF. M. N. NAVALE
M.E. (Elect.), M.I.E., MBA
Founder President

DR. (MRS.) SUNANDA M. NAVALE
B.A., MPM., Ph.D.
Founder Secretary

DR. M. S. GAIKWAD
M.E., Ph.D. (Electronics Engg.)
Principal

UTILISATION CERTIFICATE

It is certified that the grant of Rs. 1,80,000/-(Rupees One Lakh Eighty Thousand only) has been sanctioned to Sinhagad Institute of Technology, Lonavala by the Savitribai Phule Pune University vide Sanction Page: 105, Sr. No. 421 dated 06/09/2018 towards Two days national level workshop on IOT: Transformation in Engineering Education for Digital India. An expenditure of Rs. 2,49,205/- has been incurred for the purpose for which it was sanctioned and in accordance with the term and conditions as laid down by the University. If as a result of check or audit objection, some irregularity is noticed at a later stage, action will be taken to refund, adjust or regularize the objected amount.

Dr. M. S. Gaikwad
Principal
PRINCIPAL
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon(Bk.), Lonavala -410401.

Date : 08/03/2019
Place : Lonavala

Chartered Accountant
Sign. Seal & Regn. No.
FOR M/S. [illegible] & ASSOCIATES
CHARTERED ACCOUNTANTS
[illegible]
PROPRIETOR
FRN. 129305W
UDIN: [illegible]

ATTESTED

Dean
Research & Development Cell
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavla-410401

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Event Schedule

उत्तमपुरुषान् उत्तमशिक्षणेन निर्मातु कटिबद्धा-वयम्

Sinhgad Institutes
Celebrating 25 Years

Sinhgad Institute of Technology, Lonavala - 410 401

Department of Electronics and Telecommunication Engineering

Organized

NATIONAL WORKSHOP on

"IOT: Transformation in Engineering Education for Digital India", Sponsored by SPPU, Pune

[January 17-18, 2019]

Schedule for IOT Workshop

Date: 17/01/2019 Day: Thursday

Location: Conference Hall, CTC, Lonavala

Time	Program
09:00 AM to 10:00 AM	Registration, Breakfast and Inauguration
10:00 AM to 11:00 AM	Theory Session 01 -Introduction to IOT, Trends in IOT, Industrial IOT by Mr. Basavraj Hooli
11:00 AM to 12:00 PM	Theory Session 02 -Introduction to IOT, Trends in IOT, Industrial IOT by Mr. Avichal Sharma
12:00 PM to 01:00 PM	Lunch
01:00 PM to 02:00 PM	Theory Session 03 -Introduction to IOT, Trends in IOT, Industrial IOT by Mr. Saurabh Sharma
02:00 PM to 03:00 PM	Theory Session 04 -Introduction to IOT, Trends in IOT, Industrial IOT by Mr. Girish Rawal
03:00 PM to 03:15 PM	Tea Break
03:15 PM to 04:15 PM	Theory Session 05 -Introduction to IOT, Trends in IOT, Industrial IOT by Mr. Mayur Raut
04:15 PM to 05:15 PM	Theory Session 06 -Introduction to IOT, Trends in IOT, Industrial IOT by Mr. Rohit Kela
05:15 PM to 06:15 PM	Theory Session 07 -Introduction to IOT, Trends in IOT, Industrial IOT by Mr. Pratap Sanap

Dean
Research & Development Cell
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavla-410401

SINHGAD INSTITUTE OF TECHNOLOGY LONAVLA 410401

ATTESTED
Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Attendance

Sinhgad Institute of Technology, Lonavala - 410 401

[Accredited by NBA & NAAC]

Organized

TWO DAYS NATIONAL WORKSHOP

on

[illegible]

Sponsored by SPPU, Pune

[January 17-18, 2019]

Attendence Sheet-MS

Sr.no	Name	Institute/ Organization	Mobile No.	Email ID	17/01/2019	18/01/2019
1	[illegible]	[illegible]	[illegible]	[illegible]		
2	[illegible]	[illegible]	[illegible]	[illegible]		
3	[illegible]	[illegible]	[illegible]	[illegible]		
4	[illegible]	[illegible]	[illegible]	[illegible]		
5	[illegible]	[illegible]	[illegible]	[illegible]		
6	[illegible]	NMIET, Talegaon, Pune, Maharashtra	[illegible]	[illegible]		
7	[illegible]	[illegible] Institute of Technology AND Research, [illegible], Pune, Ma	[illegible]	[illegible]		
8	[illegible]	[illegible] college of Engineering Management Studies and Research, Nashik, M	[illegible]	[illegible]		
9	[illegible]	[illegible] college of Engineering [illegible] Maharashtra	[illegible]	[illegible]		
10	[illegible]	[illegible] Education Society's [illegible] College of Engineering and Research [illegible] Pune	[illegible]	[illegible]		
11	[illegible]	[illegible] Institute of Engineering And Technology [illegible] Chiplun, Ma	[illegible]	[illegible]		
12	[illegible]	[illegible] Institute of Engineering & Technology, Baramati Maharashtra	[illegible]	[illegible]		
13	[illegible]	Dr D.Y.Patil College of Engineering, Akurdi, Pune, Maharashtra	[illegible]	[illegible]		
14	[illegible]	Sinhgad Academy of Engineering, Pune Maharashtra	[illegible]	[illegible]		
15	[illegible]	SCOE, Vadgaon, Pune, Maharashtra	[illegible]	[illegible]		
16	[illegible]	S.B.Patil college of Engineering, Indapur Maharashtra	[illegible]	[illegible]		
17	[illegible]	SKNSITS, Lonavala, Maharashtra	[illegible]	[illegible]		
18	[illegible]	[illegible] Institute of Engineering And Technology, [illegible] Chiplun M	[illegible]	[illegible]		
19	[illegible]	SIT Lonavala, Pune, Maharashtra	[illegible]	[illegible]		
20	[illegible]	SKNSITS, Lonavala, Maharashtra	[illegible]	[illegible]		
21	[illegible]	Dr D.Y.Patil School of Engineering Lohegaon Pune, Maharashtra	[illegible]	[illegible]		
22	[illegible]	Dr D.Y.Patil School of Engineering Technology, Lohegaon, Pune, Maharashtra	[illegible]	[illegible]		

PRINCIPAL
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavala - 410401.

Sinhgad Institute of Technology, Lonavala - 410 401

[Accredited by NBA & NAAC]

Organized

TWO DAYS NATIONAL WORKSHOP

on

[illegible]

Sponsored by SPPU, Pune

[January 17-18, 2019]

Attendence Sheet- OMS

Sr.no	Name	Institute/ Organization	Mobile No.	Email ID	17/01/2019	18/01/2019
1	[illegible]	[illegible]	[illegible]	[illegible]		
2	[illegible]	[illegible]	[illegible]	[illegible]		
3	[illegible]	[illegible]	[illegible]	[illegible]		
4	[illegible]	[illegible]	[illegible]	[illegible]		
5	[illegible]	[illegible]	[illegible]	[illegible]		
6	[illegible]	[illegible]	[illegible]	[illegible]		
7	[illegible]	[illegible]	[illegible]	[illegible]		
8	[illegible]	[illegible]	[illegible]	[illegible]		
9	[illegible]	[illegible]	[illegible]	[illegible]		
10	[illegible]	[illegible]	[illegible]	[illegible]		
11	[illegible]	[illegible]	[illegible]	[illegible]		
12	[illegible]	[illegible]	[illegible]	[illegible]		
13						
14						
15						

PRINCIPAL
SINHGAD INSTITUTE OF TECHNOLOGY

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

SINHGAD INSTITUTE OF TECHNOLOGY LONAVLA 410401

Dean
Research & Development Cell
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavla-410401

Academic Year-2017-2018

5. Design Fabrication and Performance Analysis of Ejector Enhanced window Air conditioner

Index

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Research & Development Cell
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavla-410401

ATTESTED

Dr. M. S. GAIKWAD
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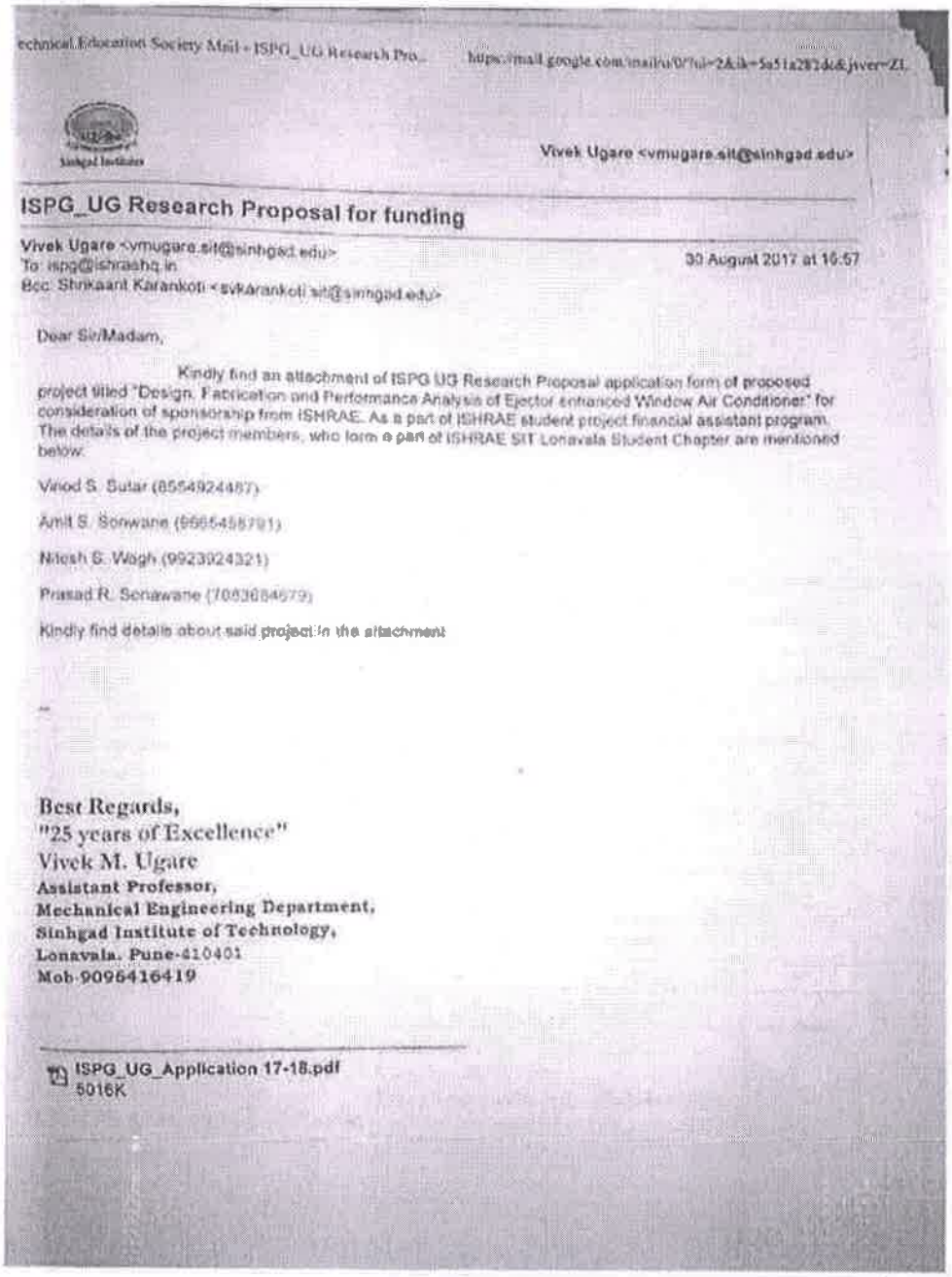
Sinhgad Institute of Technology, Lonavala

SINHGAD INSTITUTE OF TECHNOLOGY LONAVLA 410401

Proposal



echnical Education Society Mail - ISPG_UG Research Pro... https://mail.google.com/mail/u/0/?ui=2&ik=5a51a2812d&jsver=ZL

Vivek Ugare <vmugare.sit@sinhgad.edu>

ISPG_UG Research Proposal for funding

Vivek Ugare <vmugare.sit@sinhgad.edu> 30 August 2017 at 16:57
To: ispg@ishraehq.in
Bcc: Shrikaant Karankoti <svkarankoti.sit@sinhgad.edu>

Dear Sir/Madam,

Kindly find an attachment of ISPG UG Research Proposal application form of proposed project titled "Design, Fabrication and Performance Analysis of Ejector enhanced Window Air Conditioner" for consideration of sponsorship from ISHRAE. As a part of ISHRAE student project financial assistant program. The details of the project members, who form a part of ISHRAE SIT Lonavala Student Chapter are mentioned below.

Vinod S. Sutar (8554924487)

Amit S. Sonwane (9665458791)

Nitesh S. Wagh (9923924321)

Prasad R. Senawane (7083084679)

Kindly find details about said project in the attachment

--

Best Regards,
"25 years of Excellence"
Vivek M. Ugare
Assistant Professor,
Mechanical Engineering Department,
Sinhgad Institute of Technology,
Lonavala, Pune-410401
Mob-9096416419

ISPG_UG_Application 17-18.pdf
5016K

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Dean
Research & Development Cell
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavla-410401

SINHGAD INSTITUTE OF TECHNOLOGY LONAVLA 410401

Fund Sanction letter

ISPG-UG application has selected by ISHRAE STUDENT PROJECT GRANT COMMITTEE.

Inbox

ISHRAE Headquarters
to me
7 days ago View details

Reference No.: ISPG_UG_PU18

Dear Mr. Vinod Suryakant Sutar,

ISHRAE is pleased to inform you that your ISPG-UG application has selected by ISHRAE STUDENT PROJECT GRANT COMMITTEE. Grant Amount sectioned to your project is **INR 50,000/-** to support the following project: **Design, Fabrication and Performance Analysis of Ejector Enhanced Window Air-conditioner.**

Dean
Research & Development Cell
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavla-410401

SINHGAD INSTITUTE OF TECHNOLOGY LONAVLA 410401

ATTESTED
Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

You are requested to contact your local ISHRAE Pune Chapter President / Student Chair for the sanction order and other formalities.

We wishes for the successful completion of project as per the Grant Guidelines and Schedule of completion.

Kindly contact me for any further clarification.

With kind regards,

Chair – ISGP-UG Committee

ISHRAE HQ

K-43, Basement

Kailash Colony, New Delhi-110048

Ph.: 011-4163 5655

Dean
Research & Development Cell
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavla-410401

SINHGAD INSTITUTE OF TECHNOLOGY LONAVLA 410401

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Sanction letter

ISHRAE

Indian Society of Heating, Refrigerating and Air Conditioning Engineers
K-43 (Basement) Kailash Colony,
New Delhi - 110048, India

ISHRAE Student Project Grant (ISPG UG)

Sr.No.	Item	Details
1	College Name	Sinhgad Institute of Technology, Lonavala.
2	Faculty Advisor Name	Prof. V. M. Ugare
3	ISHRAE membership number	1. S00033815 2. S00033824 3. S17032884 4. S00033810
4	Principal of the College (Name, Address and email)	Dr. M.S. Gaikwad Sinhgad Institute of Technology, Off Pune-Mumbai Express Way, Kusgaon (Bk.), Lonavala. 410401. principal sit@sinhgad.edu
5	Local ISHRAE Chapter Name and Address	Ishrae Pune Chapter 4th Floor, Pune-Satara Road, KK Market, Mangawadi, Pune, Maharashtra 411037
6	ISHRAE Student Chair at the local chapter Name and Address with Mobile and Email	Dr. TusharJadhav Ishrae Pune Chapter 4th Floor, Pune-Satara Road, KK Market, Mangawadi, Pune, Maharashtra 411037 Cont. No- 9975347708 Email ID- usharjadhav99@rediffmail.com
7	Is there a Student Chapter at your institution?	YES
8	Student Chapter Advisor	Prof. S. V. Karankoti
9	Title of the Project	Design, Fabrication and Performance Analysis of Ejector Enhanced Window Air Conditioner
10	Amount Requested	Rs 50,000/-
11	Team Leader Name and Contact Details Mobile, Email	Mr. Vinod Suryakant Sutar Address – Vijaynagar, Kupwad Road, Sangli, Tal. -Miraj, Dist.- Sangli, PIN-416406 Cont. No - 8554924487 Email ID- vinod.sutar12458@gmail.com

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Research & Development Cell
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavla-410401

SINHGAD INSTITUTE OF TECHNOLOGY LONAVLA 410401

ATTESTED
Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavla

PROJECT SUMMARY

1	Project Title	Design, Fabrication and Performance Analysis of Ejector Enhanced Window Air conditioner
2	Objectives	Objectives of the project are stated as below : 1. To design and fabricate Ejector Enhanced Window Air Conditioner 2. To investigate performance of Window Air Conditioner using Ejector 3. To compare the existing Window Air Conditioner with Ejector Enhanced Window Air Conditioner
3	Executive Summary of Project (Brief Description not exceeding 50 words)	1. The proposed project aims at designing, fabricating and experimental testing with comparative evaluation of Ejector Enhanced Window Air Conditioner systemwith existing system to maintain room temperature and humidity within a comfort limit with less power consumption. 2. In this experimental setup, the performancewill becomparedwith the existing Window air Conditioner to get optimized results.
4	Principal Lead and their team (Name and Contact Details)	1. Mr. Vinod Suryakant Sutar Cont. No.- 8554924487 Email ID- vinod.sutar12458@gmail.com 2. Mr. Amit Sunil Sonwane Cont. No.-9665458791 Email ID- amitsonwane932@gmail.com 3. Mr. Nitesh Suresh Wagh Cont. No.- 9923924321 Email ID- waghnitesh99@gmail.com 4. Mr. Prasad Rajendra Sonawane Cont. No.- 7083684679 Email ID- sonawaneprasad34@gmail.com
5	Expected Duration (Not later than March 2018)	06 Months from 1st September, 2017 to 28thFebruary, 2018

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Kusgaon (Bk.), Lonavla-410401

SINHGAD INSTITUTE OF TECHNOLOGY LONAVLA 410401

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavla

BUDGET

Sr.No	Item	Amount (Rs)		
		Sep – Dec' 17	Jan – March'18	Total
1.	Equipment	15,000	10,000	25,000
2.	Manpower	5,000	-	5,000
3.	Consumables	-	2,000	2,000
4.	Contingencies	5,000	8,000	13,000
5.	Travel	-	5,000	5,000
	Total	25,000	25,000	50,000

Certificate from the Principal Team Leader and Grantee organization

Project Title: "**Design, Fabrication and Performance analysis of Ejector Enhanced Window Air Conditioner for Domestic Purpose**"

1. I am submitting the above titled project proposal to ISHRAE for financial support.
2. I/ We agree to abide by the terms and conditions of the ISHRAE research grant.
3. I/ We have not submitted the project proposal elsewhere for financial support.
4. I/ We have requested for funds for the items, which are not available with the institution for the proposed work and are absolutely essential.

Date: 30/08/2017
Place: Lonavala.

Mr. Vinod Suryakant Sutar
(Team Leader)

30/08/2017
Prof. V. M. Ugare
(Project Guide)

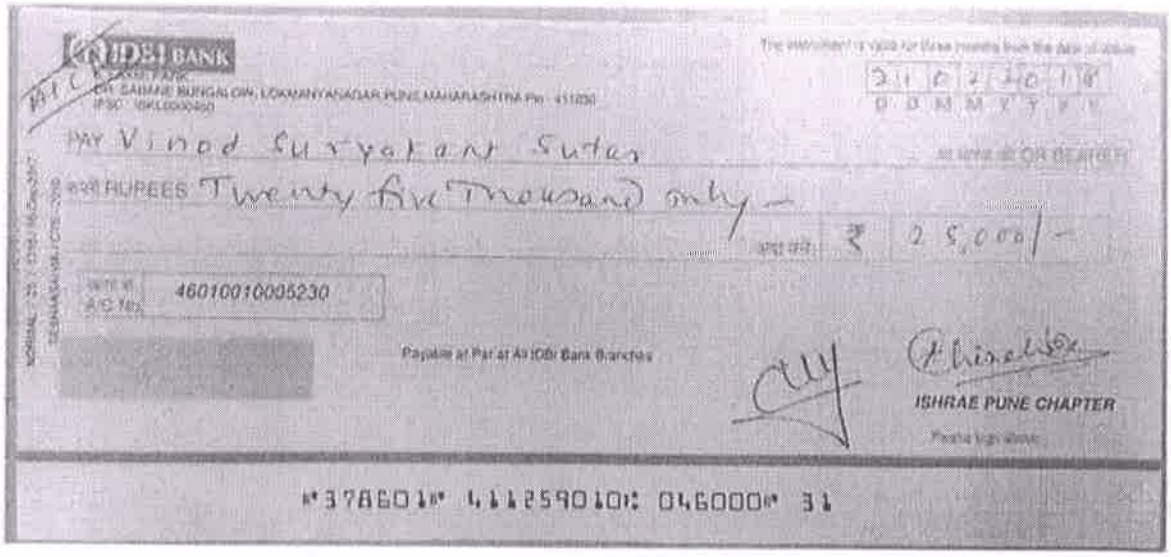
Dean
Research & Development Cell
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavla-410401

SINHGAD INSTITUTE OF TECHNOLOGY LONAVLA 410401

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Cheque received Rs. 25000/-



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Research & Development Cell
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavla-410401

SINHGAD INSTITUTE OF TECHNOLOGY LONAVLA 410401

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Academic Year 2016-17

6. Preparation, characterization and Application of Nano crystalline Multilayer Transparent Oxide Thin Films

Index

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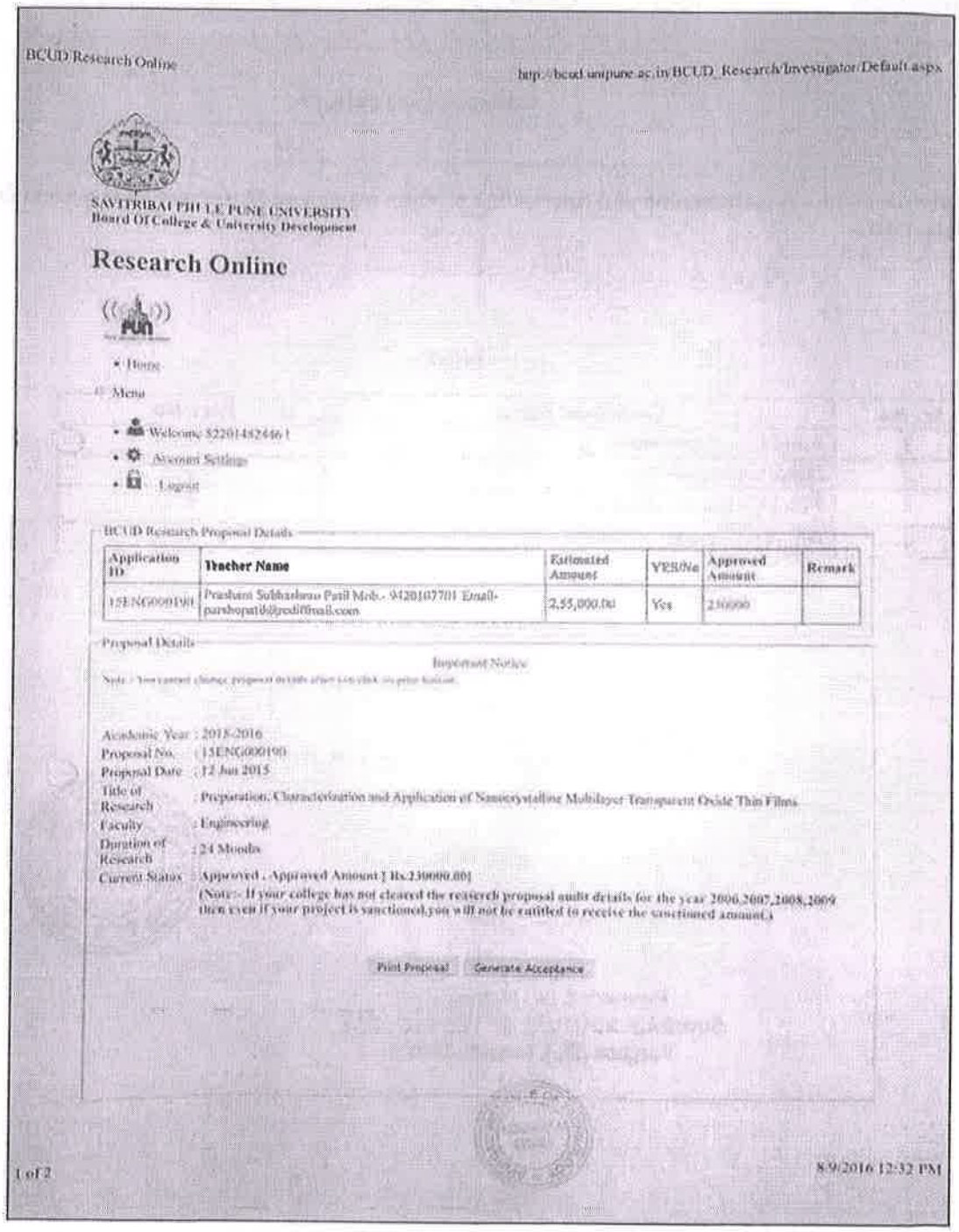
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavla-410401

SINHGAD INSTITUTE OF TECHNOLOGY LONAVLA 410401

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Fund Received details



BCUD Research Online http://bcud.unipune.ac.in/BCUD_Research/Investigator/Default.aspx

SAVITRIBAI PHULE PUNE UNIVERSITY
Board Of College & University Development

Research Online

- Home
- Menu
- Welcome 522014826461
- Account Settings
- Logout

BCUD Research Proposal Details

Application ID	Teacher Name	Estimated Amount	YES/No	Approved Amount	Remark
15ENG000190	Prashant Subhashrao Patil Mob.- 9420107701 Email- parshopatil@rediffmail.com	2,55,000.00	Yes	230000	

Proposal Details

Important Notice

Note : You cannot change proposal details after you click on print button.

Academic Year : 2015-2016
Proposal No. : 15ENG000190
Proposal Date : 12 Jun 2015
Title of Research : Preparation, Characterization and Application of Nanocrystalline Multilayer Transparent Oxide Thin Films
Faculty : Engineering
Duration of Research : 24 Months
Current Status : Approved . Approved Amount [Rs.230000.00]
(Note:- If your college has not cleared the research proposal audit details for the year 2006,2007,2008,2009 then even if your project is sanctioned,you will not be entitled to receive the sanctioned amount.)

Print Proposal | Generate Acceptance

1 of 2 8/9/2016 12:32 PM

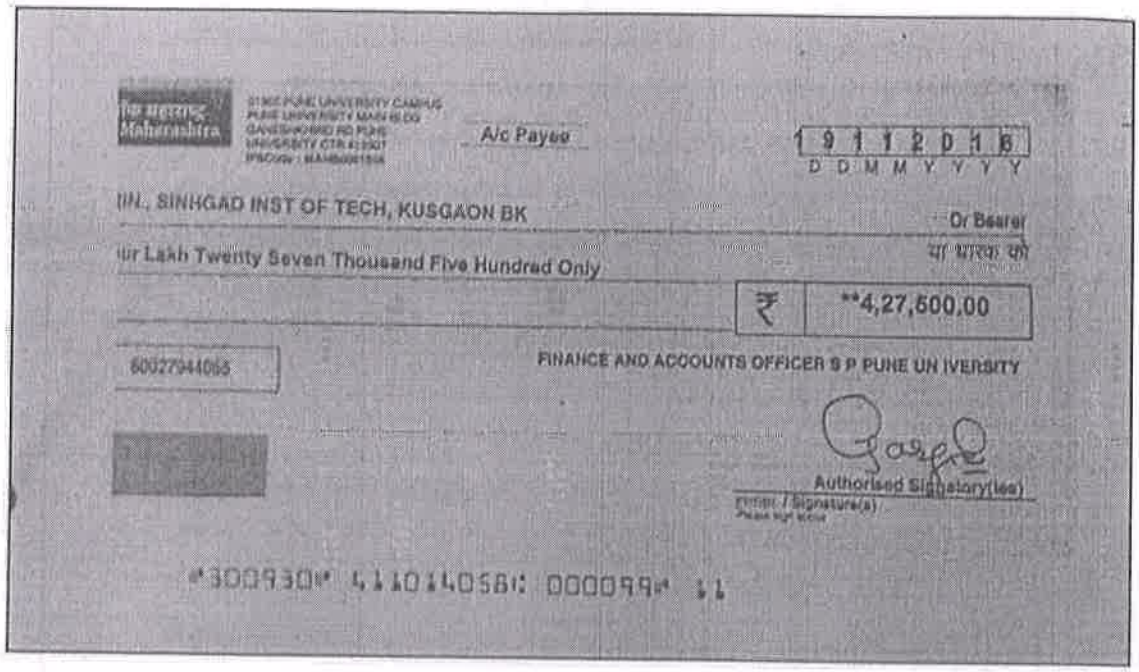
ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

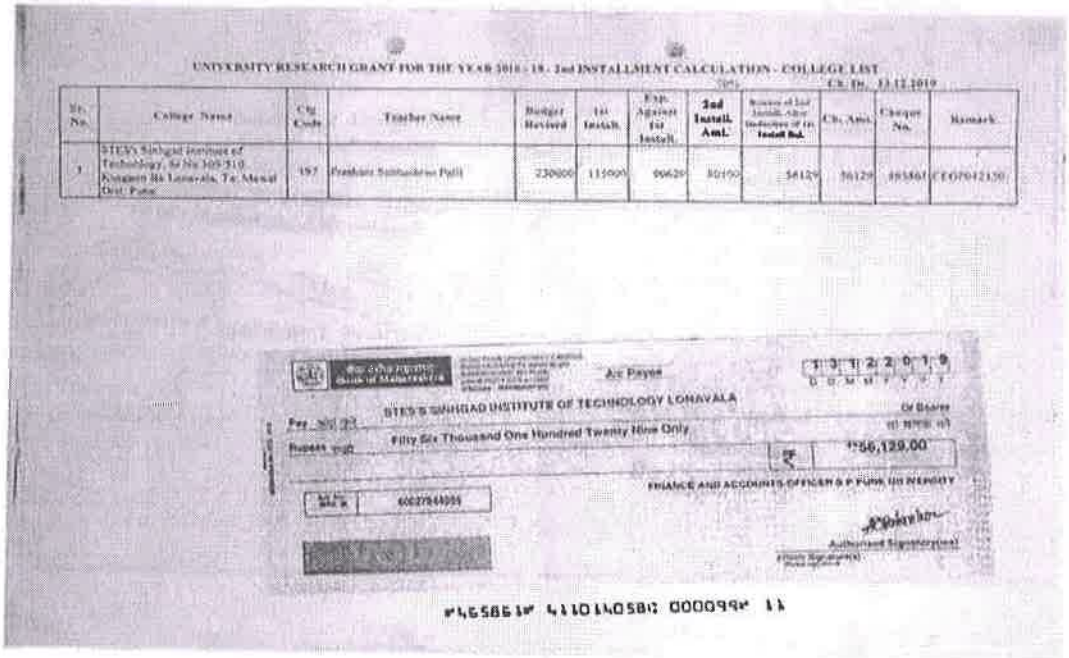
Dean
Research & Development Cell
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavla-410401

SINHGAD INSTITUTE OF TECHNOLOGY LONAVLA 410401

Bank Cheque details



Second Installment



ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Dean
Research & Development Cell
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavla-410401

SINHGAD INSTITUTE OF TECHNOLOGY LONAVLA 410401

Fund Utilization details

UTILISATION CERTIFICATE

Certified that the accounts of the STES's Sinhgad Institute of Technology, Lonavala College in respect of "Preparation, Characterization and Application of Nanocrystalline Multilayer Transparent Oxide Thin Films", Research Project of Dr. Prashant S. Patil, Principal Investigator (P.I) have been audited by me with reference to the Vouchers, books of accounts, norms of expenditure and relevant guidelines there to. The Statement of expenditure of Research Project duly signed by me is enclosed, for the year 2016 – 2017.

1. It is hereby certified that the total grants of Rs. 2,30,000 /- has been sanctioned to the Principal Investigator (P.I.)
2. The P.I. has received Rs. 1,15,000 /- towards the 1st Installment.
3. The P.I. has incurred the total expenditure of Rs. 1,06,056 /- for the Research Project against 1st Installment.

The Original Vouchers and stamped receipts for the above mentioned statement of Accounts are retained in College / Institute office and will be made available to University as when required.

Date: 03/11/2017

Place: Lonavala

Dr. Prashant S. Patil
Name & Sign. of
Prin. Investigator

College Seal

Dr. M. S. Gaikwad
Name & Sign. of Principal
PRINCIPAL
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavala-410 401.

Chartered Accountant
Sign., Seal & Regn. No.

SATISH NIVRUTTI SATHE
MEMBERSHIP NO. 152548
CHARTERED ACCOUNTANT

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Dean
Research & Development Cell
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavla-410401

SINHGAD INSTITUTE OF TECHNOLOGY LONAVALA 410401

STATEMENT OF EXPENDITURE

Name of the College : **Sinhgad Institute of Technology, Lonavala**

Name of the Principal Investigator : **Dr. Prashant S. Patil**

A) RECEIPT: -

Total grants Sanction for Two years **Rs. 2,30,000/-**

Research Grant received **Rs.1,15,000 /-** towards the 1[st] Installment from

Savitribai Phule Pune University Vide letter No.: Finance/2016-17/1701 Dated: 22/11/2016		
Ch. No.300930	Date: 19/11/2016	Amount Rs. 4,27,500/-

B) EXPENDITURE :

Sr. No.	Particulars	Budget Provision	Exp. Amt. in Rs.
1	Equipments (Annexure – I)	35000/-	24629.50/-
2	Books & Journals (Annexure – II)	5000/-	NIL
3	Chemical & Consumables (Annexure – III)	30000/-	72672.92/-
4	Hiring Services (Annexure – IV)	10000/-	NIL
5	Field Work & Travel (Annexure – V)	10000/-	4310/- 2810
6	Contingency (Annexure – VI)	25000/-	4444/- 3189
	TOTAL	115000/-	106056.42/-

chemical 2nd year 60,060/-

C) Unspent Balance / (-) Excess Expenditure **Rs. 8944/-.**

Rs 103301/- Rs. 90628=50

Dr. Prashant S. Patil
Name & Sign. of Prin. Investigator

College Seal

Dr. M. S. Gaikwad
Name & Sign. of Principal

PRINCIPAL
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavala-410 401.

Chartered Accountant
Sign., Seal & Regn. No.

SATISH NIVRUTTI SATHE CHARTERED ACCOUNTANT MEMBERSHIP NO. 152548

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SINHGAD TECHNICAL EDUCATION SOCIETY'S

SINHGAD INSTITUTE OF TECHNOLOGY

(Affiliated to Savitribai Phule Pune University & Approved by AICTE)

Sinhgad Institutes

Gat No. 309/310, Kusgaon (BK.), Off Mumbai - Pune Express way, Lonavala, Dist Pune - 410 401.

PROF. M. N. NAVALE
M E (Elect.) MIE, MBA
Founder President

DR. (MRS.) SUNANDA M. NAVALE
B A, MPM, Ph D
Founder Secretary

DR. M. S. GAIKWAD
M E, Ph D (Electronics Engg.)
Principal

Ref. No. SIT/2016-17/4663

Date:-03/11/2017

To,
The Director,
BCUD,
Savitribai Phule Pune University, Pune

Sub: Submission of audited BCUD research project first year report of University research grant scheme. (Letter No. and Date: **OSD/BCUD/392/197 Dated 11/11/2016).**

Ref: Your office circular No.: 265 dated 30/10/2017.

Respected Sir,

I undersigned, Dr. Prashant S. Patil have been sanctioned BCUD research project under SPPU, Pune, research scheme (Sanshodhan) with a grant of Rs. 2,30,000/- (Two Lakhs Thirty Thousand Rupees only). Vide SPPU letter **OSD/BCUD/392/197 Dated 11/11/2016.**
The title of my research project is "**Preparation, Characterization and Application of Nanocrystalline Multilayer Transparent Oxide Thin Films**".
I am submitting herewith the auditing financial report with progress report of research work done in for first year in prescribed proforma of Savitribai Phule Pune University.

You are requested to accept the same and release the remaining amount to complete the research in a given time.

Thanking You.

(Dr. Prashant S. Patil)
Principal Investigator

(Dr. M.S. Gaikwad)
Principal
PRINCIPAL
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavala-410 401.

Tel. : 91 2114 - 304 353, 304 355, 304 356 Telefax : 02114 - 278304 E-mail : principal_sit@sinhgad.edu Website : www.sinhgad.edu

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Project proposal

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Annexure-I

UNIVERSITY OF PUNE

University with Potential for Excellence

FORMAT FOR SUBMISSION OF PROPOSAL FOR RESEARCH PROJECT

PART – A

1. Broad Subject: Physical Sciences Faculty : Engineering Sciences

2. Area of Specialization: Solar Photo-catalysis

3. Duration: 2 Years

4. Principal Investigator

i) Name: Dr. Prashant S. Patil
ii) Sex: Male
iii) Date of Birth: 13/11/1974
iv) Qualification: M.Sc. Ph.D. (Physics)
v) Designation: Asst. Professor
vi) Address:

Office: Sinhgad Institute of Technology, Off Mumbai Pune Express way Kusgaon (Bk), Lonavala-410 401

Residence: Flat No. 5, Gauravi Appartement Balewadi Phata, Chakankar Mala, Baner, PUNE-45

5. Name of the Institution where the project will be undertaken:
Sinhgad Institute of Technology, Off Mumbai Pune Express way Kusgaon (Bk), Lonavala-410 401

a. Department: Applied Sciences
b. University/College: University of Poona

6. Teaching and Research Experience of Principal Investigator

a. Teaching experience: 02 Years
b. Research experience 06 years
c. Publication:
Papers Published: 05

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Part B

Proposed Research work

7. i) Project Title

Preparation, Characterization and Application of Nanocrystalline Multilayer Transparent Oxide Thin Films.

ii) Introduction

Energy is the lifeline of civilization. With the tremendous growth of science and technology and its consequent impact on industrialization, population growth has significantly increased. Consequently the energy demand for today, world's 90% of the energy is derived from fossil fuel (Pachauri and Sridharan, 1998). However fossil fuel has resulted into gigantic proportions of pollution. Moreover, the fossil fuel is depleting very rapidly. Hence all over the world scientists are in search of alternative sources of energy. Amongst various alternative sources, solar energy is considered to be the most viable option due to its abundance, environmental friendliness and free availability.

Heterogeneous Photo-catalysis is a technology based on UV irradiation of a semiconductor photo-catalytic compounds such as Titanium dioxide (TiO_2), Zinc oxide (ZnO), Tungsten oxide (WO_3), Indium tin oxide (ITO), Vanadium Oxide (V_2O_5), cadmium Sulphide (CdS) etc. [3,5,9,11,15]. When irradiated with light having sufficient energy (hv), semiconductor particle becomes part of a particulate system capable of photo-electrochemical cell at which efficient oxidation and reduction process may takes place [2]. Oxidation process has potential to oxidize almost all types of organic chemicals containing in industrial and domestic waste water (pesticides, organic solvents, surfactants, dyes).

However, among above mentioned catalysts, TiO_2 is considered to be the best option because of following reasons;

1. Carey et al. first demonstrated the use of TiO_2 in water detoxification in 1976. They showed that polychlorinated biphenyls (PCB) were de-chlorinated in aqueous suspensions of TiO_2.

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2. TiO_2 is the most commonly used photo-catalyst now-a-days in air and water purification processes. Near ambient temperature TiO_2 offers some distinct advantages such as photochemical stability against photo-corrosion, wide range pH applicability, low cost, non-toxicity and eco-friendliness. [1].
3. TiO_2 has a higher relative activity as compared to other alternatives. Many organic compounds have oxidation potential above that of the TiO_2 valence band and therefore can be oxidized by TiO_2. By contrast, TiO_2 can reduce only few organic compounds which have reduction potential below that of the TiO_2 conduction band [1].
4. TiO_2 is the most popular semiconductor because of its resistivity to strong acids and bases and its stability under UV illumination. Although, ZnO has similar band-edge position to those of TiO_2, but it is less desirable due to photo corrosion induced by self-oxidization [2].

- **Origin of the research problem**

Many investigations, using various kinds of TiO_2 photo-catalyst, have been actively carried out to address environmental concerns and there are no limits to the possibilities and applications of TiO_2 as ***"Environmentally Harmonious Catalyst"***. [6,7,8,10,14].

The efficiency of the photo-catalysis process is mainly determined by five factors

i. Efficient absorption of light with minimum entropy production.
ii. Fast charge separation after light absorption.
iii. Separation of charged species (e^- and $hole^+$) in order to prevent reverse reaction.
iv. Adjustment of the redox potentials of the excited states to the redox potential of organic pollutant.
v. Long-term chemical stability and continuous reproduction of charge species.

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However, TiO_2 does not allow the use of visible light, unlike plant photosynthesis, makes use of only 5-6% of the solar beam that reaches to the earth surface. Therefore, the development of clean and safe photo-catalytic system which can be applied to treat very large, global scale will only be depend on design and development of photo reactors with modified photo-catalyst which can be operate under visible light.

To overcome this limitation, dye sensitization of TiO_2 with metals such as Platinum, Tungsten, Iron etc. has been tried to improve the effectiveness of TiO_2 and also with zeolites loaded TiO_2 and activated carbon mounted TiO_2 [4,8].

As generally observed TiO_2 is an efficient photo-catalyst but most of the studies related to photo-degradation have been carried out using the suspension of TiO_2 powder in aqueous solution. However, the use of aqueous suspension is limited for practical application by filtration problems due to the small size of TiO_2 particle.

Alternatively, the catalyst can be deposited on to a suitable solid inert support, which eliminates the need of removing the catalyst. Unfortunately, available surface area for the reaction since the catalyst must adhere to the solid support and the reactor design is limited by the optical absorption constraints. Generally, a commonly used process of deposition involves the use of expensive precursor of TiO_2 in the form of sol-gel and thermal treatment of the film between 400 to 500 °C.

Properties of the thin films strongly depend on deposition methods such as Sol-Gel, Spray Pyrolysis, CVD, PECVD, Evaporation, Sputtering etc. However, Sol-Gel, Spray Pyrolysis is one of the most utilized methods to prepare desired properties of TiO_2 thin films with well-controlled process parameters such as gas flows, substrate temperature concentration of the solvent and solute substrate materials etc. Therefore, it is necessary to investigate the influences of the process conditions on the properties of deposited thin films. There is limited number of references available on TiO_2 and doped TiO_2 deposited by Sol-Gel, Spray Pyrolysis [12, 13].

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Considering the limitations of TiO_2, in visible optical region, for photo-catalytic applications; I would like to formulate followings aims and objective for the present proposal.

- **Interdisciplinary Relevance**

Solar Photo-catalysis is the branch of sciences and technology which involves the physicist, chemist, environmentalist and Engineers as this stream of science is highly interdisciplinary.

- **Review of Research and Development in the Subject :**

Gopalrao first reported internationally similar work in 1939 (Wang et al, 1994) when he was studying the photo-degradation of ammonia using titania colloids. After that, such a work for specific application to oxidation of cyanide and sulfite in aqueous solution was reported by Frank and Bard (1977). They used various semiconductors and compared their activities and stabilities. Some important work continued to be done in 80's (Okamato et al 1985a, 1985b; Smotkin and Bard 1986). Obviously the stress was more on knowing the process and photo-catalyzed intermediates for a given pollutant.

In 90's the interest in this area has grown manifold and a lot of research work on the parametric dependence of the process for various kind of pollutants and their combinations have been reported. Research on the engineering designs of the systems also started and has been reported. Such work are mainly being done at SERI, Golden CO (Blake et al, 1991), Solar Energy and Energy Conversion Laboratory, University of Florida, FL (Goswami et al 1992, 1998) and Sandia National Labs, NM, USA (Alpert et al 1991) Platforma Solar de Almeria, Spain and University of Barcelona (Curco D. et al 1996). Looking at the enormous potential of the process many kinds of reactor designs an methodologies are being proposed (March et al 1995; Curco D. et al 1996; Goswami 1999).

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- **International status**

A great deal of research work is going on all over the world that has been highlighted in above paragraphs also. Following are the selected references related to the present work.

Many studies are now concentrating on developing methods and systems to utilize the solar insolation more fruitfully (Rodriguez et al 1996; Nogueira et al 1996). Photo-catalytic degradation of phenol over TiO_2 was carried out by Okamoto K. et al (1985a) and its kinetics was also studied by Okamoto K. et al (1995b). He investigated the effect of initial concentration of phenol, pH, and effect of TiO_2 stirring on degradation rate. He observed that the anatase TiO_2 powder followed first order reaction kinetic, in which the apparent rate constant k_{app} depended on initial concentration of phenol and incident light intensity *I*. Degradation of phenol is not a single step process, during the degradation of phenol some intermediate products are formed at initial stage of the reaction such as pyrocatechol, hydroquinone, 1,2,4 -benzenetriol are observed. The photo-catalytic degradation of phenol using TiO_2 suspension has been studied at pilot plant scale with solar radiation at the Platform Solar de Almeria (PSA), Spain and at the laboratory level with Xenon lamp at the university of Barcelona (Curco D. et al 1996). Two different types of reactors were tested at PSA; high concentrating radiation systems (Heliomons) and low concentrating systems Compound Parabolic Concentrators (CPCs). The kinetic constants have been determined and compared for all the systems tested at pilot plant and laboratory scale and efficiency of the systems were reported.

- **National Status**

Most of the work on water splitting is done using UV radiation. However UV fraction is very less in solar spectrum. Using artificial UV source for energy production can never be economically viable. Hence scientists are working to drive the reaction with visible radiation. Use of appropriate catalyst and catalyst stimulator can shift the reaction to be driven by visible radiation.

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This technology is at nascent stage. Due to its relevance and scope, researchers all over the world are engaged in this field. It is an area of interdisciplinary work. Scientists of diverse discipline are working in collaboration with each other in this field. Earlier the UV radiation was found to be effective to drive the reaction of water split up. However due to its limited availability in terrestrial solar spectrum, the emphasis during 80s was to make the reaction driven by visible radiation (Gerisher 1972). The process involves a large number of variables to be optimized. There is ample scope for process optimization. Several parameters need to be accounted. In India Few groups were working on this field such as Dept. of Physics, University of Poona, Dept. of Energy, Tezpure central university, Assam, C-MET Pune, UDCT, Mumbai.

- **Significance of the study**

As seen in the literature review, photo-catalysis is a newly discovered horizon in the field of wastewater (and air pollution) treatment. It requires optimization of parameters. The process is heterogeneous in nature and involves a large number of parameters. The optimization of any single parameter is valid only in the limited range of other parameters. Hence it requires regressive research studies to be carried out to develop the "sets of optimum range of variables". As the range of organic pollutants of concern is also quite vast the scope of study also becomes very vast. The present proposal is another linkage in this string. The present study emanates on objectives:

First, to developed a suitable method for deposition of oxide materials so that we can apply deposited thin films effectively for performance testing of organic decomposition. Second, to compare the relative effectiveness of prepared thin oxide films on the basis of actual performance for degradation of selected probe chemical. Third, to evolve the concept of average photonic efficiency of the photo-catalysis and to estimate it for the reactions under study. Such a study for photo-catalytic degradation of dyes is will be undertake first time. One more objective of the present work is couple up the photo-catalysis with photo-thermal conversion, because both of these use solar energy. Photo-

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catalysis requires only a small fraction of the total energy of solar spectrum i.e. the energy in the wavelength range of 300 to 380 nm, which is only 5% of the overall energy of the spectrum. Remaining energy is unused. Hence it necessitates to design a system which utilizes the 300 to 380 nm fraction of radiation for photo-catalysis and the remainder for photo-thermal. Such a system finds applications in industries and will be saving significantly the land requirements.

iii) Objective of the present proposal:

1. To deposit TiO_2 thin film by sputtering (either DC/RF).
2. Deposition of other oxide materials like WO_3, CuO, ITO, SnO_2 etc by sputtering and to explore the possibilities of their use for the same application.
3. To prepare multi-layers / bi-components of TiO_2, SnO_2, ITO, etc. oxides materials.
4. To modify electrical and optical properties of TiO_2 by doping transition metals for larger absorption of solar spectrum.
5. To study the catalytic properties of the prepared thin films for detoxification of waste water, mineralization of bacterial cell etc.
6. To improve photo-induced super-hydrophilic properties of TiO_2 and doped TiO_2 thin films.
7. Preparation of nano-composites thin film of TiO_2 with Al_2O_3, V_2O_5 etc.
8. Laboratory experiments for photo-catalytic degradation process will be carried out and results will be scale up for pilot plant level.

iv) Methodology adopted to work out the proposal

a. Deposition methods

Deposition of the oxide thin films proposed in aims and objectives will be done by Sputtering or whichever will be possible within the scope of the project.

b. Characterization methods

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Experimental characterizations of the pollutant will be done by UV-Visible spectroscopy, FTIR, HPLC, GC, TOC etc. The photon flux will be measured by UV pyranometer and radiometer. Characterizations of the oxide thin film will be done by using SEM, TEM, XPS, Raman spectroscopy, contact angle measurement, photoluminescence etc. The Crystalline structure and phase of the film will be characterized using X-ray diffraction (XRD). The particle size will be determine by using N_2 adsorption-desorption isotherm. Optical transmittance spectra of the film will be determined by UV-Vis-NIR spectrophotometer. Mechanical properties will be characterized by suitable methods. Ellipsometry will be used to determine thickness and refractive index of thin films.

c. Performance Testing

Performance of deposited oxide thin film will be carried out by using Photo-catalysis process by evaluating quantum yield.

v) Year wise Plan of work and targets to achieve

Sr No	Activity	Duration In months
1	First phase procurement of literature and study	0 – 3
2	Outline methodology, Procurement of required chemicals	3 – 6
3	Preparation of thin films by different methods, under parametric variation	6 – 12
4	Characterization of thin films	12 – 15
5	Performance testing of thin films for detoxification	15 – 20
6	Result analysis, selection of best material and method	20 – 24
7	Repeated experimentations with selected material	24– 26

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vi) Details of collaboration, if any intended

For Characterization of thin films such as SEM,XRD, FTIR and materials prepared by spray pyrolysis and sol-gel method we will use the facility of University of Poona, C-MET Pune, NCL, Pune and School of Physical Sciences, NMU, Jalgaon.

8. Financial Assistance required (First & Second Year Consolidated)

Sr No	Item	Estimated Expenditure In Rs.
1	Hiring Services	20,000/-
2	Field Work and Travel	30,000/-
3	Chemicals and glassware	60,000/-
4	Contingency (including special needs) Characterization charges	50,000/-
5	Books and Journals	15,000/-
6	Equipment, if needed	
	1.UV Bulbs of 125 W each & Sonicator	25,000/-
	2. Centrifuge Machine	15,000/-
	3. Electronic Balance	30,000/

Total in Rs. 2,45,000/- (Rs. Two Lakhs forty five thousand only)

9. (a) Details of the project/scheme completed with the P.I

Name of the Agency	Sanction Year	Total in Rs	Equipment/Infrastructural facilities obtained
DST, New Delhi	2007	379000	Photochemical reactor & High Temp. Furnace

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(b) Institutional and Departmental facilities available for the proposed work

Equipment:

Signal pan balance, Furnace up to 700^{0}C, UV-Visible spectrometer, distilled water plant etc.

Other Infrastructural facilities:

All basic requirements needed to execute project such as space, water, electricity, library, computer with internet facility etc. will be provided by host institute.

10. Any other information which the investigator may like to give in support of this proposal which may be helpful in evaluating.

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Part-C

Declaration

To certify that:

a). General physical facilities, such as furniture/space etc., are available in the Department/College.

b). I/we shall abide by the rules governing the scheme in case assistance is provided to me/us from the University of Pune for the above project.

c) I/we shall complete the project within the stipulated period. If I/we fail to do so and if the University of Pune is not satisfied with the progress of the research project, the University of Pune may terminate the project immediately and ask for the refund of the amount received by me/us.

d) The above Research Project is not funded by any other agency.

Name and Signature

(Patil Prashant S.)
Principal Investigator

Name and Signature

(Waghmare M. A.)
Co- Investigator

Academic & Research Co coordinator
Dean (R & D)
Sinhgad Institute of Technology
Kusgaon (Bk.) Lonavala - 410401

Principal

(Signature with Seal)

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SINHGAD INSTITUTE OF TECHNOLOGY

(Affiliated to Savitribai Phule Pune University, Pune & Approved by AICTE)
Gat No. 309/310, off Mumbai Pune Expressway Kusagaon (Bk), Lonavala Pune – 410401

Academic Year 2016-17

7. Synthesis, characterization Polymorphic Behavior of Coordination Polymers Using Transition metals and N-donor Ligands

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Research & Development Cell
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavla-410401

SINHGAD INSTITUTE OF TECHNOLOGY LONAVLA 410401

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Proposal letter

SAVITRIBAI PHULE PUNE UNIVERSITY

Board of College and University Development

University Research Grant Scheme

Acceptance Letter

Proposal No	15LSC000681
Name of P.I.	Bhosekar Gaurav Vikram
Contact No. (Mob.)	9922883612 Email ID : gvbhosekar.sit@sinhgad.edu
College/ Institute	Sinhgad Technical Education Society Sinhgad Institute of Technology Addr: Survey No 309/310 Kusgaon Bk Lonavala Ta: Maval Dist: Pune
Approval No. & Date	CCO/2484 (Appr Date : 19 Apr 2010)
Title of the Project	Synthesis, Characterization, Polymorphic Behavior of Coordination Polymers Using Transition Metals and N-donor Ligands

1. I am permanent approved teacher of College/ University as mentioned above.
2. The research project is not being supported by any other funding agency.
3. The terms and conditions related to the grant are acceptable to the Principal Investigator and College/Institution.
4. Expenditure Will be Incurred as per University Rules and Utilisation and Progress Report Will be submitted in time.
5. At present, I have no research project approved under University Research Grant Scheme by University of Pune.
6. The College/Institute is fit to receive financial assistance from University and is included in the list prepared by the University.
7. The period of implementation of the project is 2016 - 2018.
8. I will guide at least two students for "AVISHKAR" research competition.

A.R.C.
(Name and Signature)

Principal Investigator
(Signature)

Principal
(Signature and Seal)

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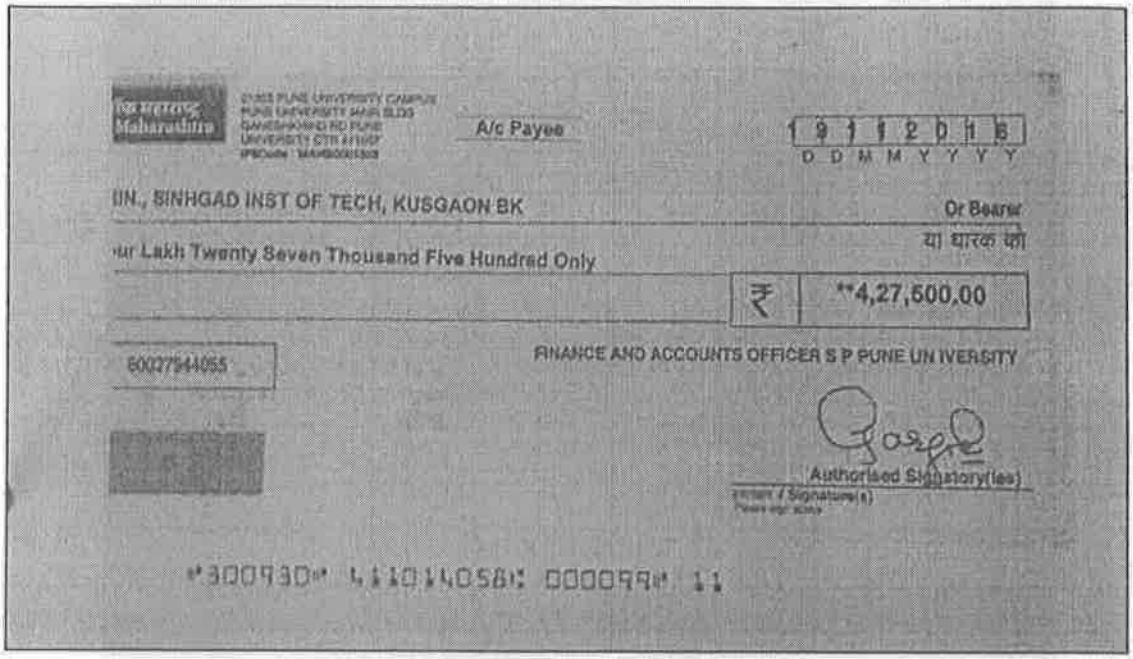

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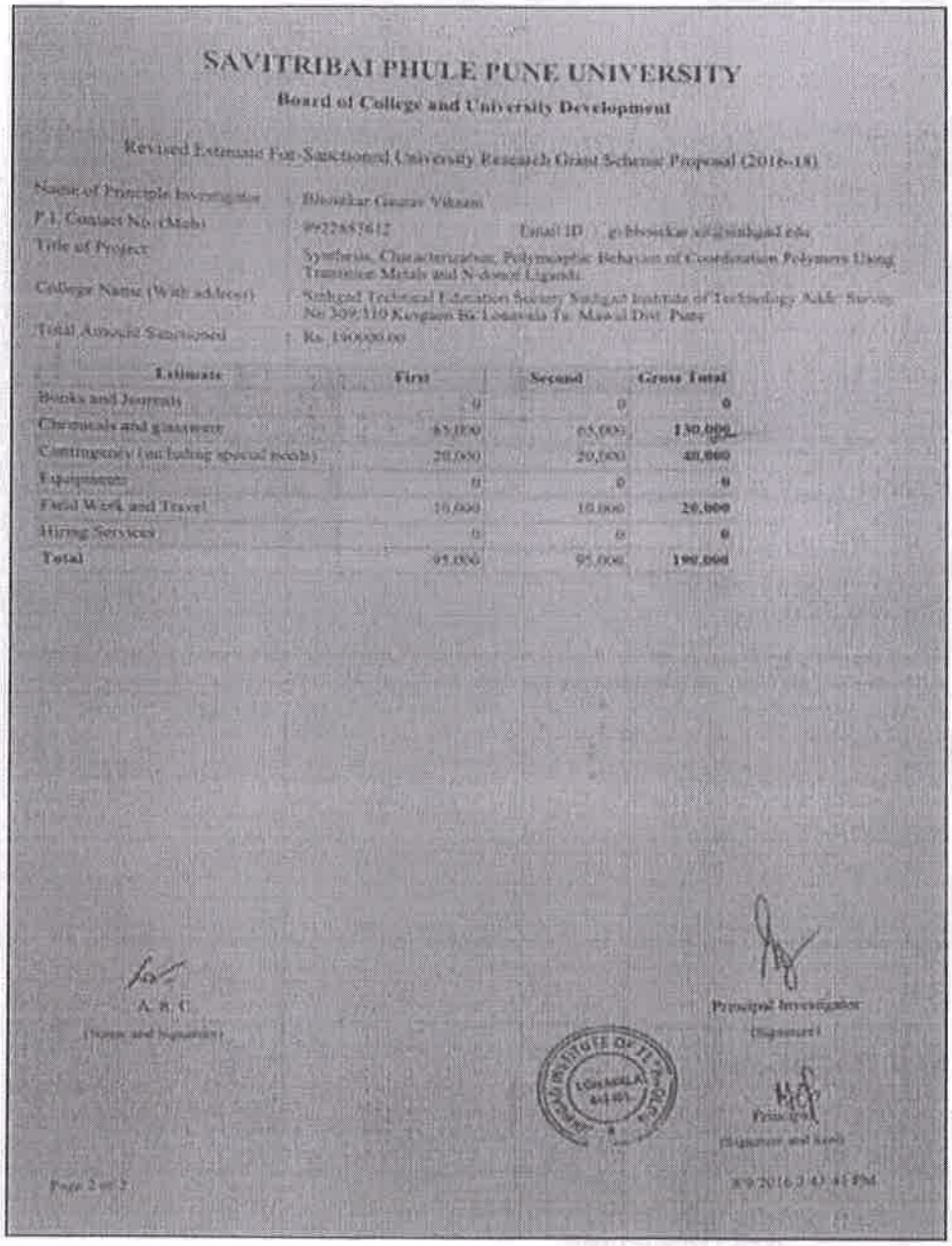

SAVITRIBAI PHULE PUNE UNIVERSITY

Board of College and University Development

Revised Estimate For Sanctioned University Research Grant Scheme Proposal (2016-18)

Name of Principle Investigator	Bhosekar Gaurav Vikram
P.I. Contact No. (Mob)	9922857612 Email ID g.bhosekar.sit@sinhgad.edu
Title of Project	Synthesis, Characterization, Polymorphic Behavior of Coordination Polymers Using Transition Metals and N-donor Ligands
College Name (With address)	Sinhgad Technical Education Society Sinhgad Institute of Technology Addl. Survey No 309/310 Kusgaon Bk Lonavala Ta. Maval Dist. Pune
Total Amount Sanctioned	: Rs. 190000.00

Estimate	First	Second	Gross Total
Books and Journals	0	0	0
Chemicals and glassware	65,000	65,000	130,000
Contingency (including special needs)	20,000	20,000	40,000
Equipment	0	0	0
Field Work and Travel	10,000	10,000	20,000
Hiring Services	0	0	0
Total	95,000	95,000	190,000

A. R. C.
(Name and Signature)

Principal Investigator
(Signature)

Principal
(Signature and Seal)

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Utilization details

UNIVERSITY OF PUNE
Board of College and University Development

Revised Estimate For-University Research Grnt Scheme (2016-2018)

Name of Principle Investigator:- GAURAV VIKRAM BHOSEKAR

P.I. Contact No. (Mob):- 9922853612 Email-ID: gvbhosekar.sit@sinhgad.e

Title of Project:- synthesis, characterization, Polymorphic Behavior of Co-ordination Polymer Using Transition metals N-donor Lig

College Name (With address): Sinhgad Institute of Technology,

Survey No. 309/310, Kusgaon Bk., Lonavala, 410401

Total Amount Sanctioned: One lakh ninety thousand only (1,90,000/-)

Budget Head	Year I Approved Amount	Year I Actual Expenditure	Year II Approved Amount	Year II Revise estimate	Total	Revise Total
Hiring Services	Nil	Nil	Nil	10,000/-	Nil	10,000/-
Field Work and Travel	10,000/-	Nil	10,000/-	10,000/-	20,000/-	10,000/-
Chemicals and Consumables	65,000/-	65,764/-	65,000/-	15,000/-	1,30,000/-	80,764/-
Contingency	20,000/-	6,5,961-	20,000/-	10,000/-	40,000/-	16,596/-
Books and Journals	Nil	Nil	Nil	10,000/-	Nil	10,000/-
Equipment	Nil	Nil	Nil	75,000/-	Nil	70,000/-
Total	95,000/-	72,360/-	95,000/-	1,25,000/-	1,90,000/-	1,97,360/-

N.V. Gaikwad
A. R. C.
(Signature)

Principal Investigator
(Signature)

Principal
(Signature)

PRINCIPAL
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavala-410 401.

O.S.D.,
B.C.U.D.

Director,
B.C.U.D.

30/01/18

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Sinhgad Institute of Technology, Lonavala

Academic Year 2016-17

8. Grid interfacing converter systems with Enhanced Voltage quality for micro grid.

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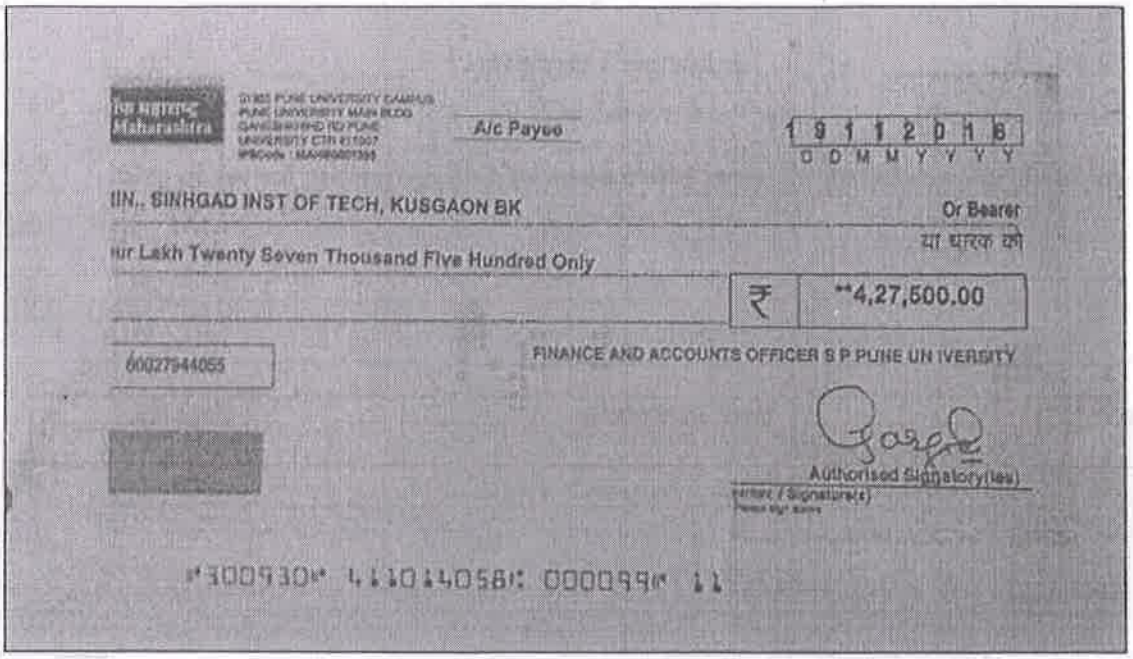

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Utilization details

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Board of College and University Development

Revised Estimate For-University Research Grant Scheme (2016-2018)

Name of Principle Investigator:- Girish Rameshrao Walke

P.I. Contact No. (Mob):- 9766002105 Email-ID: grw.sit@sinhgad.edu

Title of Project:- Grid Interfacing Conv. Systems with Enhanced Voltage Quality for Microgrid

College Name (With address): Sinhgad Institute of Technology

Survey No. 209/310, Kusgaon Bk., Lonavala, Dist. Pune -410401

Total Amount Sanctioned: 275000/-

Budget Head	Year I Approved Amount	Year I Actual Expenditure	Year II Approved Amount	Year II Revise estimate	Total	Revise Total
Hiring Services	7500	5400	7500	7000	15000	12400
Field Work and Travel	10000	9970	10000	20000	20000	29970
Chemicals and Consumables	Nil	Nil	Nil	5930	Nil	5930
Contingency	17500	16699	17500	10000	35000	26699
Books and Journals	12500	12500	12500	50000	25000	62500
Equipment	90000	90000	90000	47500	180000	137500
Total	137500	134570	137500	140430	275000	275000

(N.V. Lokal)
A. R. C.
(Signature)

G.R. Walke
Principal Investigator
(Signature)

Principal
(Signature)
(Dr. M. S. Gaikwad)
PRINCIPAL
SINHGAD INSTITUTE OF TECHNOLOGY
Kusgaon (Bk.), Lonavala-410401.

O.S.D.,
B.C.U.D.

Director,
B.C.U.D.

30/01/18

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Academic Year – 2016-2017

9. Development of ensemble stream data classifier to support multi-class

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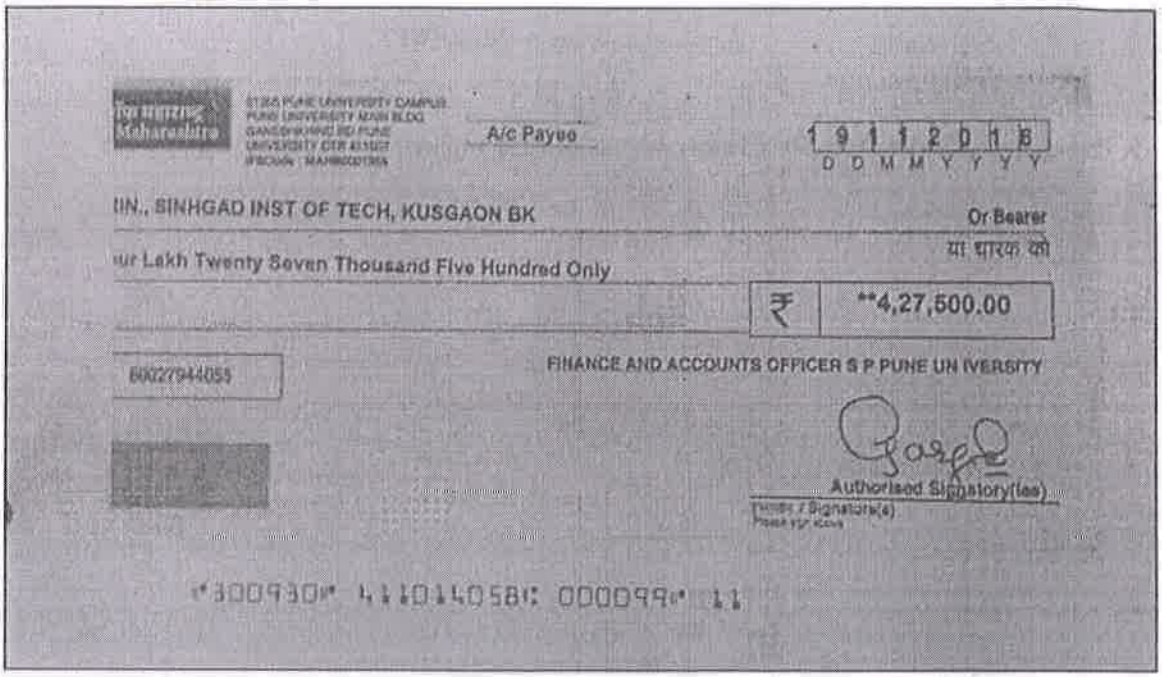

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Academic Year – 2016-2017

10. Protecting Location Privacy in Location Based Service

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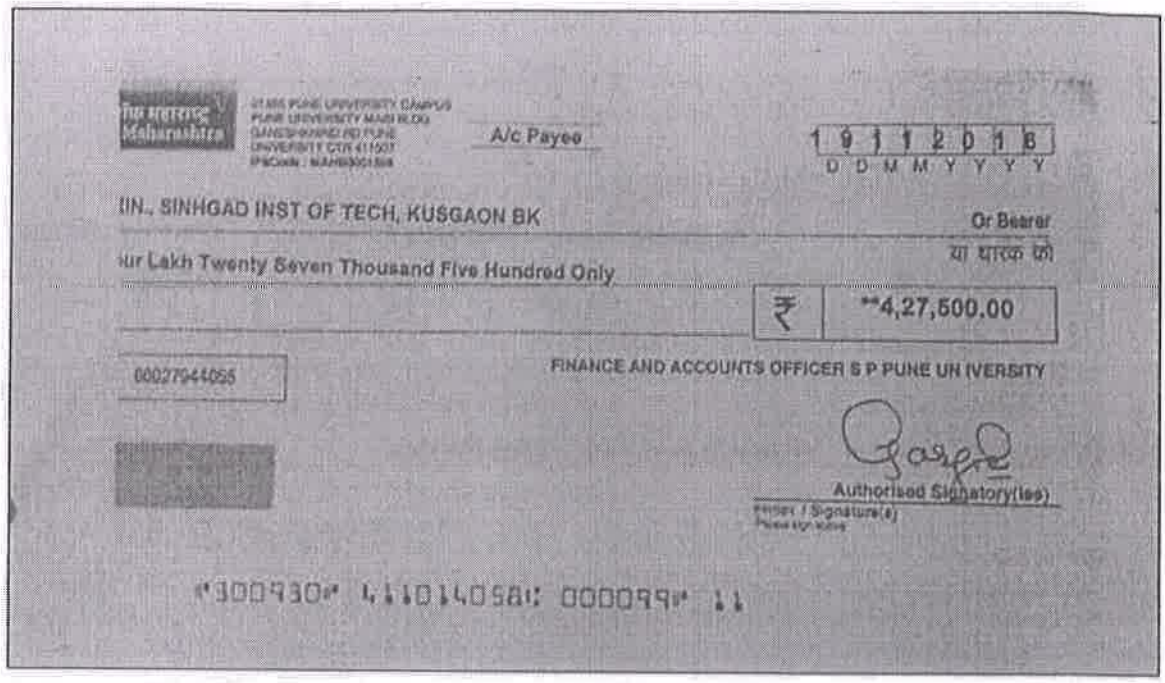

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