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Faculty Achievement

Faculty Achievement						
		Name of Department	Mechanical Engineering		Year 2019-20	
Sr. No.	year	Name of the Faculty	Event Name	Title	Journal/college/university Name	Date
1	2019-20	Mr. Vinayak Hindurao Deokar	Praper presentation in National conference	Efficiency ienhancement of PV panel using active air cooling	AICTE sponsored, Dr. D. Y. patil Institute of Technology, Pimpri, Pune.	13/03/2020 to 14/03/2020
2			STTP	MATLAB based Teaching - Learning in Mathematics, Science and engineering	D. Y. Patil University	18/05/2020 to 22/05/2020
3			STTP	Advanced Optimization tools and techniques for researchers and engineers.	SKN, Sinhagad college of Engineering, Pandharpur.	23/05/20 to 27/05/2020
4			Faculty development program	Opportunities & Challenges in Electronics & allied industries.	Vivekanand Education Society's Institute of Technology.	25/05/2020 to 30/05/2020
5			Research article	Real time monitoring and controlling of solar drying and water pumping and system using IoT	Mukt Shabd Journal	May 2020
6			Paper presentation in international Conference	Efficiency improvement of photovoltaic panel by using active air cooling	Raje Ramroa Mahavidyalaya, Jath.	6/6/2020
7	2019-20	Mr. Keli Gajanan Chandrasekhar	Faculty Development Program	Design and Analysis of Machine Elements with solid work	Harbor Technologies, Hydrabad	15/05/2020 to 20/05/2020
8			Faculty Development Program	PYTHON 3.4.3	spoken tutorial IIT by Pragati college of Engineering Andrapradesh	08/05/2020 to 13/05/ 2020
9			Faculty Development Program	Present Trends & Research in Electric Vehicles	IEEE Bombay, RIT, Islampur	27/05/2020 to 31/05/2020
10			Faculty Development Program	Comprehensive Study of NAAC Criteria in RAF	Rubrics Softcon Pvt. Ltd. Pune	11/05/2020 to 15/05/2020
11			Faculty Development Program	Introduction to Outcome Based Education and Enhancing Quality of Teaching Learning Process	Govindrao Wanjari College of Engineering , Nagpur	15/06/2020 to 19/06/2020

12	2019-20	Mr. Kailash Chandra Ghosh	Faculty Development Program	Research Opportunities and Challenges in Manufacturing Sector	College of Engineering , Pandharpur	01/06/2020 to 06/06/2020
13			Journal paper Publication	Tribological Characteristics of Al6061 Reinforced with Granite Particulates	INTERNATIONAL JOURNAL OF SCIENTIFIC & TECHNOLOGY RESEARCH	May 2020
14			Journal paper Publication	Analysis of Effect of SiC Reinforcement on Microstructure and Hardness of Al 6061 and Al 7075	International Journal of Innovative Technology and Exploring Engineering (IJITEE)	April 2020
15			Journal paper Publication	Improvement of Mechanical Properties of Aluminium 6061 based Metal Matrix Composite with Addition of Granite Particulate	International Journal of Innovative Technology and Exploring Engineering (IJITEE)	May 2020
16			Journal paper Publication	DESIGN AND ANALYSIS OF BELT CONVEYOR FOR WEIGHT REDUCTION IN FOUNDRY	International Research Journal of Engineering and Technology (IRJET)	March 2020
17			Journal paper Publication	DESIGN AND ANALYSIS OF BELT CONVEYOR FOR WEIGHT REDUCTION IN FOUNDRY	International Research Journal of Engineering and Technology	3/1/2020
18			Journal paper Publication	Tribological Characteristics of Al6061 Reinforced with Granite Particulates	INTERNATIONAL JOURNAL OF SCIENTIFIC & TECHNOLOGY RESEARCH	May 2020
19			Journal paper Publication	Analysis of Effect of SiC Reinforcement on Microstructure and Hardness of Al 6061 and Al 7075	International Journal of Innovative Technology and Exploring Engineering	April 2020
20			Journal paper Publication	Improvement of Mechanical Properties of Aluminium 6061 based Metal Matrix Composite with Addition of Granite Particulate	International Journal of Innovative Technology and Exploring Engineering	May 2020
21	2019-20	Mr. Ajit Ashok Katkar	FDP/STTP	Renewable Energy and Utilization	Sandip Institute of Engineering and Management Nashik	26/05/2020 to 30/05/2020
22			FDP/STTP	Research Opportunities in Advanced Manufacturing Processes	Bharati Vidyapeeth (DU), COE, Pune (India)	22/06/2020 to 28/06/2020
23			FDP/STTP	Connect Alumni Power Pack Talk Series	S.B.Patil College of Engineering , Indapur	25/06/2020 to 30/06/2020
24			FDP/STTP	Introduction to Outcome Based Education and Enhancing Quality of Teaching Learning Process	Govindrao Wanjari College of Engineering & Technology, Polytechnic, Nagpur	15/06/2020 to 19/06/2020.
25			FDP/STTP	Manufacturing Practices and Industry 4.0	Engineering College Bikaner ((An Autonomous Institution of Government of Rajasthan)	08/06/2020 to 12/06/2020
26			Journal paper Publication	Experimental investigation and parametric optimization of micro holes on Inconel 718 using developed μ -AJM set-up	Manufacturing Technology Today, UGC No. 3830, 18(12): 35-42.	December 2019
27	2019-20	Mr. Vinod Vasantrao Varmora	Faculty Development Programme	Internet of Things	NITTTR Chandhighad	15/04/2020 to 19/04/2020

28	2019-20	Mr. Vinod Vasantadas Vaidmore	Faculty Development Programme	Computer Aided Design and Manufacturing (CAD/CAM)	NITTTR Chandhighad	27/04/2020 to 01/05/2020
29			Conference paper	Development of fluidized mixing chamber to optimize process parameters for Micro Abrasive Jet Machining (MAJM)	Sardar Vallabhbhai National Institute of Technology, SVNITSurat, (Gujarat) India.	16/07/2020 to 17/07/2020
30			Faculty Orientation Programme	Recent Advances in Modeling and Optimization Techniques	Sharad Institute of Technology, College of Engineering	01/06/2020 to 05/06/2020
31	2019-20	Mr. Rahul Uday Urunkar	Faculty Development Program	Emerging Trends in Refrigeration and Air-Conditioning	Rajarshi Shahu Maharaj Polytechnic, Nashik in association with ISHRAE Nashik Chapter	08/06/2020 to 12/06/2020.
32			Faculty Development Program	Applications of Finite Element Analysis (FEA) and Computational Dynamics (CFD) using ANSYS	Government College of Engineering, Karad & Rajikiya Engineering College, Azamgarh	13/06/2020 to 17/06/2020
33			Faculty Development Program	Overcoming the Challenges in Adapting Online Technology in Teaching Learning	Jhulelal Institute of Technology, Nagpur	06/05/2020 to 11/05/2020
34			Faculty Development Program	Technical Teacher's Training	VVIT, Pal	22/05/2020 to 27/05/2020
35			Workshop	Renewable Energy: Application & Entrepreneurship	S.S.B.T.'s, College of Engineering & Technology, Bambhori, Jalgaon	26/05/2020 to 30/05/2020
36			Short Term Training Program	Renewable Energy and Utilization	Sandip Institute of Engineering and Management, Nashik	26/05/2020 to 30/05/2020
37			Faculty Development Program	Advanced Teaching Tools, Techniques and Methodologies for Outcome Based Education	AISSMS College of Engineering, Pune	01/06/2020 to 05/06/2020
38			Faculty Development Program	Use of ICT in Teaching Learning (Regional Language)	Dr. Ghali College, Gadhinglaj	01/06/2020 to 06/06/2020
39	2019-20	Mr. Deshmukh Sardar Balaso	Faculty Development Program	Research Opportunities and Challenges in Manufacturing Sector	SVERI's College of Engineering, Pandharpur	01/06/2020 to 06/06/2020
40			Faculty Development Program	Futuristic Technologies in Mechanical Industries	DYPIEMR, Akurdi, Pune	05/06/2020 to 09/06/2020
41			Faculty Development Program	Applications of Finite Element Analysis (FEA) and Computational Dynamics (CFD) using ANSYS	College of Engineering, Karad, Maharashtra and Rajikiya Engineering College, Azamgarh	13/06/2020 to 17/06/2020
42			Faculty Development Program	Solar Energy & its Applications in Indian Scenerio after COVID-19	Prof Ram Meghe Institute of Technology & Research, Badnera-Amaravati	15/06/2020 to 19/06/2020
43			Faculty Development Program	Future Materials: Nanocomposites	Bharati Vidyapith College of Engineering, Pune	15/06/2020 to 21/06/2020

44			Faculty Development Program	Research Opportunities in Advanced Manufacturing Processes	Bharati Vidyapith College of Engineering, Pune	22/06/2020 to 28/06/2020
45	2019-20	Mr. Dhananjay Vasantao Patil	Faculty Development Program	Futuristic Technologies in mechanical Industries	DYPIEMR, Akurdi, Pune	05/06/2020 to 09/06/2020
46			Webinar	Trends in Metal Casting	BVCOE, Kolhapur	6/10/2020
47	2019-20	Mr. Praveen Shivaji Atigre	Faculty Development Program	Enhancing Research and Consultancy Skills	Rajarambapu Institute of Technology, Rajaramnagar	22/06/2020 to 26/06/2020
48			Paper Setter	Machine Design - I	Dr. Babasaheb Ambedkar Technological University	12/6/2019
49			Paper Setter	Metrology and Quality Control	Dr. Babasaheb Ambedkar Technological University	12/6/2019

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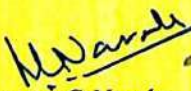
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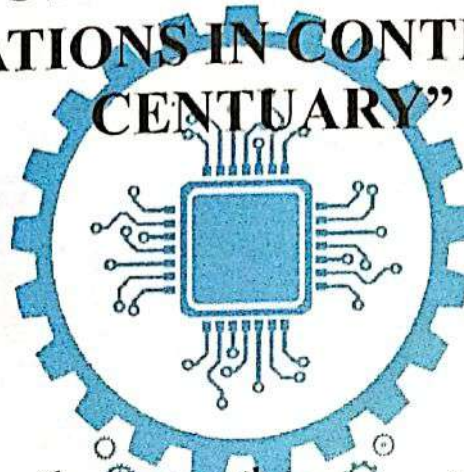
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SOUVENIR

23	AM_37	Design and Optimization of Solar Chimney for Small Applications	Dr. Ramesh K. Kawade, Mr. Lokesh R. Dhumne	35
24	AM_38	Development and Analysis of Load Bank For Steam Power Plant	Pathan Arbaj, Sonawane Ganesh, Kurhe Ravi, GholapKavit, Ghadge Harshal, Dr.R.K.Kawade	36
25	AM_39	Efficiency improvement of Photovoltaic panel using Active cooling	Mr. Vinayak H. Deokar Dr.Rupa.S.Bindu	36
26	AM_40	Structural analysis of C section steel columns with different web sections subjected to axial compressive eccentric loading	Mr. Ganesh N. Bhalerao, Mr. Amit S. Chaudhary, Dr. Kishor. B. Waghulde	37
27	AM_41	Structural analysis of various cross section steel columns for axial compressive eccentric loading	Mr. Amit S. Chaudhary Mr. Ganesh N. Bhalerao Dr. Kishor. B. Waghulde	37
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30	AM_45	Design and Analysis of modular compliant translational micro-motion stage	Santosh B.Jadhav, Kishor K.Dhande, Suhas P.Deshmukh,	39
31	AM_47	Development of Carbon Composite Impact Absorber with Integrated Hydraulic Damper	Prof. Dr. L.G. Navale, Mr. Vivek Mohandas Mahajan	40
32	AM_51	An Overview of Energy Systems in Humanoid Robots	Shaunak Joshi, S. E. Talole,	40
33	AM_52	Scaling Up Machine Learning Algorithm for Rule Based Log Engine		41
34	AM_53	Building A Hindi-English	Pratik H. Jadhav,	41

AM_38

Development and Analysis of Load Bank For Steam Power Plant

**Pathan Arbaj, Sonawane Ganesh, Kurhe Ravi, GholapKavit, Ghadge Harshal,
Dr.R.K.Kawade** Department of Mechanical Engineering, DYPIT, Pimpri, Pune,
Maharashtra

Abstract

A load bank is a device which used as an electrical load, applies the load to an electrical power source and converts or dissipates the resultant power output of the source. The purpose of a load bank is to accurately mimic the operational or "real" load that a power source will see in actual application. However, unlike the "real" load, which is likely to be dispersed, unpredictable and random in value, a load bank provides a contained, organized and fully controllable load. Consequently, a load bank can be further defined as a self-contained, unitized, systematic device that includes load elements with control and accessory devices required for operation. In the existing scenario, The air heater type load bank have some limitations on the plant set up that's why there is need to replace and develop the new load bank on the steam power plant, so that they should meet the requirements of the plant with required efficient output. The Air load bank will replace with the Lamp load bank with required specifications. Previous air load bank had some limitations regarding its heat dissipation and power consumption. So we are going to replace it with Lamp load bank and try to increase the efficiency of Steam power plant with accurate readings.

Keywords: Lamp Load bank, Steam Power Plant, Air Heater

AM_39

Efficiency improvement of Photovoltaic panel using Active cooling

Mr. Vinayak H. Deokar , Research Scholar, Mechanical Engineering, Dr. D. Y. Patil Institute of Technology, Pimpri, Pune, India, 411 018. Email: deokarvinay@gmail.com

Dr.Rupa.S.Bindu, Professor, Mechanical Engineering, Dr. D. Y. Patil Institute of Technology, Pimpri, Pune, India, 411 018.

Abstract

Now a day's photovoltaic panels are a popular option for solar energy conversion. The solar photovoltaic panel gives maximum efficiency at standard working conditions (Irradiation = 1000 W/m² and operating temperature = 250C). The efficiency of the photovoltaic panel is dependent on the parameters like dust or dirt on the surface, the operating temperature of cells. As the cell operating temperature exceeds than 250C efficiency of the solar panel decreases by 0.4 %/0C and this higher temperature causes the



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This STTP was organized by the Department of Electronics Engineering, Ramrao Adik Institute of Technology, Nerul, Navi Mumbai in collaboration with DesignTech Systems Pvt. Ltd., Mumbai during 18th to 22nd May 2020.

Mr. M M Zafar
National Technical Manager,
Designtech Systems Pvt Ltd.

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Mechanical Engineering Department

CERTIFICATE

This is to certify that

Vinayak Hindurao Deokar

From Sanjeevan Engineering and Technology Institute

has successfully completed a One Week STTP on "Advanced Optimization Tools &

Techniques for Researchers & Engineers" during the period from 23/05/2020 to 27/05/2020.

Course Contents

- A) BASICS OF OPTIMIZATION.
 - 1. OPTIMIZATION- BASIC IDEAS
 - 2. DYNAMIC OPTIMIZATION
- B) INTRODUCTION TO DOE AND SURFACE RESPONSE METHODOLOGY.
 - 1. DESIGN OF EXPERIMENTS (DOE) - INTRODUCTION
 - 2. INTRODUCTION TO RESPONSE SURFACE METHODOLOGY
 - 3. BASICS OF RESPONSE SURFACE METHODOLOGY (RSM) FOR PROCESS OPTIMIZATION
- C) HYBRID OPTIMIZATION TECHNIQUES.
 - 1. TEACHING LEARNING-BASED OPTIMIZATION (TLBO)
 - 2. PARTICLE SWARM OPTIMIZATION. (PSO)
- D) MODERN EVOLUTIONARY OPTIMIZATION TECHNIQUES.
 - 1. SIMULATED ANNEALING
 - 2. GENETIC ALGORITHM PART I AND II
- E) MODERN EVOLUTIONARY OPTIMIZATION TECHNIQUES.
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E-Certificate of Participation

This is to Certify that

Vinayak Hindurao Deokar

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has attended one week Online Faculty Development Program on

"Opportunities & Challenges in Electronics & Allied Industries in India post COVID-19"

from 25th to 30th May 2020 organized by Department of Electronics Engineering

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This is to certify that the paper entitled

“Real-time controlling and monitoring of Solar drying and Water pumping system using IoT”

Authored by

Mr. Vinayak H. Deokar, Research Scholar

From

Dr. D. Y. Patil Institute of Technology, Pune, India.

Has been published in

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“Real-time controlling and monitoring of Solar drying and Water pumping system using IoT”

Mr. Vinayak H. Deokar

Research Scholar, Mechanical Engineering, Dr. D. Y. Patil Institute of Technology, Pune, India.
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ABSTRACT

A solar-powered pump is a pump running on electricity generated by photovoltaic panels as opposed to grid electricity or on the diesel engine. Excess amount of heat generated at the backside of the solar panel due to which the efficiency of solar panel decreases; to avoid this solar panel is air-cooled and heat recovered utilized for another agricultural application called dryer. This paper presents a remote monitoring and controlling system for solar drying and water pumping using Xbee and GSM module. Xbee sends system real-time data from sensors wirelessly to a central server after every 20 seconds, which collects the data, stores it, and transfers to the cloud through the GSM module. The real-time monitoring and controlling are also possible at the client-side through customized Mobile app.

Keywords: IoT, Xbee, GSM module, Hybrid solar drying, and water pumping system.

1. INTRODUCTION

Photovoltaic (PV) panels are often used for converting solar energy to electrical energy, especially in remote areas or where the use of an alternative energy source desired. In particular, they have been demonstrated repeatedly to reliably produce sufficient electricity directly from solar radiation (sunlight) to power livestock and irrigation watering systems. A benefit of using solar energy to power agricultural water pump systems is that increased water requirements for livestock and irrigation tend to coincide with the seasonal increase of incoming solar energy. When properly designed, these PV systems can also result in significant long-term cost savings and a smaller environmental footprint compared to conventional power systems. The volume of water pumped by a solar-powered system in a given interval depends on the total amount of solar energy available in that period. Specifically, the flow rate of the water pumped is determined by both the intensity of the solar energy available and the size of the PV array used to convert that solar energy into direct current (DC) electricity. The efficiency of the solar panel gets decreased as the operating temperature varies from 25⁰ C. For increasing output of the PV panel it is air-cooled from the backside and subsequently that air is used for agricultural product drying. For continuous monitoring and controlling of the system Internet of Things (IoT) is used which proved a helpful tool in system performance.

2. EXPERIMENTAL SETUP

Figure 1 shows the experimental setup of forced convection indirect solar dryer and water pumping system. It consists of 320 W solar panel works as a solar absorber fitted in the enclosure of size 2*1*0.2 m, and energy developed by this panel is used for driving a 0.5 hp PMDC motor water pump. A 30 W capacity DC blower is used for blowing fresh ambient air over the back surface of the absorber. Two 4 W exhaust fans are fitted at the outlet of the enclosure to accelerate the airflow to a cabinet where products to be dried are kept in trays.



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Raje Ramrao Mahavidyalaya, Jath

(Affiliated to Shivaji University, Kolhapur)

Fifth International Conference on Advances in Materials Science (Online)

(ICAMS - 2020) on 06th – 07th June 2020

Certificate

This is to certify that Mr./Miss./Dr./Prof. **Vinayak Deokar** of **Dr.D.Y.Patil Institute of Technology, Pimpri, Pune** has participated and presented a paper entitled **Effect of variation in mass flow rate on output power of cooled Photovoltaic Panel** of the Fifth International Conference on Advances in Materials Science (Online) (ICAMS – 2020) organized by Post – Graduate Department of Physics and IQAC of Raje Ramrao Mahavidyalaya, Jath – 416 404, Dist – Sangli, Maharashtra, India during 06th - 07th June 2020.

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Effect of variation in mass flow rate on output power of cooled Photovoltaic Panel

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^a *Research Scholar, Mechanical Engineering, Dr. D. Y. Patil Institute of Technology, Pune, India.*

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Abstract

Solar energy is available abundantly at free of cost on earth which is alone capable to fulfill the human energy demand. It is naturally replenished on a human time scale and 1000 times more than the world's energy needs. Photovoltaic cells are the most popular devices for conversion of the solar energy to electrical energy directly. Solar cells are made up of semiconducting material silicon which exhibits the photovoltaic effect. Solar cells after connected in series sandwiched between upper toughened glass and polymer back sheet to make the photovoltaic panel. The efficiency of the solar panel is about 16 % which largely gets hampered due to a cell operating temperature rise than standard testing condition (STC). At STC Irradiation are 1000 W/m² and cell operating temperature 25 0 C. For every rise of 10 C in cell operating temperature than the 250 C efficiency of the solar panel gets decreased by 0.5%. Except for cold region countries without using external source it is impossible to keep the cell operating temperature at low as it is directly proportional to falling irradiation. By keeping aim as lowering the cell operating temperature this paper explains the active air cooling method using steel chips and thermal grease. Forced air flowed over the back surface of Photovoltaic panel because of which heat was taken away and released in ambience. By using this technique temperature of the photovoltaic panel was decreased by 150 C than the un-cooled panel which resulted in output voltage improvement from 37.4 V to 40 V. The electrical efficiency of the photovoltaic panel was improved by 6 %.

06th - 07th JUNE 2020



DTE Code : **EN6315**



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AICTE ID : 1-8019451

AISHE code : C-11165

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○ Affiliated to Shivaji University, Kolhapur., MSBTE, Mumbai.

Faculty Achievement

		Name of Department	Mechanical Engineering		Year 2019-20	
Sr. No.	year	Name of the Faculty	Event Name	Title	Journal/college/university Name	Date
1	2019-20	Mr. Koli Gajanan Chandrashekhar	Faculty Development Program	Design and Analysis of Machine Elements with solid work	Harbor Technologies, Hyderabad	15th May to 20th May 2020
2	2019-20	Mr. Koli Gajanan Chandrashekhar	Faculty Development Program	PYTHON 3.4.3	spoken tutorial IIT by Pragati college of Engineering Andrapradesh	8th June to 13th June 2020
3	2019-20	Mr. Koli Gajanan Chandrashekhar	Faculty Development Program	Present Trends & Research in Electric Vehicles	IEEE Bombay, RIT, Islampur	27 th to 31 st May 2020
4	2019-20	Mr. Koli Gajanan Chandrashekhar	Faculty Development Program	Comprehensive Study of NAAC Criteria in RAF	Rubrics Softcon Pvt. Ltd. Pune	11/05/2020 to 15/05/2020
5	2019-20	Mr. Koli Gajanan Chandrashekhar	Faculty Development Program	Introduction to Outcome Based Education and Enhancing Quality of Teaching Learning Process	Govindrao Wanjari College of Engineering , Nagpur	15/06/2020 to 19/06/2020
6	2019-20	Mr. Koli Gajanan Chandrashekhar	Faculty Development Program	Research Opportunities and Challenges in Manufacturing Sector	College of Engineering , Pandharpur	01st June to 06th June, 2020
7	2019-20	Mr. Koli Gajanan Chandrashekhar	Journal paper Publication	Tribological Characteristics of Al6061Reinforced with Granite Particulates	INTERNATIONAL JOURNAL OF SCIENTIFIC & TECHNOLOGY RESEARCH	May 2020
8	2019-20	Mr. Koli Gajanan Chandrashekhar	Journal paper Publication	Analysis of Effect of SiC Reinforcement on Microstructure and Hardness of Al 6061 and Al 7075	International Journal of Innovative Technology and Exploring Engineering (IJITEE)	April 2020
9	2019-20	Mr. Koli Gajanan Chandrashekhar	Journal paper Publication	Improvement of Mechanical Properties of Aluminium 6061 based Metal Matrix Composite with Addition of Granite Particulate	International Journal of Innovative Technology and Exploring Engineering (IJITEE)	May 2020
10	2019-20	Mr. Koli Gajanan Chandrashekhar	Journal paper Publication	DESIGN AND ANALYSIS OF BELT CONVEYOR FOR WEIGHT REDUCTION IN FOUNDRY	International Research Journal of Engineering and Technology (IRJET)	March 2020

Certificate of Participation

This is to certified that

Mr. Gajanan Chandrashekhar Koli

assistant professor, Sanjeevan Engineering & Technology institute Panhala
has completed 5 days faculty Development program ***Design and Analysis of
Machine Elements with solid work*** held from 15th May to 20th May
organized by Harbour Technologies in association with elan & nvision IIT
Hyderabad.



Issued by

Ruby Kalyan
Business Head
Harbour Technologies



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PARTICIPATION CERTIFICATE

This is to certify that

Mr. Koli Gajanan Chandrashekar

actively participated and completed

One Week online Faculty Development Program on

"PYTHON 3.4.3"

from 8th June to 13th June 2020

This FDP was organized by Department of Information Technology in association with Spoken Tutorial IIT, Bombay Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNTT), MHRD, Govt. of India.

Mrs. D. Sirisha
Coordinator

Dr. S. Sambhu Prasad
Principal

Mrs. Sanchita Samant
Training Manager, Spoken Tutorial



Certificate

This is to certify that Dr. / Mr. / Ms

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has successfully completed five days online workshop on **“Present Trends and Research in Electric Vehicles”** from 27th to 31st May 2020, organized by Department of Electrical Engineering, Rajarambapu Institute of Technology, Rajaramnagar under the aegis of RIT-IEEE Student Branch in association with IEEE Bombay Section.

Dr. Vaiju N. Kalkhambkar

COORDINATOR
& HEAD, DEPT. OF ELECTRICAL
ENGG. R.I.T SAKHARALE.



Dr. Mrs. Sushma S. Kulkarni

DIRECTOR, RAJARAMBAPU INSTITUTE
OF TECHNOLOGY, SAKHARALE

Certificate of Participation



This certificate is presented to

Koli Gajanan Chandrashekhar

From

Sanjeevan Engineering & Technology Institute, Panhala
for attending **One Week Faculty Development Program (FDP)**

on

“Comprehensive Study of NAAC Criteria in RAF”

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This is to certify that,

Dr./Mr./Mrs./Ms. **Koli Gajanan Chandrashekar**, Assistant Professor from **Sanjeevan Engineering & technology institute, Panhala**, has participated in National Level One Week Online FDP on “Introduction to Outcome Based Education and Enhancing Quality of Teaching Learning Process” from **15/06/2020 to 19/06/2020**.

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GW CET Polytechnic, Nagpur

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GW CET, Nagpur

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Shri Vithal Education & Research Institute's
College of Engineering, Pandharpur
Department of Mechanical Engineering
Certificate of Participation

One Week Online Faculty Development Programme

**“Research Opportunities and Challenges in
Manufacturing Sector”**

This is to certify that
Mr. Koli Gajanan Chandrashekhar of **Sanjeevan Engineering & Technology Institute,**
Panhala
has attended **One Week Online FDP** on **“Research Opportunities and Challenges in
Manufacturing Sector”** from **01st June** to **06th June, 2020** Organized by **Department of
Mechanical Engineering, SVERI's College of Engineering, Pandharpur, Maharashtra.**

A handwritten signature in blue ink that reads "S. B. Bhosale".

(Prof. S. B. Bhosale)
FDP Coordinator

A handwritten signature in blue ink that reads "S. S. Wangikar".

(Dr. S. S. Wangikar)
Convenor

A handwritten signature in blue ink that reads "B. P. Ronge".

(Prof. Dr. B. P. Ronge)
Principal

Tribological Characteristics of Al6061 Reinforced with Granite Particulates

Koli Gajanan Chandrashekhar, Dr. D. P. Girish, A.A. Katkar

Abstract— This study mainly focuses on synthesis of AA6061 composites reinforced with granite particles using stir casting technique. The microstructure of Al6061 alloy and Al6061-granite composites were studied using scanning electron microscope. Friction and wear behavior of Al6061 alloy and Al6061-granite composite were evaluated under varied loads and sliding velocities using tribometer in accordance with ASTM-G99 standard. SEM of composites reveals that distribution of granite particles is homogenous in matrix material. Friction and wear tests demonstrate addition of granite particles in Al6061 alloy has led to fall in wear rate and friction coefficient. Rise in the applied load enhances the wear rate and drops the friction coefficient for all the combinations studied. Increase in sliding speed increases both friction coefficient and wear rate. However, at all the loads and sliding speed, Al6061-granite composite displayed lowest wear rate and friction coefficient.

Index Terms—Aluminum matrix composites Stir casting, Microstructure, Friction and wear properties.

1 INTRODUCTION

Aluminum based metal matrix composites have demonstrated outstanding performance compared to their monolithic alloys. Primary attribute of aluminum-based composite is excellent strength to weight ratio. There is a wide opportunity for engineers to manipulate the properties of aluminum-based composites with appropriate reinforcements suitable for many engineering applications [1-4]. Aluminum composites are now being designed as wear resistant materials suitable for sliding contact applications. Various researchers have studied friction and wear performance aluminum composites reinforced with ceramic materials. Most commonly used ceramics for developing wear resistance applications SiC [5], TiB₂ [6], TiC [7], Al₂O₃[2,5], BN [8], etc. these ceramics are categorized under synthetic reinforcements which has complex processing techniques resulting in cost of the composites. Sharma et al [9] have presented wear behavior of red mud reinforced Al2024 based aluminum composites. They have studied the effect of Redmud content, load and velocity on wear characteristics of composites. Composites were manufactured using casting method. Effects of input parameters were analyzed using surface method response. They have reported that sliding speed is the utmost prominent element which affects the wear behavior of composites trailed by load and Redmud content. Raja et al [10] have reported on wear behavior of industrial waste flyash reinforced aluminum-based metal matrix composites. Composite were prepared using stir casting process. Uniform distribution of Flyash particles were achieved with by casting process. Pin with disc equipment was used to conduct friction and wear assessment under different load and velocities. They have confirmed that there is a significant reduction in frictional force and wear rates after

addition of fly ash particle in aluminum matrix. David et al [11] have developed Al6061 based composite reinforced with flyash by compo casting technique. A maximum of 12wt% flyash particles were added in to molten aluminum for manufacturing composites. Wear tests were conducted at elevated temperatures. Flyash reinforced composites developed by compo casting were effective in enhancing the wear performance of the composites.

Alternatively, a group of materials is available as industrial waste material exhibit superior physical and mechanical properties as reinforcing particles which includes redmud, flyash, granite particles etc. Mechanical and tribological performance of industrial waste reinforced aluminum composites including redmud and flyash were studied by various researchers. However, meager information is available as regards composites reinforced with granite particles. Granite particles are inexpensive materials and are abundantly available as industrial waste and known for its high hardness [12-16].

Considering the wide scope available for developing wear resistant metal matrix composites objective of the present investigation is to synthesis granite reinforced Al6061 based composites and to characterize its friction and wear behavior. Composite fabrication was prepared by inexpensive and simple stir casting technique with varying weight percentage of granite particles. The fabricated composites were imperiled to microstructural characterization and hardness test. Further, friction and wear parameters were assessed using pin and disc tribometer.

2 EXPERIMENTAL DETAILS

Granite reinforced aluminum 6061 based composite is prepared utilizing stir casting procedure. Stir casting is the most evident and affordable technique for the manufacturing aluminum-based metal matrix composites because of simplicity of preparing and applicable for large scale manufacturing. Table 1 shows the composition of Al6061 alloy utilized in this investigation. Fig. 1 (a)-(b) shows the scanning electron microscope (SEM) of granite particles and its EDAX

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Analysis of Effect of SiC Reinforcement on Microstructure and Hardness of Al 6061 and Al 7075



Katkar Ajit Ashok, Girish D. P. Koli, Gajanan Chandrashekhar

Abstract: In past few decades use of Aluminium Alloys and Aluminium Metal Matrix Composites have increased tremendously. Due to their light weight, corrosion resistance and excellent electrical and thermal conductivity they are fit many automotive and aeronautical applications. In this paper analysis of effect of SiC reinforcement on microstructure and hardness of Al 6061 and Al 7075 is presented. It is clearly evident that, addition SiC to base material changes its microstructural grain formation and size, uniform distribution of grain in the material will enhances mechanical properties. Also the hardness increases with increasing in weight percent of reinforcement composition..

Keywords: Aluminium Alloys ,Microstructure, Hardness, Metal Matrix Composites

I. INTRODUCTION AND LITERATURE REVIEW

Metal matrix composites are the composites made by metal with additional metal, ceramic or may be organic compounds. Improvement in mechanical properties is the main reason for which the reinforcements is done[1].According to Mathew et al.[2] Aluminum as a handy lightweight automotive material with considerable cost savings. They conducted milling trials on 6061 aluminum and derived a relationship between feed and surface quality. They carried a significant work to improve the productivity in milling operation of 6061 aluminum with respect to improvement in surface roughness and cycle time. In most of MMCs, Al-alloy-based composites are attracting the researchers around the world [3].

According to them depth of cut has a significant influence on cutting force, but an insignificant influence on surface roughness. Tulasiramarao et al. [4] carried out investigation on various forces such as cutting force, feed force and the axial force with the variation in speed for different materials like aluminum, brass, and mild steel. It has been observed that as the speed increases, the forces also increase up to certain limit and then decreases with any further increase in speed i.e., forces developed at 630 rpm are higher compared to 400 rpm and 1000 rpm.

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Thamban et al[5] carried out machining of machining of 6061-T6 Aluminium alloys using diamond coated and uncoated tungsten carbide end mills under dry conditions. They found that diamond coating of the tools was performed using CVD process. According to Bonollo et al.[6] recent foundry processes for Al-alloys, low pressure die casting has many benefits like elevated yield, exceptional control of operative parameters, fine metallurgical and technological quality.

II. METHODOLOGY AND EXPERIMENTAL DETAILS

For this study two base materials Al 6061 and Al 7075. Are selected and SiC particle reinforcement is done using casting process. The details are shown in Table 1 and 2.

Table 1. Chemical composition of Aluminium 6061

Models	Reinforcements	
	Al 6061	SiC
1	100%	0%
2	98%	2%
3	96%	4%
4	94%	6%
5	92%	8%

The Al 6061 alloy with 200µm size SiC particles (reinforcement) are used for fabrication of MMC and Al 7075 alloy with SiC 200 µm size particles (reinforcement) are used for fabrication of MMCs. Al 6061 and Al 7075 ingots are melted in electrical resistance furnace and different weight percents silicon carbide reinforcement is added to get following composition composite specimens. The BHN is calculated according to the following formula:

$$B.H.N. = \frac{2 \cdot P}{\pi \cdot D \cdot (D - \sqrt{D^2 - d^2})}$$

Where

BHN = the Brinells hardness number

P = the imposed load in kg

Improvement of Mechanical Properties of Aluminium 6061 based Metal Matrix Composite with Addition of Granite Particulate

Koli Gajanan Chandrashekhar, D.P .Girish, Katkar Ajit Ashok, Raja Yateesh Yadav

Abstract: Aluminium is considered as one of the material of future. Aluminium based metal matrix comes with a fascinating set of material properties which combines strength with less weight. Due to this these Al-base metal matrix finds their application in aerospace and automotive sector. Many types of reinforcements are done with Aluminium since last many years to check the improvement in its performance. Therefore many reinforcements are found suitable to form the composite which finds variety of novel applications. In this present investigation MMCs are fabricated with Al 6061 alloy and reinforced with granite particulate of 2-3 microns size in different compositions are used to see their effect on the mechanical properties of Al6061 alloy. The vortex method of stir casting is used to form the metal matrix wherein reinforcements are forced into the vortex created by the molten metal by means of mechanical stirrer. The castings prepared by above method are machined with turning operation on lathe. Improvement in Ultimate tensile strength, Yield strength, % Elongation and Hardness are found with increasing the percentage of granite particulates..

Keywords : Aluminium 6061, Composite, Mechanical Properties, Hardness

I. INTRODUCTION AND LITERATURE REVIEW

Conventional materials have limitations to their use in aerospace and advanced automotive applications because of limited set of properties which they possess. Researchers around the world are investigating many materials to suit for different applications. Composites are one group of material which researchers are focusing on recently. Since composite comes with enhanced mechanical, chemical and thermal properties they are replacing conventional materials at many applications. Aluminium based metal matrix comes with a fascinating set of material properties which combines high strength with less weight. Due to this these Al-base metal matrix finds their application in aerospace and automotive sector. Many types of reinforcements are done with Aluminium since last many years to check the improvement in its performance. Therefore many reinforcements are found

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suitable to form the composite which finds variety of novel applications. Al6061 alloy is one the Al- family alloy which has properties which suits for formation of metal matrix as base material. Kumar et al.[1] conducted experiments on Al6061-SiC and Al7075-Al₂O₃ to make analysis with respect to density of composites and hardness. They found increase in the density and hardness of the composites compared to the base matrix. Swamy et al.[2] found increase in Hardness of the composite with the increase of reinforcing particulate content while investigating Al6061-Tungsten carbide metal matrix composites. Ramani et al. [3] studied heat treatment aspects of ceramic reinforced aluminum matrix composites. They outlined different heat treatment procedures for aluminum based metal matrix composites with emphasis on the T6 tempers. Shaikshavali et al.[4] found that Al6061-10%, Al₂O₃ MMC material has good ultimate tensile strength property when compared to other ceramic reinforced MMCs.

II. METHODOLOGY AND EXPERIMENTAL DETAILS

The MMCs are fabricated with Al 6061 alloy and 3µm size granite particulates (GP) (reinforcement). Table 2.1 shows the detailed material composition.

Table 2.1 Details of Material Composition

Sample	%	
	Al6061	Granite
1	100%	0%
2	98%	2%
3	96%	4%
4	94%	6%
5	92%	8%

Tensile tests are as per ASTM E8 standards with samples of diameter 8.9 mm and gauge length 76 mm. The cast complements are machined for above specifications. Brinell hardness test is done as per standard procedure.

III. RESULT AND DISCUSSIONS

The results are discussed in following sub sections

3.1.1 Variations in Ultimate Tensile Strength - σ_{ts} of Al 6061 alloy

DESIGN AND ANALYSIS OF BELT CONVEYOR FOR WEIGHT REDUCTION IN FOUNDRY

Prasad Patil¹, Prof. G. C. Koli², Prof. A. A. Katkar³

¹Student, Sanjeevan Engineering and Technology Institute, Panhala

²Assistant Professor, Sanjeevan Engineering and Technology Institute, Panhala

³Assistant Professor, Sanjeevan Engineering and Technology Institute, Panhala

Abstract -

The Foundry sector is having very wide use of Belt Conveyor. Belt conveyor is used to transport material from one location to another. Belt Conveyor is a widely used continuous transport device, it has a high performance, wide conveying capability and it can be done at various distances, various transport of materials. The task of transportation within the conveyor belt systems can be defined as a process aimed at the transportation of the determined quantity of handled material within a defined period of time between the specified loading and unloading locations. It is significant to reduce the energy consumption or energy cost of material handling sector. This task accordingly depends on the improvement of the energy efficiency of belt conveyors, as these are the main energy consuming components of material handling systems. In this project the solution on more weight and power consumption is given. Hence in this project we are going to design and optimise the critical parts of roller belt conveyor used in Foundry, i.e., roller, bracket, bearing, and frame of conveyor.

Key Words— Foundry, Belt Conveyor, Optimize, Energy Consumption.

1. INTRODUCTION

In any industry there are various departments on which industry work smoothly, namely, purchase, machine shop, quality, material handling department, etc. Material handling is an important part of the industry and work for transporting a workpiece from one workstation to another workstation. This is the modern technology and used to decrease the lead time in production. It increases the total productivity of industry. The use of Belt Conveyor in the Foundry is to transport the Sand from one work station to another. Also the Sand is having more weight and hence there are many problems in belt conveyor. The Current system in the Foundry is heavy and having the problem of wear in belt due to weight and improper roller supports. Also the overall weight of the system is more than required. This project is sponsored by a Vijay Engineers and fabricators, Kolhapur and deals with optimization of the System to achieve the weight reduction.

2 LITERATURE REVIEW

Pranav Deshmukh et. al [1]

The aim of this paper focuses on choosing the right belt conveyor and suitable components in the system. It was a sponsored project carried out in Yash Enterprises, Khamgaon, Buldhana. The problems of various components in the system was carried out and the proper solution was given to make larger life of components. The final aim was to create a modified design to achieve larger scale production of idler which enhance the efficiency and productivity. The remedies on various problems was given in this paper.

Miroslav Bajda and Robert Krol [2]

The aim of this paper was to reduce the energy consumption of belt conveyor by reducing the resistance of conveyor. The various resistances are belt rolling conveyor, sliding resistance of conveyor, bending resistance, idlers turning resistance, flexure resistance of bulk materials. The biggest savings of energy is expected in belts and idlers selection, and in some cases in unconventional solutions of the route. The test rig was used to test various resistances of the idlers and belt. By decreasing this resistance 34 % energy conservation was achieved. The belt conveyor used in mining was took in study.

Mr. Amol Kharage et. al[3]

The main objective of this paper was to analysis the gravity Roller Conveyor, the detail study of existing gravity roller and optimizing its parts by using composite material, so weight reduction of system is achieved. A finite element model was generated of existing system by using Pro-E software. In this paper only roller is optimized by using composite material.

Shirong Zhang, Xiaohua Xia [4]

The aim of tis paper focuses on the saving energy of the belt conveyor system through improvement of the operation efficiency, thus optimization is employed here. We begin with the energy model of belt conveyors which is the base of optimization. The existing energy models are reviewed and then an analytic model, lumping all the parameters into four coefficients, was proposed. The four coefficients of the new model can be derived from the design

DTE Code : **ENG315**



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 Affiliated to Shivaji University, Kolhapur., MSBTE, Mumbai.

Faculty Achievement

		Name of Department	Mechanical Engineering		Year 2019-20	
Sr. No.	year	Name of the Faculty	Event Name	Title	Journal/college/university Name	Date
1	2019-20	Mr. Ajit Ashok Katkar	Journal paper Publication	DESIGN AND ANALYSIS OF BELT CONVEYOR FOR WEIGHT REDUCTION IN FOUNDRY	International Research Journal of Engineering and Technology	3/1/2020
2			Journal paper Publication	Tribological Characteristics of Al6061Reinforced with Granite Particulates	INTERNATIONAL JOURNAL OF SCIENTIFIC & TECHNOLOGY RESEARCH	May 2020
3			Journal paper Publication	Analysis of Effect of SiC Reinforcement on Microstructure and Hardness of Al 6061 and Al 7075	International Journal of Innovative Technology and Exploring Engineering	April 2020
4			Journal paper Publication	Improvement of Mechanical Properties of Aluminium 6061 based Metal Matrix Composite with Addition of Granite Particulate	International Journal of Innovative Technology and Exploring Engineering	May 2020
5			FDP/STTP	Renewable Energy and Utilization	Sandip Institute of Engineering and Management Nashik	26/05/2020 to 30/05/2020
6			FDP/STTP	Research Opportunities in Advanced Manufacturing Processes	Bharati Vidyapeeth (DU), COE, Pune (India)	22/06/2020 to 28/06/2020
7			FDP/STTP	Connect Alumni Pwer Pack Talk Series	S.B.Patil College of Engineering ,Indapur	25/06/2020 to 30/06/2020
8			FDP/STTP	Introduction to Outcome Based Education and Enhancing Quality of Teaching Learning Process	Govindrao Wanjari College of Engineering & Technology, Polytechnic, Nagpur	15/06/2020 to 19/06/2020.
9			FDP/STTP	Manufacturing Practices and Industry 4.0	Engineeering College Bikaner ((An Autonomous Institution of Government of Rajasthan)	08/06/2020 to 12/06/2020

DESIGN AND ANALYSIS OF BELT CONVEYOR FOR WEIGHT REDUCTION IN FOUNDRY

Prasad Patil¹, Prof. G. C. Koli², Prof. A. A. Katkar³

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Abstract –

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The aim of this paper was to reduce the energy consumption of belt conveyor by reducing the resistance of conveyor. The various resistances are belt rolling conveyor, sliding resistance of conveyor, bending resistance, idlers turning resistance, flexure resistance of bulk materials. The biggest savings of energy is expected in belts and idlers selection, and in some cases in unconventional solutions of the route. The test rig was used to test various resistances of the idlers and belt. By decreasing this resistance 34 % energy conservation was achieved. The belt conveyor used in mining was took in study.

Mr. Amol Kharage et. al[3]

The main objective of this paper was to analysis the gravity Roller Conveyor, the detail study of existing gravity roller and optimizing its parts by using composite material, so weight reduction of system is achieved. A finite element model was generated of existing system by using Pro-E software. In this paper only roller is optimized by using composite material.

Shirong Zhang, Xiaohua Xia [4]

The aim of tis paper focuses on the saving energy of the belt conveyor system through improvement of the operation efficiency, thus optimization is employed here. We begin with the energy model of belt conveyors which is the base of optimization. The existing energy models are reviewed and then an analytic model, lumping all the parameters into four coefficients, was proposed. The four coefficients of the new model can be derived from the design

Tribological Characteristics Of Al6061 Reinforced With Granite Particulates

Koli Gajanan Chandrashekhar, Dr. D. P. Girish, A.A. Katkar

Abstract: This study mainly focuses on synthesis of AA6061 composites reinforced with granite particles using stir casting technique. The microstructure of Al6061 alloy and Al6061-granite composites were studied using scanning electron microscope. Friction and wear behavior of Al6061 alloy and Al6061-granite composite were evaluated under varied loads and sliding velocities using tribometer in accordance with ASTM-G99 standard. SEM of composites reveals that distribution of granite particles is homogenous in matrix material. Friction and wear tests demonstrate addition of granite particles in Al6061 alloy has led to fall in wear rate and friction coefficient. Rise in the applied load enhances the wear rate and drops the friction coefficient for all the combinations studied. Increase in sliding speed increases both friction coefficient and wear rate. However, at all the loads and sliding speed, Al6061-granite composite displayed lowest wear rate and friction coefficient.

Index Terms: Aluminum matrix composites Stir casting, Microstructure, Friction and wear properties.

1 INTRODUCTION

Aluminum based metal matrix composites have demonstrated outstanding performance compared to their monolithic alloys. Primary attribute of aluminum-based composite is excellent strength to weight ratio. There is a wide opportunity for engineers to manipulate the properties of aluminum-based composites with appropriate reinforcements suitable for many engineering applications [1-4]. Aluminum composites are now being designed as wear resistant materials suitable for sliding contact applications. Various researchers have studied friction and wear performance aluminum composites reinforced with ceramic materials. Most commonly used ceramics for developing wear resistance applications SiC [5], TiB₂ [6], TiC [7], Al₂O₃[2,5], BN [8], etc. these ceramics are categorized under synthetic reinforcements which has complex processing techniques resulting in cost of the composites. Sharma et al [9] have presented wear behavior of red mud reinforced Al₂O₃ based aluminum composites. They have studied the effect of Redmud content, load and velocity on wear characteristics of composites. Composites were manufactured using casting method. Effects of input parameters were analyzed using surface method response. They have reported that sliding speed is the utmost prominent element which affects the wear behavior of composites trailed by load and Redmud content. Raja et al [10] have reported on wear behavior of industrial waste flyash reinforced aluminum-based metal matrix composites. Composite were prepared using stir casting process. Uniform distribution of Flyash particles were achieved with by casting process. Pin with disc equipment was used to conduct friction and wear assessment under different load and velocities. They have confirmed that there is a significant reduction in frictional force and wear rates after addition of fly ash particle in aluminum matrix. David et al [11] have developed Al6061 based composite reinforced with flyash by compo casting technique. A maximum of 12wt% flyash particles were added in to molten aluminum for manufacturing composites. Wear tests were conducted at elevated temperatures. Flyash reinforced composites

developed by compo casting were effective in enhancing the wear performance of the composites. Alternatively, a group of materials is available as industrial waste material exhibit superior physical and mechanical properties as reinforcing particles which includes redmud, flyash, granite particles etc. Mechanical and tribological performance of industrial waste reinforced aluminum composites including redmud and flyash were studied by various researchers. However, meager information is available as regards composites reinforced with granite particles. Granite particles are inexpensive materials and are abundantly available as industrial waste and known for its high hardness [12-16]. Considering the wide scope available for developing wear resistant metal matrix composites objective of the present investigation is to synthesis granite reinforced Al6061 based composites and to characterize its friction and wear behavior. Composite fabrication was prepared by inexpensive and simple stir casting technique with varying weight percentage of granite particles. The fabricated composites were imperiled to microstructural characterization and hardness test. Further, friction and wear parameters were assessed using pin and disc tribometer.

2 EXPERIMENTAL DETAILS

Granite reinforced aluminum 6061 based composite is prepared utilizing stir casting procedure. Stir casting is the most evident and affordable technique for the manufacturing aluminum-based metal matrix composites because of simplicity of preparing and applicable for large scale manufacturing. Table 1 shows the composition of Al6061 alloy utilized in this investigation. Fig. 1 (a)-(b) shows the scanning electron microscope (SEM) of granite particles and its EDAX pattern utilized in this investigation. The granite particle size is in the range of 20-60 microns with irregular shape.

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Analysis of Effect of SiC Reinforcement on Microstructure and Hardness of Al 6061 and Al 7075



Katkar Ajit Ashok, Girish D. P. Koli, Gajanan Chandrashekhar

Abstract: In past few decades use of Aluminium Alloys and Aluminium Metal Matrix Composites have increased tremendously. Due to their light weight, corrosion resistance and excellent electrical and thermal conductivity they are fit many automotive and aeronautical applications. In this paper analysis of effect of SiC reinforcement on microstructure and hardness of Al 6061 and Al 7075 is presented. It is clearly evident that, addition SiC to base material changes its microstructural grain formation and size, uniform distribution of grain in the material will enhances mechanical properties. Also the hardness increases with increasing in weight percent of reinforcement composition..

Keywords: Aluminium Alloys ,Microstructure, Hardness, Metal Matrix Composites

I. INTRODUCTION AND LITERATURE REVIEW

Metal matrix composites are the composites made by metal with additional metal, ceramic or may be organic compounds. Improvement in mechanical properties is the main reason for which the reinforcements is done[1].According to Mathew et al.[2] Aluminum as a handy lightweight automotive material with considerable cost savings. They conducted milling trials on 6061 aluminum and derived a relationship between feed and surface quality. They carried a significant work to improve the productivity in milling operation of 6061 aluminum with respect to improvement in surface roughness and cycle time. In most of MMCs, Al-alloy-based composites are attracting the researchers around the world [3].

According to them depth of cut has a significant influence on cutting force, but an insignificant influence on surface roughness. Tulasiramarao et al. [4] carried out investigation on various forces such as cutting force, feed force and the axial force with the variation in speed for different materials like aluminum, brass, and mild steel. It has been observed that as the speed increases, the forces also increase up to certain limit and then decreases with any further increase in speed i.e., forces developed at 630 rpm are higher compared to 400 rpm and 1000 rpm.

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Thamban et al[5] carried out machining of machining of 6061-T6 Aluminium alloys using diamond coated and uncoated tungsten carbide end mills under dry conditions. They found that diamond coating of the tools was performed using CVD process. According to Bonollo et al.[6] recent foundry processes for Al-alloys, low pressure die casting has many benefits like elevated yield, exceptional control of operative parameters, fine metallurgical and technological quality.

II. METHODOLOGY AND EXPERIMENTAL DETAILS

For this study two base materials Al 6061 and Al 7075. Are selected and SiC particle reinforcement is done using casting process. The details are shown in Table 1 and 2.

Table 1. Chemical composition of Aluminium 6061

Models	Reinforcements	
	Al 6061	SiC
1	100%	0%
2	98%	2%
3	96%	4%
4	94%	6%
5	92%	8%

The Al 6061 alloy with 200µm size SiC particles (reinforcement) are used for fabrication of MMC and Al 7075 alloy with SiC 200 µm size particles (reinforcement) are used for fabrication of MMCs. Al 6061 and Al 7075 ingots are melted in electrical resistance furnace and different weight percents silicon carbide reinforcement is added to get following composition composite specimens. The BHN is calculated according to the following formula:

$$B.H.N. = \frac{2 * P}{\pi * D * (D - \sqrt{D^2 - d^2})}$$

Where

BHN = the Brinells hardness number

P = the imposed load in kg

Improvement of Mechanical Properties of Aluminium 6061 based Metal Matrix Composite with Addition of Granite Particulate



Koli Gajanan Chandrashekhar, D.P .Girish, Katkar Ajit Ashok, Raja Yateesh Yadav

Abstract: Aluminium is considered as one of the material of future. Aluminium based metal matrix comes with a fascinating set of material properties which combines strength with less weight. Due to this these Al-base metal matrix finds their application in aerospace and automotive sector. Many types of reinforcements are done with Aluminium since last many years to check the improvement in its performance. Therefore many reinforcements are found suitable to form the composite which finds variety of novel applications. In this present investigation MMCs are fabricated with Al 6061 alloy and reinforced with granite particulate of 2-3 microns size in different compositions are used to see their effect on the mechanical properties of Al6061 alloy. The vortex method of stir casting is used to form the metal matrix wherein reinforcements are forced into the vortex created by the molten metal by means of mechanical stirrer. The castings prepared by above method are machined with turning operation on lathe. Improvement in Ultimate tensile strength, Yield strength, % Elongation and Hardness are found with increasing the percentage of granite particulates..

Keywords : Aluminium 6061, Composite, Mechanical Properties, Hardness

I. INTRODUCTION AND LITERATURE REVIEW

Conventional materials have limitations to their use in aerospace and advanced automotive applications because of limited set of properties which they possess. Researchers around the world are investigating many materials to suit for different applications. Composites are one group of material which researchers are focusing on recently. Since composite comes with enhanced mechanical, chemical and thermal properties they are replacing conventional materials at many applications. Aluminium based metal matrix comes with a fascinating set of material properties which combines high strength with less weight.

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Due to this these Al-base metal matrix finds their application in aerospace and automotive sector. Many types of reinforcements are done with Aluminium since last many years to check the improvement in its performance. Therefore many reinforcements are found suitable to form the composite which finds variety of novel applications. Al6061 alloy is one the Al- family alloy which has properties which suits for formation of metal matrix as base material. Kumar et al.[1] conducted experiments on Al6061-SiC and Al7075-Al₂O₃ to make analysis with respect to density of composites and hardness. They found increase in the density and hardness of the composites compared to the base matrix. Swamy et al.[2] found increase in Hardness of the composite with the increase of reinforcing particulate content while investigating Al6061-Tungsten carbide metal matrix composites. Ramani et al. [3] studied heat treatment aspects of ceramic reinforced aluminum matrix composites. They outlined different heat treatment procedures for aluminum based metal matrix composites with emphasis on the T6 tempers. Shaikshavali et al.[4] found that Al6061-10%, Al₂O₃ MMC material has good ultimate tensile strength property when compared to other ceramic reinforced MMCs.

II. METHODOLOGY AND EXPERIMENTAL DETAILS

The MMCs are fabricated with Al 6061 alloy and 3µm size granite particulates (GP) (reinforcement). Table 2.1 shows the detailed material composition.

Table 2.1 Details of Material Composition

Sample	%	
	Al6061	Granite
1	100%	0%
2	98%	2%
3	96%	4%
4	94%	6%
5	92%	8%

Tensile tests are as per ASTM E8 standards with samples of diameter 8.9 mm and gauge length 76 mm. The cast complements are machined for above specifications. Brinell hardness test is done as per standard procedure.

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26th May – 30th May 2020

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Coordinator and Dean R&D

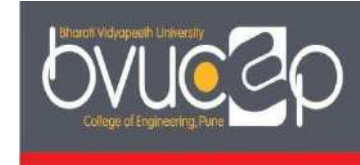
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Faculty Achievement

Faculty Achievement						
		Name of Department	Mechanical Engineering		Year 2019-20	
Sr. No.	year	Name of the Faculty	Event Name	Title	Journal/college/university Name	Date
1	2019-20	Mr. Vinod Vasanttrao Vanmore	Journal paper Publication	Experimental investigation and parametric optimization of micro holes on Inconel 718 using developed μ -AJM set-up	Manufacturing Technology Today, UGC No. 3830, 18(12): 35-42.	December 2019
2			Faculty Development Programme	Internet of Things	NITTTR Chandhighad	15/04/2020 to 19/04/2020
3			Faculty Development Programme	Computer Aided Design and Manufacturing (CAD/CAM)	NITTTR Chandhighad	27/04/2020 to 01/05/2020
4			Conference paper	Development of fluidized mixing chamber to optimize process parameters for Micro Abrasive Jet Machining (MAJM)	Sardar Vallabhbhai National Institute of Technology, SVNITSurat, (Gujarat) India.	16/07/2020 to 17/07/2020

Experimental investigation and parametric optimization of micro holes on inconel 718 using developed μ -AJM set-up

Vinod V Vanmore^{1*} and Uday A Dabade²

Department of Mechanical Engineering, Walchand College of Engineering, Sangli, Maharashtra

ABSTRACT

Keywords: Micro-abrasive Jet Machining (MAJM), Inconel 718, Material Removal Rate (MRR); Taguchi Method; Analysis of Variance (ANOVA)

Nowadays, trends in the manufacturing industry, micromachining on difficult to machine materials such as ceramics, silicon, glass, alloys of titanium and nickel, etc. is a challenging task. Difficult to machine materials are widely used for MEMS, electronic devices, medical and aerospace industries. The higher cost is associated with the machining of these materials. Mostly μ EDM, μ ECM and μ LBM process is used to create micro features. In this paper, an attempt is made to machine a micro-hole on Inconel 718 using developed in house Micro Abrasive jet machining set-up (μ -AJM). This process has several notable advantages such as minor heat-affected zones (HAZ) and cutting forces, high machining versatility and flexibility. The experiments are planned with the proper array. The experimentally measured values of different quality characteristics have been taken as hole diameter, MRR, and machining Time. It can be noticed that Standoff Distance (SOD) is an important factor and other factors Air pressure and abrasive mesh size does not show sufficient significance. The parametric effect of different most significant input process parameters on quality characteristics has been discussed. ANOVA results showed that the Stand of Distance was the most effective parameter. The optimal condition where Abrasive size (50,100) Mix standoff distance 1 mm and inlet pressure (P1) 9 bar for minimizing the hole Diameter and lesser machining time and higher MRR on Inconel 718 material.

1. Introduction

In the manufacturing industry current scenario is machining on difficult to cut materials such as Inconel alloy, Titanium alloy, Glass, Stainless steel alloys, etc. Have bigger challenges to researches because of high energy consumption, poor machinability, and low productivity. Micro AJM is one of the prominent machining technology for machining of hard & brittle material this method having different advantages over other Nontraditional machining processes are lack of heat affected zone, high flexibility, & very small cutting forces. Sharp irregular shapes of an abrasive particle are acting as a tool that is mixing during the process with air in the mixing chamber. The pressure of air is between 5 to 9 bar and the size of micro-abrasive particles are 10 to 25 μ m are employed. The erosion mechanism during

the process is different for brittle and ductile materials. Most of the researcher's experimental work is carried out following materials. Glass [1-7], polymethylmethacrylate [PMMA] [8], Quartz, [9] Nickel 233 [10], S. Ally et.al [11] investigated the erosion rate of materials Ti-6Al-4V alloy, aluminum 6061-T6, and 316L stainless steel using the velocity of jet 106 m/s and abrasive powder (Al₂O₃) 50 μ m. With various inclination angles N. Shafiei et.al [12] predicted computer simulation of eroded profiles of an abrasive jet with time on the work surface. Vanmore V.V. et.al [13, 21] Developed and experimented with Laval nozzle for machining difficult-to-machine materials with the jet concentration on the ANSI SS304. Kumar Abhishekh et.al [14] presents machining of holes on quartz with in house developed AJM setup. Some investigation on machining methods. T. Burzynski et.al. [15] Studied masked erosive surface with the second strike and predicted effect of particles on the sidewalls of machined features & masked edges on glass creates microchannels using micro AJM. H. Get

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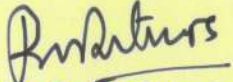



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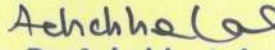
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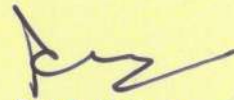
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in TEQIP-III Sponsored 1st International Conference on **Recent Advancements in Design and
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Faculty Achievement

Faculty Achievement						
		Name of Department	Mechanical Engineering		Year 2019-20	
Sr. No.	year	Name of the Faculty	Event Name	Title	Journal/college/university Name	Date
1	2019-20	Mr. Rahul Uday Urunkar	Faculty Orientation Programme	Recent Advances in Modeling and Optimization Techniques	Sharad Institute of Technology, College of Engineering	01/06/2020 to 05/06/2020
2			Faculty Development Program	Emerging Trends in Refrigeration and Air-Conditioning	Rajarshi Shahu Maharaj Polytechnic, Nashik in association with ISHRAE Nashik Chapter	08/06/2020 to 12/06/2020.
3			Faculty Development Program	Applications of Finite Element Analysis (FEA) and Computational Dynamics (CFD) using ANSYS	Government College of Engineering, Karad & Rajikiya Engineering College, Azamgarh	13/06/2020 to 17/06/2020



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Jointly organised
One Week Online Faculty Development Programme on
“Applications of Finite Element Analysis (FEA) and Computational Dynamics (CFD) using ANSYS”
(June 13- 17, 2020)

Sponsored by
Technical Education Quality Improved Programme (TEQIP-III)

Certificate of Participation

This is to certify that

RAHUL UDAY URUNKAR

Of

SANJEEVAN ENGINEERING AND TECHNOLOGY INSTITUTE

Registration Number 456

has participated in one week TEQIP sponsored online Faculty Development Programme on Applications of Finite Element Analysis (FEA) and Computational Dynamics (CFD) using ANSYS held from June 13–17, 2020 jointly organised by Mechanical Engineering Department of Government College of Engineering, Karad, Maharashtra and Rajikiya Engineering College, Azamgarh, U.P., India.

Prof. Abhinandan Kumar Jha
Coordinator
FDP

Dr. Ramakant Shrivastava
Coordinator, Professor & Head,
Mechanical Engineering Department

Prof. Dr. A.T. Pise
Principal
GCE Karad



DTE Code : **EN6315**



॥ विद्यया विमुक्तये ॥
NAAC Accredited

AICTE ID : 1-8019451
 AISHE Code : C-11165

HOLY-WOOD ACADEMY'S
SANJEEVAN

GROUP OF INSTITUTIONS, PANHALA
 Sanjeevan Knowledge City, Somwar Peth-Injole, Panhala, Tal. Panhala, Dist. Kolhapur.
 Pin- 416 201 (Maharashtra) Phone : 9146999500

○ Approved By AICTE, New Delhi ○ Recognized by Govt. of Maharashtra, DTE, DOA
 ○ Permanent Affiliation by Dr. Babasaheb Ambedkar Technological University, Raigad
 ○ Affiliated to Shivaji University, Kolhapur., MSBTE, Mumbai.

Faculty Achievement

		Name of Department	Mechanical Engineering		Year 2019-20	
Sr. No.	year	Name of the Faculty	Event Name	Title	Journal/college/university Name	Date
1	2019-20	Mr. Deshmukh Sardar Balaso	Faculty Development Program	Overcoming the Challenges in Adapting Online Technology in Teaching Learning	Jhulelal Institute of Technology, Nagpur	06-05-2020 to 11-05-2020
2	2019-20	Mr. Deshmukh Sardar Balaso	Faculty Development Program	Technical Teacher's Training	VVIT, Pal	22-05-2020 to 27-05-2020
3	2019-20	Mr. Deshmukh Sardar Balaso	Short Term Training Program	Renewable Energy and Utilization	Sandip Institute of Engineering and Management, Nashik	26-05-2020 to 30-05-2020
4	2019-20	Mr. Deshmukh Sardar Balaso	Workshop	Renewable Energy: Application & Entrepreneurship	S.S.B.T.'s, College of Engineering & Technology, Bambhori, Jalgaon	26-05-2020 to 30-05-2020
5	2019-20	Mr. Deshmukh Sardar Balaso	Faculty Development Program	Advanced Teaching Tools, Techniques and Methodologies for Outcome Based Education	AISSMS College of Engineering, Pune	01-06-2020 to 05-06-2020
6	2019-20	Mr. Deshmukh Sardar Balaso	Faculty Development Program	Use of ICT in Teaching Learning (Regional Language)	Dr. Ghali College, Gadhinglaj	01-06-2020 to 06-06-2020
7	2019-20	Mr. Deshmukh Sardar Balaso	Faculty Development Program	Research Opportunities and Challenges in Manufacturing Sector	SVERI's College of Engineering, Pandharpur	01-06-2020 to 06-06-2020
8	2019-20	Mr. Deshmukh Sardar Balaso	Faculty Development Program	Futuristic Technologies in Mechanical Industries	DYPIEMR, Akurdi, Pune	05-06-2020 to 09-06-2020
9	2019-20	Mr. Deshmukh Sardar Balaso	Faculty Development Program	Applications of Finite Element Analysis (FEA) and Computational Dynamics (CFD) using ANSYS	College of Engineering, Karad, Maharashtra and Rajikiya Engineering College, Azamgarh	13-06-2020 to 17-06-2020
10	2019-20	Mr. Deshmukh Sardar Balaso	Faculty Development Program	Solar Energy & its Applications in Indian Scenerio after COVID-19	Prof Ram Meghe Institute of Technology & Research, Badnera-Amaravati	15-06-2020 to 19-06-2020
11	2019-20	Mr. Deshmukh Sardar Balaso	Faculty Development Program	Future Materials: Nanocomposites	Bharati Vidyapith College of Engineering, Pune	15-06-2020 to 21-06-2020
12	2019-20	Mr. Deshmukh Sardar Balaso	Faculty Development Program	Research Opportunities in Advanced Manufacturing Processes	Bharati Vidyapith College of Engineering, Pune	22-06-2020 to 28-06-2020



Samridhi Sarwajanik Charitable Trust's

Jhulelal Institute of Technology

Approved by AICTE, Recognized by DTE and Affiliated to RTM Nagpur University
NAAC Accredited, ISO Certified

in association with



upGrad





organizes

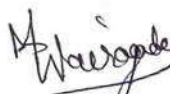
One Week Online Faculty Development Program on “Overcoming the Challenges in Adapting Online Technology in Teaching Learning”


Certificate *of* Participation

This certificate is presented to **Prof. SARDAR BALASO DESHMUKH (OTL0750)** of **Sanjeevan Engineering & Technology Institute, Panhala** for attending as well as satisfactory and timely submission of all the scheduled assignments in the One Week Online Faculty Development Program on “Overcoming the Challenges in Adapting Online Technology in Teaching Learning” held during 6th -11th May 2020.


Dr. D. S. Bhowmick
Vice-principal &
Convener, FDP


Dr. N. G. Bawane
Principal
JIT, Nagpur


Ms. M. P. Wairagade
Director, HR & Admin
SSCT, Nagpur


Shri. P. V. Pampatwar
Director-Technical
SSCT, Nagpur

Certificate No.:
ZA1KDM-CE000060

Generated on: 19-5-2020

SHRI VIDYAVARDHINI EDUCATIONAL ACADEMY'S,
VIDYAVARDHINI INSTITUTE OF TECHNOLOGY, PAL
ONLINE FACULTY DEVELOPMENT TRAINING PROGRAM




Under ISTE
on




“TECHNICAL TEACHER’S TRAINING”
CERTIFICATE

This is to certify that, **Prof. Sardar Balaso Deshmukh** of **Sanjeevan Engineering & Technology Institute, Panhala** has successfully completed One week Faculty Development Training Program on **“Technical Teacher’s Training”** held from 22nd to 27th May, 2020 organised by VVIT, Pal.

Date - 27th May, 2020.


Prof. S. S. Kore
Co-ordinator


Prof. S. L. Kumbhar
Co-ordinator


Prof. A. S. Shelake
Principal

Shram Sadhana Bombay Trust's
COLLEGE OF ENGINEERING AND TECHNOLOGY,
BAMBHORI, JALGAON

T: 0257-2258393, 94 | F:0257-2258392, | E:- ssoetjal@gmail.com, | W: ssoetjalgaon.ac.in|

Approved by AICTE, New Delhi

Affiliated to 'A' Grade NAAC Accredited Kavayitri Bahinabai Chaudhari, North Maharashtra University, Jalgaon

Included under section 2(f) and 12(B) of the UGC Act, 1956

Grade B++ (2.91) NAAC Accredited



CERTIFICATE

This is to certify that Mr./Mrs./Ms./ Dr. Prof. Sardar Balaso Deshmukh of Sanjeevan Engineering & Technology Institute, Panhala has participated in *one week Workshop on "Renewable Energy: Application & Entrepreneurship"* organized by Department of Mechanical Engineering, S.S.B.T's, College of Engineering & Technology, Bambhori, Jalgaon, (M. S.) India during 26th –30th May 2020 . Unique Certificate ID:- 5104260520212

Er. N.K. Patil

Associate Professor & Head, Department of Mechanical Engineering



Dr. S. P. Shekhawat
Professor & Vice Principal

F.N. SIEM/STTP/REU/960



Sandip Foundation's
Sandip Institute of Engineering and Management Nashik
One Week Online Short Term Training Program

on

Renewable Energy and Utilization

26th May – 30th May 2020

Certificate of Participation

This is to certify that Prof. Sardar Balaso Deshmukh from Sanjeevan Engineering & Technology Institute, Panhala has participated in one week online "Short Term Training Program on Renewable Energy and Utilization" during 26-30 May, 2020 organized by Department of Mechanical Engineering, Sandip Institute of Engineering and Management, Nashik.

Dr. Gajanan N Shelke
Coordinator and Dean R&D

Dr. Anil S Dube
Head of Department

Dr. Dipak P Patil
Principal

Resource Persons	
	Dr. Ashish Chaudhari PhD, IIT Guwahati
	Dr. Arvind Chel PhD, IIT Delhi, PDF, Gent U. Belgium
	Dr. Gajanan N Shelke PhD, IIT Guwahati
	Dr. P. M. Ardhapurkar PhD, IIT Bombay
	Dr. Ravichandra Rao Chilaka PhD, IIT Guwahati
	Dr. Ravindra Jilte PhD, IIT Bombay
	Dr. Sathisha H M PhD, IIT Guwahati
	Dr Subhash Lahane PhD, IIT Delhi
	Dr. Sudhansu S. Sahoo PhD, IIT Bombay
	Dr. Sukanta Roy PhD, IIT Guwahati, PDF, ECN, France; PDF, IRPHE/AMU,



AISSMS
COLLEGE OF ENGINEERING

ज्ञानम् सकलजनहिताय
Accredited by NAAC with "A+" Grade



Certificate of Participation



This is to certify that

**Sardar Deshmukh from Sanjeevan Engineering & Technology
Institute, Panhala**

has participated in ISTE & IEI Approved National Level One Week Online FDP on
“Advanced Teaching Tools, Techniques and Methodologies for Outcome Based
Education” from 01-05 June 2020 organised by Center of Excellence in Teaching &
Learning, AISSMS College of Engineering, Pune

Coordinator

Dr. Mangal H Dhend

Coordinator Centre of Excellence
in Teaching and Learning (CETL)



Convener

Dr Dattatraya S Bormane

Principal
AISSMS COE Pune



Vidya Prasarak Mandal, Gadhinglaj
Dr. Ghali College, Gadhinglaj
Affiliated to Shivaji University, Kolhapur
(NAAC Re-accredited 'B' Grade)



**One Week Online Faculty Development Program On
Use of ICT in Teaching Learning (Regional Language)
Certificate**

This is to certify that **Prof. Sardar Balaso Deshmukh**
of **Sanjeevan Engineering & Technology Institute, Panhala**
has successfully completed *One Week Online Faculty Development Program on
Use of ICT in Teaching Learning (Regional Language)* from 1 June to 6 June,
2020, organised by Internal Quality Assurance Cell (IQAC) of Dr. Ghali College,
Gadhinglaj.

Mr. M.S. Vandkar
Co-ordinator

Dr. D. N. Waghmare
Co-ordinator

Mr. A. G. Godghate
Co-ordinator

Dr. N. K. Shelake
Chief-Coordinator

Dr. M. R. Patil
Principal



Shri Vithal Education & Research Institute's
College of Engineering, Pandharpur
Department of Mechanical Engineering
Certificate of Participation

One Week Online Faculty Development Programme

**“Research Opportunities and Challenges in
Manufacturing Sector”**

This is to certify that

Mr. Sardar Balaso Deshmukh of **Sanjeevan Engineering & Technology Institute, Panhala**
has attended **One Week Online FDP** on **“Research Opportunities and Challenges in
Manufacturing Sector”** from **01st June** to **06th June, 2020** Organized by **Department of
Mechanical Engineering, SVERI's College of Engineering, Pandharpur, Maharashtra.**

A handwritten signature in blue ink that reads 'S. B. Bhosale' with a horizontal line underneath.

(Prof. S. B. Bhosale)
FDP Coordinator

A handwritten signature in blue ink that reads 'S. S. Wangikar' with a horizontal line underneath.

(Dr. S. S. Wangikar)
Convenor

A handwritten signature in blue ink that reads 'B. P. Ronge' with a horizontal line underneath.

(Prof. Dr. B. P. Ronge)
Principal

CERTIFICATE of PARTICIPATION



This is to certify that **Prof. Sardar Balaso Deshmukh** from **Sanjeevan Engineering & Technology Institute, Panhala** has attended One Week National Level Faculty Development Program on “**Futuristic Technologies in Mechanical Industries**” organized by Mechanical Engineering Department, DYPIEMR, Akurdi, Pune-44, in Association with Indian Society for Technical Education (ISTE) & Indian Welding Society(IWS) from 5th June 2020 to 9th June 2020.



Ganesh Jadhav

Dr. Ganesh Jadhav
FDP Coordinator

Sunil Dambhare

Dr. Sunil Dambhare
HoD, Mech, DYPIEMR



A.V. Patil

Dr. Mrs. A.V. Patil
Principal, DYPIEMR



**Government College of Engineering, Karad
&
Rajikiya Engineering College, Azamgarh**



Jointly organised
One Week Online Faculty Development Programme on
“Applications of Finite Element Analysis (FEA) and Computational Dynamics (CFD) using ANSYS”
(June 13- 17, 2020)

Sponsored by
Technical Education Quality Improved Programme (TEQIP-III)

Certificate of Participation

This is to certify that

Prof. Sardar Balaso Deshmukh

Of

Sanjeevan Engineering & Technology Institute, Panhala

Registration Number 435

has participated in one week TEQIP sponsored online Faculty Development Programme on Applications of Finite Element Analysis (FEA) and Computational Dynamics (CFD) using ANSYS held from June 13–17, 2020 jointly organised by Mechanical Engineering Department of Government College of Engineering, Karad, Maharashtra and Rajikiya Engineering College, Azamgarh, U.P., India.

Prof. Abhinandan Kumar Jha
Coordinator
FDP

Dr. Ramakant Shrivastava
Coordinator, Professor & Head,
Mechanical Engineering Department

Prof. Dr. A.T. Pise
Principal
GCE Karad

Vidarbha Youth Welfare Society's
Prof Ram Meghe Institute of Technology & Research,
Anjangaon Bari Road, Badnera (C.Rly), Amravati (M.S.) 444701.



Certificate of Participation

This is presented to

Prof. Sardar Balaso Deshmukh

for attending and participating in Faculty Development Programme on
“**Solar Energy & it's Applications, Economical Implications in Indian Scenario
after COVID-19**”

organized by

Department of Mechanical Engineering,
Prof Ram Meghe Institute of Technology & Research, Badnera-Amravati.
from 15th June to 19th June, 2020.

Dr. A. P. Bodkhe
Chairperson

Dr. D. S. Ingole
Convener

Dr. S. B. Thakre
Co-convener



**BHARATI VIDYAPEETH
(DEEMED TO BE UNIVERSITY),
COLLEGE OF ENGINEERING, PUNE**



Department of Mechanical Engineering

CERTIFICATE OF PARTICIPATION

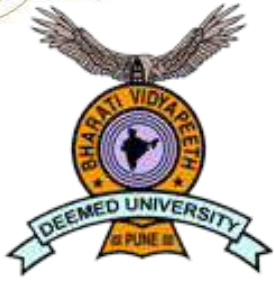


This is to certify that **Prof. Sardar Balaso Deshmukh** from **Sanjeevan Engineering & Technology Institute, Panhala** has participated and completed ***One Week Faculty Development Programme on 'Future Materials: Nanocomposites'*** from **15th June, 2020 to 21st June, 2020** organized by Department of Mechanical Engineering.

Dr. Kailasnath Sutar
Co- Chairman, FDP
Head of Department

Dr. Anand Bhalerao
Chairman, FDP
Principal, BV(DU)COEP

Dr. Sachin S. Chavan
Convener, FDP
Professor



**BHARATI VIDYAPEETH
(DEEMED TO BE UNIVERSITY),
COLLEGE OF ENGINEERING, PUNE**



Department of Mechanical Engineering

CERTIFICATE OF PARTICIPATION



This is to certify that **Prof. Sardar Balaso Deshmukh** from **Sanjeevan Engg & Technology Institute, Panhala** has participated and completed ***One Week Faculty Development Programme on 'Research Opportunities in Advanced Manufacturing Processes'*** from **22nd June, 2020 to 28th June, 2020** organized by Department of Mechanical Engineering of BV(DU) COE, Pune.

Dr. Kailasnath Sutar
Co- Chairman, FDP
Head of Department

Dr. Anand Bhalerao
Chairman, FDP
Principal, BV(DU)COEP

Dr. Pradeep Jadhav
Convener, FDP
Professor

DTE Code : **EN6315**



॥ विद्या विना मोक्षो नहि ॥
NAAC Accredited

AICTE ID : 1-8019451
AISHE Code : C-11165

HOLY-WOOD ACADEMY'S
SANJEEVAN

GROUP OF INSTITUTIONS, PANHALA
Sanjeevan Knowledge City, Somwar Peth-Injole, Panhala, Tal. Panhala, Dist. Kolhapur.
Pin- 416 201 (Maharashtra) Phone : 9146999500

○ Approved By AICTE, New Delhi ○ Recognized by Govt. of Maharashtra, DTE, DOA
○ Permanent Affiliation by Dr. Babasaheb Ambedkar Technological University, Raigad
○ Affiliated to Shivaji University, Kolhapur., MSBTE, Mumbai.

Faculty Achievement

Faculty Achievement						
		Name of Department	Mechanical Engineering		Year 2019-20	
Sr. No.	year	Name of the Faculty	Event Name	Title	Journal/college/university Name	Date
1	2019-20	Mr. Dhananjay Vasanttrao Patil	Faculty Development Program	Futuristic Technologies in mechanical Industries	DYPIEMR, Akurdi, Pune	05/06/2020 to 09/06/2020
2			Webinar	Trends in Metal Casting	BVCOE, Kolhapur	6/10/2020

CERTIFICATE of PARTICIPATION



This is to certify that **Prof. Dhananjay Vasantao Patil** from **Sanjeevan Engineering & Technology Institute, Panhala** has attended One Week National Level Faculty Development Program on “**Futuristic Technologies in Mechanical Industries**” organized by Mechanical Engineering Department, DYPIEMR, Akurdi, Pune-44, in Association with Indian Society for Technical Education (ISTE) & Indian Welding Society(IWS) from 5th June 2020 to 9th June 2020.



Dr. Ganesh Jadhav
FDP Coordinator



Dr. Sunil Dambhare
HoD, Mech, DYPIEMR



Dr. Mrs. A.V. Patil
Principal, DYPIEMR



BHARATI VIDYAPEETH'S COLLEGE OF ENGINEERING, KOLHAPUR

Accredited by NAAC with 'A' grade

Department of Mechanical Engineering

Webinar on

“Trends in Metal Casting”

Certificate

This is to certify that **Mr. Dhananjay Vasatrao Patil** from **SETI, Panhala** has attended Webinar on **“Trends in Metal Casting”** organized by the Department of Mechanical Engineering, Bharati Vidyapeeth's College of Engineering, Kolhapur, on 10th June, 2020.

F8RBJS-CE000270

Mr. S V Pandit

EVENT HEAD

Mr G J Pol

COORDINATOR

Dr. S J Kadam

HOD

Dr. V R Ghorpade

PRINCIPAL



DTE Code : **EN6315**



॥ विद्या विना मोक्षनाथ ॥
NAAC Accredited
AICTE ID : 1-8019451
AISHE Code : C-11165

HOLY-WOOD ACADEMY'S
SANJEEVAN

GROUP OF INSTITUTIONS, PANHALA
Sanjeevan Knowledge City, Somwar Peth-Injole, Panhala, Tal. Panhala, Dist. Kolhapur.
Pin- 416 201 (Maharashtra) Phone : 9146999500
○ Approved By AICTE, New Delhi ○ Recognized by Govt. of Maharashtra, DTE, DOA
○ Permanent Affiliation by Dr. Babasaheb Ambedkar Technological University, Raigad
○ Affiliated to Shivaji University, Kolhapur., MSBTE, Mumbai.

Faculty Achievement

Faculty Achievement						
		Name of Department	Mechanical Engineering		Year 2019-20	
Sr. No.	year	Name of the Faculty	Event Name	Title	Journal/college/university Name	Date
1	2019-20	Mr. Praveen Shivaji Atigre	Faculty Development Program	Enhancing Research and Consultancy Skills	Rajarambapu Institute of Technology, Rajaramnagar	22/06/2020 to 26/06/2020
2			Paper Setter	Machine Design - I	Dr. Babasaheb Ambedkar Technological University	12/6/2019
3			Paper Setter	Metrology and Quality Control	Dr. Babasaheb Ambedkar Technological University	12/6/2019



Kasegaon Education Society's
Rajarambapu Institute of Technology, Rajaramnagar

(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)

**One Week Online FDP on
“Enhancing Research and Consultancy Skills”**

Certificate of Participation

This is to certify that **Prof. Praveen Shivaji Atigre** of **Sanjeevan Engineering and Technology Institute Panhala** has participated in the **one week online FDP on “Enhancing Research and Consultancy Skills”** organized by Department of Mechanical Engineering, Rajarambapu Institute of Technology, Rajaramnagar under RIT-Center for Teaching and Learning (RIT-CTL) from June 22 - 26, 2020.

Prof. R. V. Pawar
Coordinator

Prof. L. R. Patil
Coordinator

Dr. R. G. Desavale
Coordinator

Dr. S. K. Patil
Dean Academics & HOD

Dr. Mrs. S. S. Kulkarni
Director – RIT



DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY (PSM)

No.: 3276
Date : 2019-12-06.

To,

NAME	ROLE	CONTACT
Mr. Praveen S. Atigre	Paper Setter	7775888595 pravin.atigare@seti.edu.in

Dear Sir/Madam,

This is to inform that you have been appointed as a Paper-Setter for **Remedial Examination Winter 2019** as recommended by the Board of Examinations of this University for the following subject(s).

Faculty	Engineering and Technology
Program No. & Name of the Examination	MECHENG_SEM5 / B.Tech MECH Sem 5
Subject	BTMEC503 / Machine Design - I
Unit No. of the Syllabus	I & II
Nature of Question	Multiple Choice Questions (MCQ)
Remark	-

You are requested to submit 20 MCQs (with solutions) carrying 2 marks each and 30 MCQs (with solutions) carrying 1 mark each on the allotted Unit(s) of the syllabus.

This appointment is subjected to the following conditions:

1. A child or a near relation of dependent of yours is not appearing or likely to appear at the Examination in the subject for which an invitation is now being offered to you.
2. You are not an author or co-author of a book and that book is prescribed/reference book for the said examination.

It is **mandatory** to submit the questions along with its solutions in accordance with the syllabus.

The Paper setter should upload the soft copy of the questions in the prescribed format only (Template is available for downloading through your login). Please use Open office to open and edit the template. Open office can be downloaded and installed from '<http://www.openoffice.org/download/>'.

Instructions to use the template:

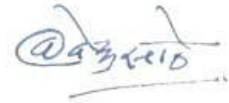
1. Your Username is **oesetter_4056** . Click on 'https://psm.dbatuapps.in/profile_reset' for reset password.
2. Please do not change any fields that are prefilled in the template.
3. Each question should be on a separate page. Please do not add more than one question on the same page.
4. Please enter your Appointment no **3276** in the 'ID column' of the template.
5. You can copy paste the blank table on a new page to add a new question in the same file.
6. To insert Images use the menu ' Insert -> Image -> From File ' from the toolbar.
7. Equations could be added using Latex.

8. PASTE IMAGES AS BITMAP ONLY. Images can be pasted as bitmap. i.e instead of Ctrl+V, use Shift+Ctrl+V. This will show a dialog box with paste option. Select bitmap.
9. USE EQUATIONS EDITOR INSTEAD OF IMAGES.
10. If there is an equation or any mathematical symbol, please use equation editor instead of pasting symbol as images.
11. FONT AND SIZE: Please use consistent font type and font size throughout the document. Formatting, colouring, tables etc. are picked up as is. Recommended 'Times New Roman' with font size of '15'.
12. FORMAT QUESTION FOR BETTER READABILITY AND CLARITY.
13. Use colouring, tables and different fonts if necessary to give clarity to questions and options. For example, for C/C++ programs use font type 'Courier' inside a table and so on.

Please complete the task of uploading the MCQs along with answers on or before **21/12/2019**

You are requested to keep your invitation strictly confidential.

Yours faithfully,



Controller of Examinations (I/C)

Note: As per section 32(5) (g) of Maharashtra University Act 1994, Examination work is Compulsory.



DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY (PSM)

No.: 2404
Date : 2019-12-06.

To,

NAME	ROLE	CONTACT
Mr. Praveen S. Atigre	Paper Setter	7775888595 pravin.atigare@seti.edu.in

Dear Sir/Madam,

This is to inform that you have been appointed as a Paper-Setter for **Remedial Examination Winter 2019** as recommended by the Board of Examinations of this University for the following subject(s).

Faculty	Engineering and Technology
Program No. & Name of the Examination	BTECH_AUTOENG_SEM5 / B.Tech AUTOMOBILE Sem 5
Subject	BTMEC505 / Metrology and Quality Control
Unit No. of the Syllabus	All 6 Units, 30 Ques per unit
Nature of Question	Multiple Choice Questions (MCQ)
Remark	-

You are requested to submit 20 MCQs (with solutions) carrying 2 marks each and 30 MCQs (with solutions) carrying 1 mark each on the allotted Unit(s) of the syllabus.

This appointment is subjected to the following conditions:

1. A child or a near relation of dependent of yours is not appearing or likely to appear at the Examination in the subject for which an invitation is now being offered to you.
2. You are not an author or co-author of a book and that book is prescribed/reference book for the said examination.

It is **mandatory** to submit the questions along with its solutions in accordance with the syllabus.

The Paper setter should upload the soft copy of the questions in the prescribed format only (Template is available for downloading through your login). Please use Open office to open and edit the template. Open office can be downloaded and installed from '<http://www.openoffice.org/download/>'.

Instructions to use the template:

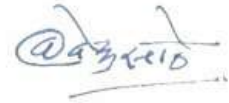
1. Your Username is **oesetter_4056** . Click on 'https://psm.dbatuapps.in/profile_reset' for reset password.
2. Please do not change any fields that are prefilled in the template.
3. Each question should be on a separate page. Please do not add more than one question on the same page.
4. Please enter your Appointment no **2404** in the 'ID column' of the template.
5. You can copy paste the blank table on a new page to add a new question in the same file.
6. To insert Images use the menu ' Insert -> Image -> From File ' from the toolbar.
7. Equations could be added using Latex.

8. PASTE IMAGES AS BITMAP ONLY. Images can be pasted as bitmap. i.e instead of Ctrl+V, use Shift+Ctrl+V. This will show a dialog box with paste option. Select bitmap.
9. USE EQUATIONS EDITOR INSTEAD OF IMAGES.
10. If there is an equation or any mathematical symbol, please use equation editor instead of pasting symbol as images.
11. FONT AND SIZE: Please use consistent font type and font size throughout the document. Formatting, colouring, tables etc. are picked up as is. Recommended 'Times New Roman' with font size of '15'.
12. FORMAT QUESTION FOR BETTER READABILITY AND CLARITY.
13. Use colouring, tables and different fonts if necessary to give clarity to questions and options. For example, for C/C++ programs use font type 'Courier' inside a table and so on.

Please complete the task of uploading the MCQs along with answers on or before **21/12/2019**

You are requested to keep your invitation strictly confidential.

Yours faithfully,



Controller of Examinations (I/C)

Note: As per section 32(5) (g) of Maharashtra University Act 1994, Examination work is Compulsory.