KALASALINGAM
ACADEMY OF RESEARCH AND EDUCATION
(DEEMED TO BE UNIVERSITY)
Under sec. 3 of UGC Act 1956. Accredited by NAAC with "A" Grade

Anand Nagar, Krishnankoil - 626126, Srivilliputtur (via), Virudhunagar District, Tamilnadu.

APPLICATION FOR ADMISSION TO Ph.D. PROGRAMMES

Date of Application:12-12-2020

Department	MECHANICAL ENGINEERING	Application No.	202020097
Area of Research	TRIBOLOGY	Research Mode	PART TIME

Name :VINEETH K

Date of Birth / Age :06-08-1991 / 29 Years

Gender :MALE

Category :OBC

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Father's/Husband's Name	KRISHNANKUTTY M	**Father's/Husband's Occupation**	EX-SERVICE MAN
Family Income	200000	**Residental Type**	RURAL
Birth Place	KAYAMKULAM	**Mother Tongue**	MALAYALAM
Religion	HINDU	**Martial Status**	MARRIED
Aadhaar No.	866083439262	**PAN No.**	BMVPV3247E
Physically Challenged	NO	**Type of Disability**	-

Address for Communication:	**Permenant Address:**
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UTHIRAKKUZHY THAEKATHYL	UTHIRAKKUZHY THAEKATHYL
KRISHNAPURAM	KRISHNAPURAM
ALAPUZHA DISTRICT	ALAPUZHA DISTRICT
KERALA	KERALA
INDIA	INDIA
Pin-690533	Pin-690533

Qualification

Degree	Discipline	College/university	Year Passed	AVG/CGPA	Class	Mode
MTECH	COMPUTER INTEGRATED MANUFACTURING	KTU	2018	86	1	REGULAR
BTECH	MECHANICAL ENGINEERING	KERALA UNIVERSITY	2014	65	1	REGULAR
12	SCIENCE	KERALA	2010	80	1	REGULAR
10	SCIENCE	KERALA	2008	95.5	1	REGULAR

Experience

Organization	Designation	Experience From	Experience TO	Work Nature
SREE BUDDHA COLLEGE OF ENGINEERING	ASSISTANT PROFESSOR	2019-07-29	1970-01-01	TEACHING
TOMS COLLEGE OF ENGINEERING	ASSISTANT PROFESSOR	2018-06-01	2019-07-28	TEACHING

Payment Details

Transaction ID	Reference	Date of transaction	Amount	Status
202020097_201215103050	VUR29560095063	15-12-2020	600	SUCCESS

STUDY ON TRIBOLOGICAL AND SURFACE REPAIRING PERFORMANCES OF HYBRID NANOLUBRICANTS

Problem/Topic Statement of Proposed Research

Lubricants are substances that are used to reduce wear between sliding parts. Engine oil is such a lubricant that could be used to reduce wear between sliding parts of the engine and could also be used as a coolant by carrying excessive heat away from the moving parts of the engine. Usually heat stored in bulk of the engine oil is higher than its thermal conductivity which may result in the formation of oil sludges inside the engine at extreme conditions and increases the chances of the engine oil getting burnt thereby producing a large amount of smoke. Also, when the engine oil is subjected to elevated temperature its viscosity decreases and thickness of the lubricating layer eventually shrivels thereby causing high wear and tear between the rubbing surfaces. This reduces the lifetime of the engine body. Various techniques are being developed to cope up with this situation. Since it's an era of nanotechnology recent trends in the field of nanotechnology includes usage of nanoparticles as new generation additives in the engine oil because of their tendency to improve its tribological and heat transfer properties.

The novel properties of nanoparticles such as size, ionic state, distribution and morphology of the particles are considered and based on this facts in this work chemically synthesized nanoparticles are preferred.

Research Background

Nanotechnology is defined as the manipulation of matter with at least one dimension in the range of 1 to 100 nanometers by the National Nanotechnology Initiative. On this scale, quantum mechanical properties of matter can significantly deviate from continuum-based physics. Nanotechnology has broad ranging applications in industrial, military, medical, and

currently unimagined realms. The measurement, quantization and understanding of these nanoscale properties is essential to the advancement of all nanotechnology applications, and the promises of nanotechnology have persuaded world governments to invest billions of dollars into research and development. Nanotechnology has already had significant and permanent impact on society and its effects will grow.

Nanotribology is developing as a key strategy for minimizing frictional power losses, execessive heat generation and the wear on the contact surface. In such a norm, various metal oxide nanoparticles including CuO, Al2O3 were used for earlier.

Hybrid nanolubricant is a spotless strategy to deliver various types of nanoparticles. It is a perfect method in light of the fact that there is no use of dangerous chemicals. Here the tribological efficiency of different nanoparticles are utilised. There is no requirement of high temperature, weight and vitality.

Objectives of the work

Though the major drawbacks associated with the usage of engine oil were solved on dispersion of nanoparticles, there were few other setbacks which had to be taken into consideration. The main problems were the high cost of the nanomaterial and the loss of stability of the prepared nano engine oil over prolonged usage due to aggregation by sedimentation and agglomeration. Though many surfactants are used to solve the problems of agglomerations of nanoparticles.

In the present study, an attempt was made to overcome this problem by using a very small volume fraction of nanoparticles hybrid. This makes the process cost effective. Also owing to the small volume fraction of nanoparticles in the base fluid, coagulation in the micro channels of the engine is minimised both at static and running conditions. Dispersion of hybrid

nanoparticles in the engine oil was expected to partially enhance thermal conductivity of engine oil and nanoparticles added was expected to provide a partial compensation for the decrease in the thickness of the lubricating layer which occurs due to increase in temperature.

Recent developments in the area of project

Y.Y. Wu, W.C. Tsuia, T.C. Liub [1] examined tribological properties of two lubricating oils, an API-SF engine oil (SAE30LB51153) and base oil (SAE30LB51163-11) with CuO, TiO2 and Nano-Diamond nanoparticles used as additives. Glycol was used as the solvent, for CuO and TiO2 nanoparticles in order to prevent the nanoparticles from oxidizing with air. Each lubricant comprised 90% standard oil and 10% additive solution (lubricants modified with CuO and TiO2 were composed of 9.9% glycol and 0.1% nanoparticles). Friction and wear experiments were performed by using Plint-TE77 reciprocating sliding friction tribotester.

He-long YU, Yi XU, Pei-jing SHI, Bin-shi XU, Xiao-li Wang, Qian LIU [2] studied wear and friction properties of surface modified Cu nanoparticles used as an additive in 50CC. The effect of temperature on tribological properties of Cu nanoparticles was investigated on a four-ball tester. The morphologies, typical element distribution and chemical states of the worn surfaces were characterized by SEM, EDS and XPS, respectively. In order to further investigate the tribological mechanism of Cu nanoparticles, a nano-indentation tester was utilized to measure the micro mechanical properties of the worn surface. The results indicate that the higher the oil temperature applied, the better the tribological properties of Cu nanoparticles are. It can be inferred that a thin copper protective film with lower elastic modulus and hardness is formed on the worn surface, which results in the good tribological performances of Cu nanoparticles, especially when the oil temperature is higher.

H.L. Yu , Y. Xu, P.J. Shi, B.S. Xu, X.L. Wang, Q. Liu, H.M. Wang, [3]investigated Cu nanoparticles dispersed into SN 650 oil to improve the lubricating properties of the oil. SEM,

XPS and nano-indentation tester were utilized to investigate the morphology, chemical state and nano-mechanical properties of the film, respectively. Results show that the frictionreducing and anti-wear properties of SN 650 oil have been improved by adding Cu nanoparticles.

Y. Choi, C. Lee, Y. Hwang, M. Park, J. Lee, C. Choi, M. Jung [4] investigated the friction coefficient for raw oil and nano-oil mixed with copper nanoparticles by using a discon-disc tribotester between mixed and full-film lubrication regime. The friction surfaces are investigated by using scanning electron microscopy (SEM), energy-dispersive spectroscopy (EDS), and atomic force microscopy (AFM). The results show that the average friction coefficient for nanooil with 25 nm and 60 nm copper nanoparticles under a load of 3000 N is decreased by 44% and 39%, respectively.

BekirSadikUnlu, [5] investigated, tribological properties like friction coefficient and wear losses of bearing-journal samples of alloy CuSn10 bronze, CuZn30 brass, Zn Alzamac, AlCuMg2 duralumine, and SnPbCuSb white metal specimens manufactured from metals like Copper, aluminum, zinc and tin–lead were determined by wearing on radial journal bearing wear test rig designed specially for this purpose. He has used SAE 1050 steel shaft as counter abrader. Experiments were carried out in every 30 min for a total of 150 min by using radial journal bearing wear test rig.

GU Cai-xiang, ZHU Guan-jun, LI Lei, TIAN Xiao-yu and ZHU Guang-yao [6] enhanced the tribological properties of lubricating oil (500SN Base Oil) containing CeO2 and TiO2 nanoparticles with suitable surfactants such as Tween-20, Tween-60,Span-20 and Sodium sodecyl benzene sulfonate. In the experiment 40 kinds of lubricating oils were prepared, according to different weight fractions (0.2%, 0.4%, 0.6%, 0.8%, 1.0%, respectively) and different weight proportions of CeO2 and TiO2 nanoparticles (0:1, 1:1, 1:2, 1:3, 1:4, 3:1, 2:1,

1:0,respectively). The morphology and size of CeO2 and TiO2nanoparticles were examined with a transmission electron microscope (TEM). The tribological properties of the oils were tested using a MRS-1J four-ball tribotester. The research results show that when the proportion by weight of CeO2 nanoparticles to TiO2 nanoparticles is 1:3, and the total weight fraction is 0.6%, the lubricating oil has optimal anti-wear and friction reducing properties. The addition of CeO2 nanoparticles reduces the required amount of TiO2 nanoparticles.

T. Rameshkumar, I. Rajendra, A. D. Latha[7] investigated the Mechanical and Tribological properties of plain bearing alloys used especially in internal combustion engines. Pin material selected as shaft material AISI D3 (high carbon high chromium steel), having a diameter of 5.041 mm and hardness range 720 BHN. The sliding friction and wear properties of aluminium, tin alloy against high carbon high chromium steel were investigated at different normal loads as (29.43 N, 33.35 N and 36.25 N). Tests were carried by using Pinon-disc equipment in oil lubricated conditions with a sliding speed of 1m/s. Prior to experimentation, the circulating engine oil 20w40 was heated to temperature of 800C using heater. The frictional behavior and wear property of aluminium-tin alloy were studied by means of pin-on-disk tribometer. The weight loss of the specimen was measured and wear and friction characteristics were calculated with respect to time, depth of wear track, sliding speed and bearing load. Friction coefficient & wear of aluminum-based alloy bearings is less than that of pure aluminum bearing. To determine the wear mechanism, the worn surfaces of the samples were examined using Scanning Electron Microscope (SEM). The optimum wear reduction was obtained at different normal loads and at same sliding speed**.**

References

[1]. Y.Y. Wu, W.C. Tsuia, T.C. Liub “Experimental analysis of tribological properties of lubricating oils with nanoparticle additives” Wear Volume 262, Issues 7–8, 15 March 2007, pp 819–825

[2]. He-long YU, Yi XU, Pei-jing SHI, Bin-shi XU, Xiao-li Wang, Qian LIU"Tribological properties and lubricating mechanisms of Cu nano particles in lubricant" Transactions of Nonferrous Metal Society of China, Volume 18, Issue 3, June 2008, pp 636– 641.

[3]. H.L. Yu , Y. Xu, P.J. Shi, B.S. Xu, X.L. Wang, Q. Liu, H.M. Wang, "Characterization and nano mechanical properties of tribofilms using Cu nanoparticles as additives" Surface and Coating Technology", Volume 203,Issues 1–2, 25 October 2008, pp 28–34.

[4]. Y. Choi, C. Lee, Y. Hwang, M. Park, J. Lee, „ C. Choi, M. Jung "Tribological behavior of copper nanoparticles as additives in oil", Current Applied Physics Volume 9, Issue 2, Supplement, March 2009, pp 124–127.

[5]. BekirSadikUnlu, "Investigation of tribological and mechanical properties of metal bearings", Bull. Mater. Sci., Vol. 32, No. 4, August 2009, pp. 451–457

[6]. GUCai-xiang, ZHU Guan-jun, LI Lei, TIAN Xiao-yu and ZHU Guang-yao "Tribological effects of oxide based nanoparticles in lubricating oils", Merchant Marine College, Shanghai Maritime University, Shanghai 200135, China J. Marine. Sci. Appl. (2009) 8: 71-76 DOI: 10.1007/s11804-009-8008-1.

[7]. T. Rameshkumar, I. Rajendra, A. D. Latha"Investigation on the Mechanical and Tribological Properties of Aluminium-Tin Based Plain Bearing Material", Tribology in industry, Volume 32, No. 2, pp. 4-10, 2010.

Significance of undertaking the project in the context to current status

Like any other country India has its own unique environment. It is one of the largest democratic countries in the world, with vast untapped natural and human resource. It is the third country in the world (After U.S.A. and Russia) having scientific and technical manpower. It has well developed infrastructure and Research and development facilities. India is being viewed by the many foreign countries as a growing super power of Asia; India provides most favorable atmosphere and resources for technology growth and expansion. In

order to develop our indigenous technologies in many fields, more specific, materials for defense related applications, etc, the government agencies have started a major level R&D schemes. There is increasing interest in using new materials to achieve developments in various areas such as automobile, aircraft, marine and space applications. It would be a platform for tribology research field to showcase the importance of nanotechnology in Automobile sector. The proposed work will be giving a platform to young Indian researchers to update their knowledge in the area of synthesis and development of hybrid nanolubricants in Automotive sector.

Activities and Timetable

To accomplish the proposed research goal, I propose the following specific activities:

Activity 1: Selection of Alloy

The main criteria for the selection of alloy is that it should have the properties like thermal resistance, wear resistance, Cost and availability of the alloy. On this aspects Al-316 is selected for this experiment

Activity 2: Nano Particle Selection

The main criteria for the selection of nano particles are generally the availability of Nano particles and cost of the nanoaprticles. Cu, TiO_2, Al_2O_3 nano particle of size 40-60nm is selected for this experiment.

Activity 3: Lubricant selection and input parameters

The main criteria for the selection of lubricant are the availability and cost of the commonly available lubricant. Viscosity index of the lubricant was also a selection factor. Based on this factors 10W-40(Semi synthetic) is selected. Input parameters such as velocity, time and load are also selected.

Activity 4: Nanolubricant preparation

The lubricant and nano particles are mixed together in the sonicator for around one or two weeks. Lower weight percentage of (0.1%, 0.2%, 0.3%) are selected inorder to avoid aggregation.

Activity 5: Measurement of Tribological properties

Tribology is the study of interacting surfaces in relative motion. It involves friction, wear and lubrication. Properties of the engine oil containing hybrid nanoparticles are estimated using Pin on Disc Tribometer. All the testing sections are rinsed thoroughly with plain engine oil. Pin on Disk Tribometer consists of a stationary pin under applied load in contact with a rotating disc with required lubrication. The set up resembles the piston and cylinder of the four stroke engine where the piston slides over the cylinder with engine oil as the lubricant. The test has to be carried out by comparing the nano lubricant engine oil and the sample oil.

Activity 6: Analysis of Thermal conductivity and Viscosity

Redwood Viscometer can be used to determine the kinematic viscosity of normal engine oil and prepared nano lubricant at various temperature ranging from 35^0C to 100^0C.Thermal conductivity of a fluid is its ability to conduct heat. Addition of nanoparticles to a base fluid usually improves its thermal conductivity. This arise due to the microscopic motion and the surface properties of added nanoparticles. There is an inverse relationship between thermal conductivity and heat stored in the fluid. Due to this formation of oil sludge on the inner surface on the engine can be prevented. Also shriveling of thickness of the lubricating layer with increase in temperature can be partially reduced. Also the engine oil becomes less prone to getting burnt owing to the limited heat storage.

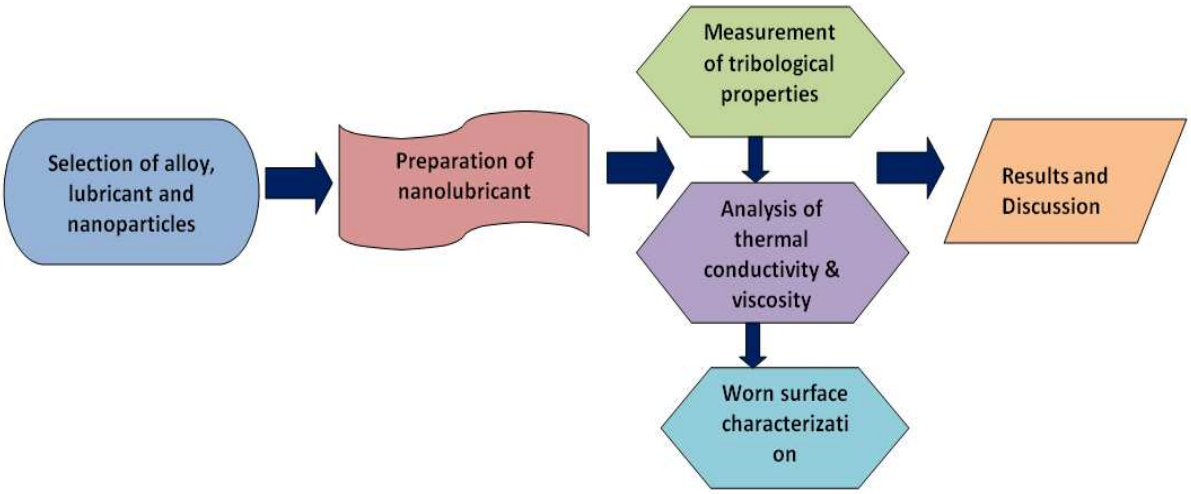
Activity 7: Analysis of flash and fire point

The flash point of the two samples is measured using flash-fire point apparatus

Activity 8: Morphology Analysis

The QUANTA Scanning Electron Microscope (SEM) can be used for observing the microphologies of worn surfaces lubricated with hybrid nano lubricating oil containing different weight percentages of Aluminum, Copper and Titanium nano particles.

Proposed work plan along with network of activities



Student Goals

Although the work is representing the Nanotechnology Engineering department, the theoretical nature of the research requires strong mechanical understanding. As a Mechanical engineering student with deep interest in nanotechnology, I feel this research project is uniquely tailored to my strengths and interests. A research position that delves into both of my majors is an exceptional opportunity for me. I am committed to working an organized, efficient and insightful research project and capping my accomplishments with a published article. In addition to strengthening my appeal to graduate schools, publishing an article would be an exceptional growth opportunity for me personally and would help professionally prepare me to pursue a career in research and development of emerging technologies. In addition, many opportunities for research and development will be in the field of

nanotechnology. Developing mechanical applications of nanoparticles would prepare me for those opportunities in a way that classes alone cannot.

Does the project have any commercial application

Yes, Nanotechnology gained wide popularity in present research community, as it exhibits unique and outstanding mechanical and tribological properties depending on the size and orientation. Hybrid nanolubricant offers a kind of diverse tribological properties due to its particle size and shape. A great deal of research on Automobile is focused by synthesizing nanohybrid with the aim of improving the mechanical, thermal and tribological properties. Reports showed that addition of nanoparticles enhances the mechanical and tribological properties. In the present work, it is proposed to synthesize and characterize nanolubricant so as to achieve very low wear and friction between the engine parts which can become a work horse for both automotive and aero industry.

Scope of the work

A remarkable result is required for studying the sustainability of the engine oil along with the influence of other parameters. As lubrication oils are popularly used to reduce friction, prevent wear and carry loads needed to keep the machines operating at top efficiency. The above research shows that the mechanisms of friction-reduction and anti-wear properties of nano particles in lubricant would be an innovative technology in the current technological filed. Nano particles put into lubricating oils can improve the properties of extreme pressure, anti-wear and friction reducing. Nano particles can form self-repairing film in lubrication oil which availably separates the friction materials in friction process, so we can analyse structure and properties of the self repairing film. Hence the efficiency and service life of the machines could be improved.

Sponsorship / support from industry / other sources, if any (please specify):

NIL

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

(A State Government University)

The University on the recommendation of

the Board of Governors hereby confers

on

VINEETH K

the Degree of

Master of Technology

in

Mechanical Engineering

with specialisation in

Computer Integrated Manufacturing

having fulfilled the requirements at the examination held in

April 2018

Given under the seal of the University, this day, the 24th of November 2018

Register Number: SBC16MECI06

Cumulative Grade Point Average (CGPA): 8.68

Name of Institution: SREE BUDDHA COLLEGE OF ENGINEERING, PATTOOR

Vice-Chancellor

Thiruvananthapuram
Kerala, India

0104680

1004475

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

(A State Government University)

MASTER OF TECHNOLOGY (M.TECH) DEGREE EXAMINATIONS

CONSOLIDATED STATEMENT OF GRADES

Sequence No. 17/2/14137

Date of Issue : 23/04/2020

Name : **VINEETH K**	Register Number : SBC16MECI06
Date of Birth : 06/08/1991	Institution : SREE BUDDHA COLLEGE OF ENGINEERING, PATTOOR
Specialisation : COMPUTER INTEGRATED MANUFACTURING	
Year of Admission : 2016	Duration of the programme : 2 Years (4 Semesters)
Date of Passing : 02-JUL-2018	Medium of Instruction : English
Total Credits : 68.0	CGPA : 8.68 **(Eight Point Six Eight)**

The following Grades were awarded to the Candidate

Sl. No.	Course Code	Course Name	Credits	Grade	Month & Year of Examination
		First Semester SGPA -: 8.5			
1	03ME6401	ADVANCED ENGINEERING MATERIAL AND PROCESSING	4.0	A	DEC-2016
2	03ME6411	FINITE ELEMENT ANALYSIS IN MANUFACTURING	4.0	B+	DEC-2016
3	03ME6421	COMPUTER AIDED DESIGN IN MANUFACTURING	4.0	B+	DEC-2016
4	03ME6431	COMPUTER AIDED PROCESS PLANNING AND CONTROL	3.0	A	DEC-2016
5	03ME6441	COMPUTER AIDED INSPECTION	3.0	B+	DEC-2016
6	03RM6001	RESEARCH METHODOLOGY	2.0	O	DEC-2016
7	03ME6901	SEMINAR I	2.0	O	DEC-2016
8	03ME6821	CIM LAB I	1.0	B+	DEC-2016
		Second Semester SGPA -: 8.63			
9	03ME6402	COMPUTER INTEGRATED MANUFACTURING SYSTEM	4.0	B+	APR-2017
10	03ME6412	INSTRUMENTATION AND CONTROL SYSTEM	3.0	A	APR-2017
11	03ME6422	ADVANCED MATERIAL REMOVAL PROCESS	3.0	B+	APR-2017
12	03ME6482	PRINCIPLES OF ROBOTICS AND APPLICATION	3.0	A+	APR-2017
13	03ME6532	COMPOSITE MATERIALS TECHNOLOGY	3.0	A	APR-2017
14	03ME6822	CIM LAB II	1.0	O	APR-2017
15	03ME6902	MINI PROJECT	2.0	O	APR-2017
		Third Semester SGPA -: 8.63			
16	03ME7413	SUSTAINABLE MANUFACTURING	3.0	A	DEC-2017
17	03ME7463	MICROMACHINING AND PRECISION ENGINEERING	3.0	A	DEC-2017
18	03ME7903	SEMINAR II	2.0	A+	DEC-2017
19	03ME7913	PROJECT PHASE I	Successfully Completed		DEC-2017
		Fourth Semester SGPA -: 9.0			
20	03ME7914	PROJECT PHASE II	18.0	A+	APR-2018
		******* END OF STATEMENT *******			

CGPA - Cumulative Grade Point Average **SGPA -** Semester Grade Point Average

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY ★ THIRUVANANTHAPURAM KERALA ★ (Seal)

Prepared by

Checked by

Controller of Examinations

SREE BUDDHA COLLEGE OF ENGINEERING

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TRANSFER CERTIFICATE

T.C.No:7075 **Date:**04-08-2018

1.	**Name of student**	:	**VINEETH K**
2.	**Admission No.**	:	2016PG5715
3.	**Date of Birth (in figures and words)**	:	06-08-1991 (Six Aug Nineteen Nintey One)
4.	**Nationality**	:	Indian
5.	**Gender**	;	Male
6.	**Name of the Parent/Guardian**	:	Krishnankutty
7.	**Relationship with the student**	:	Father
8.	**Caste and Religion**	:	Hindu Ezhava
9.	**Whether the student was in receipt of fee concession**	:	No
10.	**Date of Admission**	:	22-07 -2016
11.	**Academic status of student**	:	Good
12.	**Class to which admitted & branch of Study**	:	First Semester MTech ME
13.	**Class from which relieved**	:	Fourth Semester MTech ME
14.	**Date of Leaving**	:	20-06-2018
15.	**Reason for Leaving**	:	Course Completed
16.	**Name of the University Examination for which the candidate was last presented from the college**	:	4th Semester MTech Degree.April 2018

Principal

SREE BUDDHA COLLEGE OF ENGINEERING

AYATHIL, ELAVUMTHITTA P.O-689 625, PATHANAMTHITTA DIST., KERALA

APPROVED BY AICTE, NEW DELHI & AFFILIATED TO M.G. UNIVERSITY, KOTTAYAM & APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, KERALA

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Managed by Sree Buddha Foundation, Kollam. 21

(A sister institution of Sree Buddha College of Engineering, Pattoor, Nooranad)

Prof. Dr. RAJI RAJAN
Principal

SBCE/TEF/ME/4277/2020 02-12-2020

EXPERIENCE CERTIFICATE

This is to certify that Mr. Vineeth K, served as Assistant Professor in the Department of Mechanical Engineering of this college from 29.07.2019 onwards.

This certificate is issued as per the request of Mr. Vineeth K to be submitted for the PhD application purpose in Kalasalingam Research University, Tamil Nadu.

2/12/20

PRINCIPAL

Sree Buddha College of Engineering Ayathil Elavumthitta Pathanamthitta

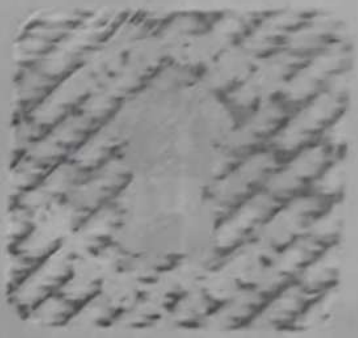
Prof. Dr. Raji Rajan
PRINCIPAL
SREE BUDDHA COLLEGE OF ENGINEERING
AYATHIL, ELAVUMTHITTA P.O.
PATHANAMTHITTA DIST, KERALA

आयकर विभाग
INCOME TAX DEPARTMENT

भारत सरकार
GOVT. OF INDIA

स्थायी लेखा संख्या कार्ड
Permanent Account Number Card

BMVPV3247E



नाम / Name
VINEETH K

पिता का नाम / Father's Name
KRISHNAN KUTTY

जन्म की तारीख / Date of Birth
06/08/1991

हस्ताक्षर / Signature

13062018

Self Attested
03/12/2021

ഇൻഡ്യ തെരഞ്ഞെടുപ്പ് കമ്മിഷൻ

ELECTION COMMISSION OF INDIA

വോട്ടർ ഫോട്ടോ തിരിച്ചറിയൽ കാർഡ് - ELECTOR PHOTO IDENTITY CARD

ALS0232009

പേര് : വിനീത് കെ

NAME : Vineeth K

അച്ഛന്റെ പേര് : കൃഷ്ണൻകുട്ടി

FATHER'S NAME : Krishnankutty

KDis.12256/2018/E3 Taluk office, Karthikappally

ANNEXURE-4

FORM OF CERTIFICATE TO BE PRODUCED BY OTHER BACKWARD CLASSES APPLYING TO POSTS UNDER THE GOVERNMENT OF INDIA

This is to certify that Vineeth.K

Son/Daughter of Sri.Krishnankutty, Kuthirakkuzhithekkathil of Village Krishnapuram

District/Division Alappuzha in Kerala

state belongs to Hindu-Ezhava Community which is recognised as a Backward Class under.

1) Resolution No. 12011/68/93-BCC(c), dated 10th September 1993, published in the Gazette of India-Extraordinary-part 1, Section 1, No. 186 dated 13th September, 1993.
2) Resolution No. 12011/9/94-BCC, dated the 9th October 1994, published in the Gazette of India-Extraordinary-part 1, Section 1, No. 163 dated 20th October, 1994.
3) Resolution No. 12011/7/95-BCC, dated 24th May,1995, published in Gazette of India-Extraordinary-part 1, Section 1,No. 88, dated 25th May, 1995.
4) Resolution No. 12011/44/96-BCC, dated 6th December,1996, published in Gazette of India-Extraordinary-part 1,Section 1,No. 210, dated 11th December, 1996.
5) Resolution No. 12011/68/93-BCC published in Gazette of India-Extraordinary No. 129, dated the 8th July 1997.
6) Resolution No.12011/12/96-BCC published in Gazette of India-Extraordinary No. 164, dated the Ist Sept 1997.
7) Resolution No. 12011/99/94-BCC published in Gazette of India-Extraordinary No. 236, dated the 11th Dec 1997.
8) Resolution No. 12011/13/97-BCC published in Gazette of India-Extraordinary No. 239, dated the 3rd Dec 1997.
9) Resolution No. 12011/12/96-BCC published in Gazette of India-Extraordinary No. 166, dated the 3rd Aug 1998.
10) Resolution No. 12011/68/93-BCC published in Gazette of India-Extraordinary No. 171, dated the 6th Aug 1998.
11) Resolution No. 12011/68/98-BCC published in Gazette of India-Extraordinary No. 241, dated the 27th Oct 1999.
12) Resolution No. 12011/88/98-BCC published in Gazette of India-Extraordinary No. 270, dated the 6th Dec 1999.
13) Resolution No. 12011/36/99-BCC published in Gazette of India-Extraordinary No. 71, dated the 4th Apr 2000.
14) Resolution No. 12011/44/99-BCC dated the 21st Sep, 2000. Published in the Gazette of India-Extraordinary part I Section 1 No. 210, dated the 21st Sept, 2000.
15) Resolution No. 12011/09/2000-BCC dated 06/09/2001.
16) Resolution No. 12011/01/2001-BCC dated 19/06/2003.
17) Resolution No. 12011/04/2002-BCC dated 13/01/2004.
18) Resolution No. 12011/09/2004-BCC dated 16/01/2006 Published in the Gazette of India-Extraordinary part I Section No. 210, dated 16/01/2006.

Shri Vineeth.K and/or his family ordinarly reside (s) in the Alappuzha District/Division of the Kerala State.

This is also to certify that he/she does not belong to the persons/sections, (Creamy Layer) mentioned in Column 3 of the Schedule to the Government of India Department of personnel and Training O. M. No. 36012/22/93-Estt. (SCT) dated 8-9-1993 and modified vide the G.O.I. DOP & Ts O.M. No. 36033/3/2004-Estt. (Res.) dated 9.3.2004 and 14.10.2008.

Date: 22.10.18

~~District Magistrate~~/
~~Deputy Commissioner~~/
Tahsildar etc.

Tahsildar,
Karthikappally

Seal

CHANDRA

Note:
a) The term 'ordinarily' used here will have the same meaning as Section, 20 of the Representation of the People Act, 1950.
b) The Authorities competent to issue Caste Certificates are indicated below:
i) District Magistrate/Additional Magistrate, Collector/Deputy Commissioner/Additional Deputy Commissioner/Deputy Collector/Ist Class Stipendary Magistrate/Sub Divisional Magistrate/Taluk Magistrate/Executive Magistrate/Extra Assistant Commissioner (not) below the rank of I Class Stipendary Magistrate).
ii) Chief Presidency Magistrate / Additional Chief Presidency Magistrate / Presidency Magistrate.
iii) Revenue Officer not below the rank of Tahsildar, and
iv) Sub-Divisional Officer of the area where the candidate and/or his family resides.

ANNEXURE-I

CERTIFICATE FROM THE ORGANISATION WHERE THE CANDIDATE IS EMPLOYED

Certified that Mr./Ms./Mrs. Vineeth.K is employed as Assistant Professor (Designation) in the Mechanical Engineering (Department/Division Name) of Sree Buddha College of Engineering Elavumthitta (Institution/Industry Name).

We have no objection in forwarding his/her application for the Ph.D. Research Programme.

FOR FULL TIME:

The candidate will be sanctioned leave for the duration of the research programme and will be relieved from duty from _____ to _____ to undertake the full time research work in the University.

FOR PART TIME:

The candidate will be permitted to undertake part time study in the University/College and will be allowed to be present for discussions with the supervisor, attending course works, conduct of experiments and participations in seminars and related presentations. Further the required facilities at our organization will also be provided to the candidate for doing research.

Date: 2/12/20

Signature of the Head of Organization with office seal

2/12/20

Sree Buddha College of Engineering AYATHIL ELAVUMTHITTA

Prof. Dr. Raji Rajan
PRINCIPAL
SREE BUDDHA COLLEGE OF ENGINEERING
AYATHIL, ELAVUMTHITTA 689 625
PATHANAMTHITTA DIST, KERALA