



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

APPLICATION FOR ADMISSION TO Ph.D. PROGRAMMES

Date of Application:22-06-2020

Department	MECHANICAL ENGINEERING	Application No.	20200104
Area of Research	COMPOSITE	Research Mode	PART TIME

Name :MUTHURAJ S
Date of Birth / Age :04-09-1988 / 31 Years
Gender :MALE
Category :BC
e-Mail ID :mecmuthuraj@gmail.com
Mobile :09597348878



Father's/Husband's Name	SHUNMUGA SUNDARAM	Father's/Husband's Occupation	FARMER
Family Income	130000	Residential Type	RURAL
Birth Place	TIRUNELVELI	Mother Tongue	TAMIL
Religion	HINDU	Martial Status	MARRIED
Aadhaar No.	457100527463	PAN No.	BCZPM4746B
Physically Challenged	NO	Type of Disability	-
Address for Communication: 88 SOUTH STREET , LAKSHMI NAGAR V.M.CHATRAM TIRUNELVELI DISTRICT TAMILNADU INDIA Pin-627011		Permenant Address: 88 SOUTH STREET , LAKSHMI NAGAR V.M.CHATRAM TIRUNELVELI DISTRICT TAMILNADU INDIA Pin-627011	

Qualification						
Degree	Discipline	College/university	Year Passed	AVG/CGPA	Class	Mode
M.E	COMPUTERT AIDED DESIGN	ANNA UNIVERSITY REGIONAL CAMPUS TIRUNELVELI	2016	6.75	FIRST	CORRESPOND
B.E	MECHANICAL	SCAD COLLEGE OF ENGINEERING AND TECHNOLOGY	2012	69	SECOND	REGULAR

Experience				
Organization	Designation	Experience From	Experience TO	Work Nature
RECT POLYTECHNIC COLLEGE	LECTURER	2012-08-01	2018-04-30	LECTURER
SRIRAMANA INSTITUTE OF POLYTECHNIC COLLEGE	LECTURER	2018-06-01	2020-06-22	LECTURER

Payment Details				
Transaction ID	Reference	Date of transaction	Amount	Status
20200104_200629093152	SHMP8942659490	29-06-2020	600	SUCCESS

CORROSION RESISTANCE OF COATINGS PRODUCED BY MICRO ARC OXIDATION ON MAGNESIUM ALLOYS AND PHOSPHATE IONS EFFECT ITS STRUCTURE

Introduction

MAO (Micro Arc oxidation) method is a new surface treatment technique capable of forming well adhered nano structured ceramic coatings on valve metals such as Mg alloys, to improve their corrosion and wear resistances. This electrochemical technique involves the creation of an oxide layers analogous to anodized films with incorporation of species originating from both the substrate and the solution. However, alkaline electrolytes and special current regimes are used to work at potentials higher than the breakdown potentials of growing oxide films. Plasma discharges created during this process could result in high temperature and conversion of the growing coating into crystalline phase. In this method, coatings may be formed under various current regimes, including direct DC, periodic DC (unipolar and bipolar) and alternating AC current. In MAO technology, AC and periodic DC electrical regimes supply higher control over plasma chemical processes compared to DC regimes, thus creating a more uniform coating with less porosity. A two-layer structure is usually ascertained with a comparatively thinner and more compact barrier layer at the substrate-coating interface together with an outer porous region that is resulted due to the eruption of reaction products via the discharge channels. In the plasma electrolyte oxidation process, parameters including current density, voltage, frequency, duty cycle and electrolyte composition play significant roles on the coating's properties such as corrosion resistance. Therefore, investigating the optimization of these parameters is crucial step to obtain better coating properties. For this purpose, experimental design techniques (DOE) can be employed to find the proper parameters to achieve required properties. Taguchi method is a statistical and effectual technique of design of experiment (DoE) widely utilized in engineering analysis for optimization, process characterization and modeling, based on orthogonal array experiments. It consists of a special plan of experiments using an orthogonal array (OA) that helps in reducing variations in a process and determining the most significant function parameters. By means of this method, the optimum process condition can also be recognized to get rid of the traditional approach of changing one factor as holding the other factors constant (one factor at a time). In that old methodology, valuable information on combined effect of two or more factors may not be recognized. Taguchi employs a minimum possible matrix of combinations to improve quality of a system at minimum time and cost with more extensive results and information on the performance of a specified process. The results interpretation is based on a statistical quantify of performance via the signal to noise ratio (S/N or SNR) and the averages analysis. S/N analysis is a measure of the desired signal (mean) to the level of noise (standard deviation) which considers effectively the mean and variability encountered into account. According to the objective of experiments, the S/N ratio character can be separated into three categories for the response performance measuring; (i) smaller is better, (ii) larger is better and (iii) nominal is better.

Therefore, the aim of the present study is to achieve the optimum PEO process parameters condition on magnesium alloy for suitable corrosion performance, using Taguchi approach. Taguchi L18 orthogonal array technique with mixed level design with four parameters at three levels and one factor at six levels is carried out.



ANNA UNIVERSITY CHENNAI, CHENNAI - 600 025

Folio No. TVLB101569

B.E.-DEGREE EXAMINATIONS

M1015035210435

CONSOLIDATED STATEMENT OF MARKS

NAME OF THE CANDIDATE					REGISTER NO.								
COLLEGE OF STUDY					MONTH & YEAR OF LAST APPEARANCE								
PROGRAMME & BRANCH					REGULATIONS								
SEM.	SUBJECT CODE	SUBJECT TITLE	MAX	MIN	MARKS SECURED	MONTH & YEAR OF PASSING	SEM.	SUBJECT CODE	SUBJECT TITLE	MAX	MIN	MARKS SECURED	MONTH & YEAR OF PASSING
MUTHU RAJ S					96907114035								
969: SCAD COLLEGE OF ENGINEERING AND TECHNOLOGY					November 2012								
B.E. Mechanical Engineering					2007								
01	CY101	Engineering Chemistry	100	50	051	JAN 2008	05	ME1307	Metrology and Measurements Lab	100	50	082	DEC 2009
01	GE102	Engineering Graphics	100	50	060	DEC 2010	05	ME1308	Computer Aided Machine Drawing Practice	100	50	077	DEC 2009
01	GE104	Fundamentals of Computing	100	50	059	JAN 2008	06	ME1351	Heat and Mass Transfer	100	50	056	JUN 2010
01	HS106	Technical English - I	100	50	051	JAN 2008	06	ME1352	Design of Transmission Systems	100	50	063	JUN 2010
01	MA105	Mathematics - I	100	50	051	NOV 2012	06	ME1353	Automobile Engineering	100	50	068	APR 2011
01	PH103	Engineering Physics - I	100	50	057	APR 2011	06	ME1354	Power Plant Engineering	100	50	072	JUN 2010
01	GP107	Engineering Practise Lab	100	50	087	JAN 2008	06	MG1351	Principles of Management	100	50	053	JUN 2010
01	PCP108	Physics & Chemistry Lab	100	50	060	JAN 2008	06	ME1001	Unconventional Machining Processes	100	50	064	JUN 2010
02	CY201	Engineering Chemistry - II	100	50	058	DEC 2008	06	GE1351	Presentation Skills and Technical Seminar	100	50	075	JUN 2010
02	GE202	Basic Engineering	100	50	055	MAY 2008	06	ME1355	Thermal Engineering Lab - II	100	50	088	JUN 2010
02	GE204	Engineering Mechanics	100	50	051	MAY 2008	06	ME1356	CAD / CAM Lab	100	50	079	JUN 2010
02	HS206	Technical English - II	100	50	056	MAY 2008	06	ME1357	Design and Fabrication Project	100	50	089	JUN 2010
02	MA205	Mathematics - II	100	50	053	MAY 2008	07	ME1402	Mechatronics	100	50	059	DEC 2010
02	PH203	Engineering Physics - II	100	50	052	MAY 2008	07	ME1403	Computer Integrated Manufacturing	100	50	067	DEC 2010
02	GE208	Computer Laboratory	100	50	081	MAY 2008	07	MG1401	Total Quality Management	100	50	053	DEC 2010
02	ME207	Engineering Drawing Laboratory	100	50	088	MAY 2008	07	MH1003	Finite Element Analysis	100	50	068	DEC 2010
02	PCP209	Physics and Chemistry Laboratory - II	100	50	073	MAY 2008	07	ME1007	Process Planning and Cost Estimation	100	50	056	DEC 2010
03	EC1264	Electronics and Microprocessors	100	50	055	DEC 2010	07	ME1009	Design of Jigs, Fixtures and Press Tools	100	50	063	DEC 2010
03	EE1213	Electrical Drives and Controls	100	50	052	DEC 2009	07	ME1404	Computer Aided Simulation and Analysis Lab	100	50	090	DEC 2010
03	MA1201	Mathematics III	100	50	050	APR 2011	07	PR1353	Mechatronics Lab	100	50	088	DEC 2010
03	ME1201	Engineering Thermodynamics	100	50	053	JUN 2010	08	MG1452	Engineering Economics and Cost Analysis	100	50	071	APR 2011
03	ME1202	Fluid Mechanics and Machinery	100	50	077	JUN 2010	08	ME1015	Production Planning and Control	100	50	073	APR 2011
03	ME1203	Manufacturing Technology - I	100	50	063	DEC 2008	08	ME1019	Maintenance Engineering	100	50	068	APR 2011
03	EC1265	Electronics and Microprocessors Lab	100	50	074	DEC 2008	08	ME1020	Entrepreneurship Development	100	50	072	APR 2011
03	EE1214	Electrical Engineering Lab	100	50	055	DEC 2008	08	ME1451	Comprehension	100	50	092	APR 2011
03	GE1202	Communication Skills and Technical Seminar - I	100	50	075	DEC 2008	08	ME1452	Project Work	200	100	187	APR 2011
03	ME1204	Fluid Mechanics and Machinery Lab	100	50	082	DEC 2008							
04	CE1262	Strength of Materials	100	50	053	MAY 2009							
04	MA1253	Probability and Statistics	100	50	051	MAY 2009							
04	ME1251	Thermal Engineering	100	50	053	APR 2011							
04	ME1252	Kinematics of Machinery	100	50	061	MAY 2009							
04	ME1253	Manufacturing Technology-II	100	50	062	MAY 2009							
04	MH1151	Engineering Materials and Metallurgy	100	50	070	MAY 2009							
04	CE1263	Strength of Materials Lab	100	50	091	MAY 2009							
04	GE1251	Communication skills and Technical Seminar-II	100	50	077	MAY 2009							
04	ME1254	Thermal Engineering Lab - I	100	50	088	MAY 2009							
04	ME1255	Manufacturing Technology-II Lab	100	50	095	MAY 2009							
05	CY1201	Environmental Science and Engineering	100	50	050	DEC 2009							
05	ME1301	Dynamics of Machinery	100	50	055	DEC 2009							
05	ME1302	Design of Machine Elements	100	50	060	DEC 2009							
05	ME1303	Gas Dynamics and Jet Propulsion	100	50	051	DEC 2009							
05	ME1304	Engineering Metrology and Measurements	100	50	056	DEC 2009							
05	ME1305	Applied Hydraulics and Pneumatics	100	50	055	DEC 2009							
05	GE1303	Communication Skills and Technical Seminar - III	100	50	069	DEC 2009							
05	ME1306	Dynamics Lab	100	50	085	DEC 2009							
End of Statement													
Classification : SECOND CLASS													
Total Marks (from 3rd to 8th semester): 3791 / 5500													
Percentage (rounded to nearest integer) : 69													



Medium of Instruction : ENGLISH

Chennai - 600 025.

Date : 16/05/2013

Controller of Examinations

Anna University



Reg.No. 950013804007/RG

The Syndicate of the Anna University hereby makes known that
MUTHURAJ S *has been admitted to the* **DEGREE OF MASTER OF ENGINEERING** *in* **COMPUTER AIDED DESIGN** *under the Faculty of Mechanical Engineering, having completed the prescribed programme of study and having been certified by the duly appointed examiners to be qualified to receive the same, and has been placed in **FIRST CLASS** *at the Examination held in* **JUNE 2016.***

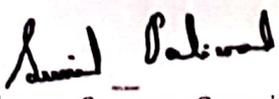
Given under the Seal of the University



Chennai 600 025
India
May 2017
WISDOM BEGETS KNOWLEDGE


Controller of Examinations


Registrar


Chairman, Convener Committee
Vice-Chancellor

Anna University



Reg.No. 96907114035/RG

The Syndicate of the Anna University hereby makes known that
MUTHU RAJ S *has been admitted to the* **DEGREE OF BACHELOR OF**
ENGINEERING *in* **MECHANICAL ENGINEERING** *under the*
Faculty of Mechanical Engineering, having completed the prescribed
programme of study and having been certified by the duly appointed examiners to be
qualified to receive the same, and has been placed in **SECOND CLASS** *at the*
Examination held in **NOVEMBER 2012.**

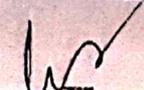
Given under the Seal of the University



Chennai 600 025
India
September 2013
REGISTRATION NO. 96907114035


Controller of Examinations


Registrar


Vice-Chancellor

ANNA UNIVERSITY REGIONAL CAMPUS - TIRUNELVELI

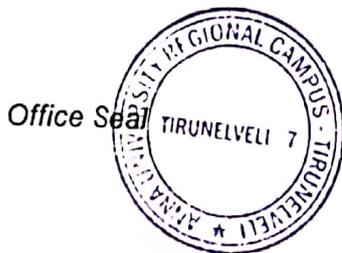
TIRUNELVELI - 627007



TRANSFER CERTIFICATE

No. : 16415

- 1) Name of the student : MUTHURAJ S
- 2) Name of the Father/Mother/Guardian : M. Shunmuga Sundaram
04-09-1988 (Four - Nine -
- 3) Date of Birth as Entered in the University Records : Nineteen Eighty Eight)
- 4) Date of Admission : 10-09-2013
- 5) Degree to Which the Student was Admitted : M.E Computer Aided Design (part Time)
- 6) Duration of Degree : 3 years (VI Semester)
- 7) Semester Studied at the Time of Leaving : VI Semester
- 8) Whether Completed the Degree Successfully : Completed
- 9) Actual Date of Leaving : June 2016
- 10) Whether Paid All the Fees and Cleared the Dues to the University : Yes
- 11) Character and Conduct : Good



Dean

Date of Issue : 11 NOV 2016

Anna University Regional Campus - Tirunelveli
Tirunelveli - 627007



RECT
Polytechnic College

Approved by AICTE Vide No. 8364803 Dt. 28/2010 & Affiliated to DOTE, Chennai

Near I.N.S. Kattabomman,

South Vijayanarayanam,

Tirunelveli - 627 118.

Phone : 04625 254259

Cell : 9842074000

e-mail : 895rectprincipal@gmail.com

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Prof. G. SURESH THANGARAJ THOMSON B.E., M.B.A., M.S.
Principal

Date 02.05.2018

Ref.No.Rect/Exp.Cer/17-18/015

TO WHOM SO EVER IT MAY CONCERN

This is to certify that Mr.S.MUTHURAJ S/o.Shanmuga Sundaram was employed with us from 01 Aug 2012 to 30 APRIL 2018 and he was designated as Lecturer in Mechanical Engg.

During the period his conduct and character found Good.....




PRINCIPAL
RECT Polytechnic College
South Vijayanarayanam
Tirunelveli - 627 118.

आयकर विभाग

INCOME TAX DEPARTMENT

MUTHURAJ S

SHUMUGASUNDARAM

04/09/1988

Permanent Account Number

BCZPPM4746B

S. Muthuraj

Signature



भारत सरकार

GOVT. OF INDIA



29032010



புத்திய சர்க்கரது ஆலகஸய்யம்

Election Commission of India



புத்திய சர்க்கரது ஆலகஸய்யம் ELECTOR PHOTO IDENTITY CARD



BFY0626392



புத்திய சர்க்கரது ஆலகஸய்யம்
புத்திய சர்க்கரது ஆலகஸய்யம்
Elector's Name

முத்துராஜ்
Muthuraj

புத்திய சர்க்கரது ஆலகஸய்யம்
புத்திய சர்க்கரது ஆலகஸய்யம்
Relation's Name

சண்முக சுந்தரம்
Shanmuga Sundaram

புத்திய சர்க்கரது ஆலகஸய்யம்

R Dis 737/2005 dt

BC

Certificate No.

6027922



மாண்புமிகு குறியீடு எண்
District Code

வட்டக் குறியீடு எண்
Taluk Code

கிராமக் குறியீடு எண்
Village Code

1	8
0	2
0	4
	7

சாதிச் சான்றிதழ்
COMMUNITY CERTIFICATE

திருநெல்வேலி மாவட்டம், கிராமம்/நகரம், திரு/திருமதி/செல்வி/செல்வன்
 திரு. முத்துராஜ் இவரது குழந்தை/குழந்தைகள்
சுனாதிசுந்தரன் வாசு
சுந்தர வாசு

வகுப்பைச் சார்ந்தவர் எனக் ஆணை நிலை எண் 28, பிப்ரவரி 1994 மற்றும் பி.சி.சி. பிரிவில் நலத் துறை, நாள் 1971/94 வரிசை எண் 139, பி.சி.சி. பிரிவினைச் சார்ந்தவர் எனச் சான்றளிக்கப்படுகிறது.

This is to certify that..... Son / Daughter of Thiru..... of..... Village / Town,..... Taluk,.....

District of the State of Tamil Nadu belongs to..... Community, which is recognised as a Backward Class as per Government Order (Ms.) No. 28, Backward Classes and Most Backward Classes Welfare, dated 19th July 1994 vide Serial No.....

2. திரு/திருமதி/செல்வன்/செல்வி.....
 சம்பவம் அவருடைய குடும்பத்தினரும் தமிழ்நாட்டில் திருநெல்வேலி மாவட்டத்தில் கிராமம்/நகரம்.....
 கிராமத்தில்/நகரத்தில் வசித்து வருகிறார்கள் எனச் சான்றளிக்கப்படுகிறது.

2. It is certified that Thiru/Tal/Selyan/Selvi..... and his/her family ordinarily reside(s) at..... Village/Town..... Taluk..... District of Tamil Nadu.....

முத்திரை.
Seal.



கையொப்பம்
Signature

நாள்
Date

பெயர் (என்.சி.எல்.அகரங்கள்)
Name in Capital Letters

பதவி
Designation

BB. சிபா
13.6.05

ZONAL DEPUTY TAHSILDAR
PALAYAMKOTTAI.

13.6.05



SRI RAMANA

Institute of
Polytechnic College

Moolaikaraipatti - 627354. Mobile : 94427 31275

IDENTITY CARD



S. Muthu Raj

Lecturer in Mechanical Engineering



09.04.1988



S/o. Shanmuga Sundaram
34-C, Sasthan Kovil Street,
Tharuvai,
Tirunelveli - 627356.



95973 48878

Principal