



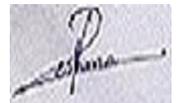
Anand Nagar, Krishnankoil - 626126, Srivilliputtur (via), Virudhunagar District, Tamilnadu.

APPLICATION FOR ADMISSION TO Ph.D. PROGRAMMES

Date of Application:15-05-2021

Department	ELECTRICAL AND ELECTRONICS ENGINEERING	Application No.	202110006
Area of Research	RENEWABLE ENERGY SYSTEMS	Research Mode	FULL TIME

Name :RESHMA MATHEW
Date of Birth / Age :11-07-1991 / 30 Years
Gender :FEMALE
Category :OC
e-Mail ID :reshmathew123@gmail.com
Mobile :8547641584



Father's/Husband's Name	P.V. MATHEW	Father's/Husband's Occupation	PHARMACIST
Family Income	1,20,000	Residential Type	URBAN
Birth Place	THIRUVALLA	Mother Tongue	MALAYALAM
Religion	CHRISTIAN	Martial Status	MARRIED
Aadhaar No.	520812223751	PAN No.	CNYPM0409A
Physically Challenged	NO	Type of Disability	-
Address for Communication: PUNNAMOOTIL HOUSE OMALLUR P.O., PUTHENPEEDIKA,PALLAM PATHANAMTHITTA PATHANAMTHITTA DISTRICT KERALA INDIA Pin-689647		Permenant Address: PUNNAMOOTIL HOUSE OMALLUR P.O., PUTHENPEEDIKA,PALLAM PATHANAMTHITTA PATHANAMTHITTA DISTRICT KERALA INDIA Pin-689647	

Qualification						
Degree	Discipline	College/university	Year Passed	AVG/CGPA	Class	Mode
M.TECH	POWER ELECTRONICS	MAHATHMA GANDHI UNIVERSITY	2016	8.73	FIRST CLASS WITH DISTINCTION	REGULAR
B.TECH	EEE	MAHATHMA GANDHI UNIVERSITY	20013	73	FIRST CLASS	REGULAR

Experience					
Organization	Designation	Experience From	Experience TO	Work Nature	
STCET	ASSISTANT PROFESSOR-FULL TIME	2016-08-01	2020-12-30	FULL TIME	

Payment Details				
Transaction ID	Reference	Date of transaction	Amount	Status
202110006_210517200237	VSB19977603425	17-05-2021	600	SUCCESS

HYBRID AC/DC MICROGRID **BASED ON HIGHER ORDER** **SLIDING MODE CONTROL**

Proposed By,

Ms. Reshma Mathew,

Assistant Professor,

Department of EEE,

STCET

1. Introduction

Due to increase in energy demand, the need for augmentation of conventional generation brings about a continuous depletion of fossil fuel sources. So the need for renewable energy is increasing day by day. Reduction of environmental pollution and global warming act as a key factor in preferring renewable energy over fossil fuels. Hence the traditional power generation techniques are replaced by renewable energy based microgrid system. Hybrid AC/DC microgrid systems are preferred since they can meet AC and DC loads.

2. Related work

Hybrid AC/DC microgrid suffers from the problem of intermittency issues in renewable energy sources. While using Fuel Cell with fuzzy logic control technique, overutilization and underutilization of H₂ cannot be considered. In distributed control technique, dynamic issues of system is not taken into consideration. Similarly in droop based control techniques, when multiple distributed energy sources are involved there is a chance of poor voltage regulation. In non-linear control techniques such as decentralized Sliding Mode Control, involves the use of two controllers which makes the system complex. In output feedback linearization and back stepping control, does not take into consideration about the effect of multiple DG's. So there is a need of advance control action to ensure stable operation under various operating conditions and load demand.

3. Proposed Method

The proposed technique involves the design of a non-linear controller based on integral terminal and fast integral terminal Sliding Mode Control for hybrid AC/DC microgrid. With wind energy system as the primary source, Fuel Cell as secondary source and battery ultra capacitor as HESS. But irregularity in Wind Energy system and variations in AC/DC loads result in fluctuations of DC link voltage. So HESS can be used to provide constant AC and DC bus voltage in islanding and grid connected mode. The proposed control technique provides frequency support to utility grid in grid connected mode. Also stability of hybrid AC/DC microgrid can be verified using Lyapunov's stability criteria.

References

- [1] V. I. Utkin, "Variable structure systems with sliding modes," *IEEE Trans. Automat. Contr.*, vol. AC-22, pp. 212–222, 1977.
- [2] B. Friedland, *Advanced Control System Design*. Englewood Cliffs, NJ: Prentice-Hall, 1996, pp. 148–155.
- [3] H. Asada and J.-J. E. Slotine, *Robot Analysis and Control*. Wiley, 1986, pp. 140–157. New York.
- [4] C. Edwards and S. K. Spurgeon, *Sliding mode control: Theory and Applications*, Taylor and Francis, 1998.
- [5] Wang P, Goel L, Liu X, Choo FH. Harmonizing ac and dc: a hybrid ac/dc future grid solution. *IEEE Power Energy Mag* 2013;11(3):76–83.
- [6] Yang P, Xia Y, Yu M, Wei W, Peng Y. A decentralized coordination control method for parallel bidirectional power converters in a hybrid ac–dc microgrid. *IEEE Trans. Industr. Electron* 2017; 65(8):6217–28.

Register No : 219028
Month & Year : May 2013

Mahatma Gandhi University

(Established by Kerala State Legislature by Notification No. 3431/Leg.C1/85/Law, dated 17th April 1985)



FACULTY OF ENGINEERING AND TECHNOLOGY

The Syndicate of the Mahatma Gandhi University

hereby makes known that

RESHMA MATHEW

has been admitted to the

Degree of Bachelor of Technology

*under Electrical and Electronics Branch she having been certified by duly appointed examiners to be qualified to receive the same and having been by them placed in the **FIRST CLASS** at the examination held in May 2013.*

Given under the seal of the University

University Buildings
Priyadarshini Hills P.O.
Kottayam - 686 560
Kerala, India
Dated : 22-January-2014




Vice-Chancellor

Register No.
&
Year

205666
September 2016

Mahatma Gandhi University

(Established by Kerala State Legislature by Notification No. 3431/Leg.C1/85/Law, dated 17th April 1985)



FACULTY OF ENGINEERING & TECHNOLOGY

The Syndicate of the Mahatma Gandhi University

hereby makes known that

Reshma Mathew

has been admitted to the

Degree of Master of Technology

under Electrical and Electronics Branch with specialization

in Power Electronics

he/she having been certified by duly appointed examiners to be qualified to receive the same, and having been by them placed

in the First Class with Distinction at the

examination held in September 2016

Given under the seal of the University.

University Buildings
Priyadarsini Hills P.O.
Kottayam - 686 560
Kerala, India

Dated **28 February 2017**



Vice-Chancellor

Mahatma Gandhi University

(Established by Kerala State Legislature by Notification No.3431/Leg. CU/85/Law, dated 17th April 1985)

Section: EI XX
Serial No.: 1466917

Student ID: EAAE2009P049069075



Kottayam,
19-Aug-2013

MEMORANDUM

The following marks were awarded to Shri./Smt RESHMA MATHEW candidate with Register No. 219028 at the Eighth Semester B Tech Degree Examination May 2013

SUBJECTS	Marks								
	External			Internal			Total		
	Awarded	Min for Pass	Max	Awarded	Min for Pass	Max	Awarded	Min for Pass	Max
FACULTY OF ENGINEERING AND TECHNOLOGY									
BRANCH: ELECTRICAL AND ELECTRONICS ENGINEERING									
A. Power System Analysis	82	40	100	47	-	50	129	75	150
B. Switch Gear and Protection	66	40	100	44	-	50	110	75	150
C. Instrumentation	85	40	100	46	-	50	131	75	150
D. Electrical System Design	55	40	100	47	-	50	102	75	150
E. Elective II: Advanced Mathematics	82	40	100	47	-	50	129	75	150
F. Elective III: Opto - Electronics and Communication	71	40	100	39	-	50	110	75	150
G. Electrical Machines Lab - II	43	40	100	45	-	50	88	75	150
H. Project and Seminar	-	-	-	88	-	100	88	-	100
I. Viva-Voce	26	20	50				26	20	50
TOTAL FOR SEM VIII							913	600	1200
TOTAL FOR SEM I and II							1181	750	1500
TOTAL FOR SEM III							846	600	1200
TOTAL FOR SEM IV							875	600	1200
TOTAL FOR SEM V							896	600	1200
TOTAL FOR SEM VI							901	600	1200
TOTAL FOR SEM VII							817	600	1200
GRAND TOTAL							6429	4350	8700
							(Six Four Two Nine)		
*****End of statement*****									

Self attested
RESHMA

Checked by:

Section Officer:



CONTROLLER OF EXAMINATIONS

Mahatma Gandhi University

(Established by Kerala State Legislature by Notification No.3431/Leg. CI/85/Law, dated 17th April 1985)



P 002836

Section: EI XIII

Student ID: MTCD2014P064002706



Priyadarsini Hills P.O,
Kottayam

09-Nov-2016

GRADE CARD

Name of the Candidate : RESHMA MATHEW
Register Number : 205666 Degree: Master of Technology
Branch : ELECTRICAL AND ELECTRONICS ENGINEERING
Specialization : POWER ELECTRONICS
Name of the Examination : Fourth Semester M Tech Degree Examination September 2016

SUBJECT CODE	SUBJECT NAME	CREDITS	GRADE AWARDED
MEEPE 401	Master's Thesis	12	A
MEEPE 402	Master's Comprehensive Viva	3	A
	Semester IV - GPA	15	9.00
	Semester I - GPA	25	8.88
	Semester II - GPA	25	8.72
	Semester III - GPA	15	8.20
	Cumulative Grade Point Average	80	8.73
*****End of statement*****			
Conversion Formula			
The Grade to Percentage of marks is calculated using AICTE formula :			
$\% \text{ Marks} = (\text{CGPA} - 0.75) \times 10$ vide U.O.No.6098\AIV\1\Acad\2013 dated 26.11.2013			

Semester Grade Point Average (SGPA) : 9.00

Cumulative Grade Point Average (CGPA) : 8.73

Checked by:

Section Officer:



CONTROLLER OF EXAMINATIONS

St. Thomas College of Engineering & Technology

Approved by AICTE - Govt. of Kerala
Affiliated to APJ Abdul Kalam Technological University



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Email: info@stcot.net
www.stthomascollege.ac.in

Institution code **STC**

NAAC ACCREDITED INSTITUTION

STC/E/307/19.04.2021

CERTIFICATE

This is to certify that **Ms. RESHMA MATHEW**, Punnamoozil, Omaliur, Pathanamthitta (Dist.) is working in this institution as Assistant Professor in the Department of Electrical & Electronics Engineering from 01.08.2016 to till date. During this period she has been discharging her duties well. With cordial relationship with fellow employees, she exhibits a good conduct and character.

This certificate is issued for the purpose of applying for Ph.D admission.

PRINCIPAL



An Institution of

St. Thomas Educational Society

No. 30/663, Adoor Tower, Adoor, Tel: 04734-221372, 220481



St. Thomas College of Engineering & Technology

Approved by AICTE - Govt. of Kerala
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Institution code **STC**

NAAC ACCREDITED INSTITUTION

STC/E/307/19.04.2021

CERTIFICATE

This is to certify that **Ms. RESHMA MATHEW**, Punnamoozil, Omaliur, Pathanamthitta (Dist.) is working in this institution as Assistant Professor in the Department of Electrical & Electronics Engineering from 01.08.2016 to till date. During this period she has been discharging her duties well. With cordial relationship with fellow employees, she exhibits a good conduct and character.

This certificate is issued for the purpose of applying for Ph.D admission.

PRINCIPAL



An Institution of

St. Thomas Educational Society

No. 30/663, Adoor Tower, Adoor, Tel: 04734-221372, 220481



आयकर विभाग
INCOME TAX DEPARTMENT
भारत सरकार
GOVT. OF INDIA
RESHMA MATHEW
PUNNAMOOTIL VARGHESE MATHEW
11/07/1981
Permanent Account Number
CNYPM0409A
Signature


In case this card is lost / found, kindly inform / return to:
Income Tax PAN Services Unit, UTIITSI
Plot No. 3, Sector 11, CBD Belapur,
Navi Mumbai - 400 614
यस कार्ड के खोने/पाने पर कृपया सूचित करें/सौंपें।
आयकर सेवक संस्था युनिट, UTIITSI
प्लॉट नं. 3, सेक्टर 11, सी.बी.डी. बेलपुर,
नवी मुंबई - 400 614

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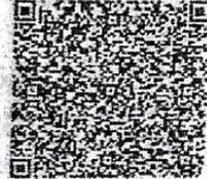


भारत सरकार

GOVERNMENT OF INDIA



Reshma Mathew
DOB: 11/07/1991
Female / FEMALE



5208 1222 3751

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[Signature]

Active Windows
Go to Settings to activate Windows