

# पावर सिस्टम ऑपरेशन कारपोरेशन लिमि



## POWER SYSTEM OPERATION CORPORATION LIMITED

(A Government of India Enterprise)

दक्षिण क्षेत्रीय भार प्रेषण केंद्र, 29, रेस कोर्स क्रास रोड, बेंगलूर - 560 009

दूरभाष : कार्यालय : 080 2225 0047, 2235 2850, 2225 4525, 2225 1169, 2225 5962 फैक्स : 080 2226 8725, 2225 9219

Southern Regional Load Despatch Centre, 29 Race Course Cross Road, Bangalore - 560 009

Tel: Off: 080 2225 0047, 2235 2850, 2225 4525, 2225 1169, 2225 5962 Fax: 080 2226 8725, 2225 9219 Website: www.srldc.org/www.posoco.in

संदर्भ संख्या / Ref. No. | 1 43 12

दिनांक / Date:

संदर्भ/Ref: एसआरएलडीसी/मास/2018

दिनांक /Date: 03/08/2018

## TO WHOMSOEVER IT MAY CONCERN

This is to certify that Ms. Ramya R, a student of M.E- Control & Instrumentation Engineering in Thiagarajar College of Engineering, has completed her project work from 11/06/2018 to 31/07/2018 at Power System Operation Corporation Ltd., (A Government of India Enterprise), Southern Regional Load Dispatch Centre under the guidance of Smt. Vijitha K, Sr. Engineer (SCADA & REMC).

She has worked on the project entitles "Short Term Load Forecasting using Artificial Nueral Network"

DGM(HR)



Name Department Phone Fax Mobile

Gnana Prakash Y Human Resources +91 (44) 6678 4005 +91 (44) 6678 4011 +91 9962343448 gnana.prakash@slemens.com

E-mail Your letter of Our reference

Date

SL/HR/CHE 30.03.2018

#### TO WHOMSOEVER IT MAY CONCERN

This is to certify that Mr. Rajesh Kumar M from Thiagarajar College of Engineering has undertaken his Internship in our Chennai office. The duration of his project work was from 18.12.2017 to 30.03.2018

His work & conduct during the project work was good.

We wish him all the best for a bright and prosperous career.

Yours faithfully, SIEMENS LTD

Ghana Prakash Y Human Resources

Siemens Ltd. Management: Sunil Mathur

Birla Aurora, Level 21, Plot No. 1080, Dr. Annie Besant Road, Worli, Mumbai – 400030 Tel.: +91 (22) 3967 7000

(An Autonomous Institution Affiliated to Assas University)

MADURAI - 625 015



Certified that this is a bonafide record of the 14Cl410 Project-II done by Ms. M.BHUVANESWARI (Reg.No. 16CN005) of Fourth Semester M.E. (Control and Instrumentation) during the year 2017-2018.

Dr. V. PRAKASH

Associate professor,

Department of Electrical & Electronics Engg.

(Guide)

Station: Madurai

O.BONOa

Professor& Head,

Department of EEE

Date: 26-4-2018

Submitted for VIVA-VOCE examination held at Thiagarajar College of Engineering, Madurai - 625 015, on 3.5.2018

Fallach .V.

EXTERNAL EXAMINER

HOD.E.E.

This is to certify that the 14Cl410 Project -II Report entitled "Instrumentation of non destructive determination of three phase induction motor winding configuration", being submitted by M.BHUVANESWARI in partial fulfillment for the requirement of M.E. Degree in Control and Instrumentation is a record of bonafide work. The results embodied in this report have not been submitted to any other university or institute for the award of any degree or diploma.

M. Bhuvaroswari

Ms.M.BHUVANESWARI

(Reg.No. 16CN005)

Station: Madurai

Dr. V. PRAKASH

(GUIDE)

Date: 26.4.2018

(An Autonomous Institution Affiliated to Anna University)

MADURAI - 625 015



#### CERTIFICATE

Mr.C. NAVEEN SUNDAR (Reg.No.16CN011) of Fourth Semester M.E (Control & Instrumentation Engineering) during the year 2017-2018.

M. Russy	O Dance
Mr. M. Ram Kumar	Dr.S.Baskar
(Assistant Professor)	Professor & Head,
Department of Electrical & Electronics Engg.	Department of EEE
(Guide)	
Station: Madurai	Date:

M. LOT INTERNAL EXAMINER

EXTERNAL EXAMINER

HADE.E.

This is to certify that the 14Cl410 Project —II Report entitled "Active Power Tracking with the power tracking the power tracking to any other university or institute for the award of any degree or diploma.

Martinaveen sundar Reg. No. 16CN011)

Station: Madurai

Mr. M.RAMKUMAR (GUIDE)

Date: 26/04/2018

(An Autonomous Institution Affiliated to Anna University)

MADURAI - 625 015.



#### CERTIFICATE

Certified that this is a bonafide record of the 14CI410 Project II & Viva Voce done by Mr. M. Rajesh Kumar (16CN013) of Fourth Semester M.E. Control and Instrumentation Engineering during the year 2017 - 2018.

MR. M. VARATHARAJAN

Assistant Professor

N.Vant

Department of Electrical & Electronics Engg.

Station: Madurai

DR.S.BASKAR

Professor & Head

Department of EEE

Date: 2/5/18

Submitted for Viva-Voce examination held at Thiagarajar College of Engineering, Madural = 625 015, on 3 · 5 · 18

INTERNAL EXAMINER

QUANTY

EXTERNAL EXAMINER

H.D.E.E.

This is to certify that the I4CI410 Project likepoil suitled "IOT BASED

EFFICIENT CONTROL AND MONITORING OF WATER SUPPLY IN SMART

CITY", being submitted by Mr. M.RAJESH KUMAR (Reg.No.16CN013)in

partial fulfillment for the requirement of M.E. Degree in Control and

Instrumentation Engineering, is a record of bonafide work. The results embodied in this report have not been submitted to any other university or institute for the award of any degree or diploma.

Mr. M. RAJESH KUMAR (Reg No: 16CN013)

Station: Madurai

Mr. M. VARATHARAJAN
(GUIDE)

Date: 2/5/8

(An Autonomous Institution Affiliated to Anna University)

MADURAI - 625 015



#### CERTIFICATE

Certified that this is a bonafide record of the 14CI410 Project-II done by Ms. S.SADHANA (Reg.No. 16CN016) of Fourth Semester M.E. (Control and Instrumentation) during the year 2017-2018.

N. Vant 0 27 4/18

Mr. M. Varatharajan

(Assistant Professor)

Department of Electrical & Electronics Engg.

(Guide)

Station: Madurai

Dr.S.Baskar

Professor & Head,

Department of EEE

Date: 1 = /4/8

Submitted for VIVA-VOCE examination held at Thiagarajar College of

Engineering, Madurai – 625 015, on 3 - 5 - 2018

INTERNAL EXAMINER

EXTERNAL EXAMINER

This is to certify that the 14CI410 Project-II Report entitled "Design of robust fractional order PID controllers using multi-objective optimization", being submitted by S.SADHANA in partial fulfillment for the requirement of M.E. Degree in Control and Instrumentation is a record of bonafide work. The results embodied in this report have not been submitted to any other university or institute for the award of any degree or diploma.

S. Sadhana

Ms. S. SADHANA

(Reg.No. 16CN016)

Station: Madurai

Mr. M. VARATHARAJAN
(GUIDE)

Date: 2 7/4/18

(An Autonomous Institution Affiliated to Anna University) MADURAI = 625 015



Certified that this is a bonafide record of the 14CI410 Project done by Mrs. M.GAYATHRI (Reg. No. 16CN007) of Fourth Semester M.E (Control and Instrumentation Engineering) during the year 2017-2018

Dr.G.SIVASANKAR

Assistant Professor

Dept.of EEE

Guide

Station: Madurai

Dr.S. BASKAR

Professor & Head,

Dept. of EEE

Date: polos/W

Submitted for VIVA-VOCE examination held at Thiagarajar College of Engineering, Madural 625 015, on 63 05 13

INTERNAL EXAMINER

EXTERNAL EXAMINER (H.D.E.E.

This is to certify that the 14Cl340 Project Report entitled "INVESTIGATION ON CENTRALIZED MICRO-GRID CONTROLLERFOR HYBRID AC/DC MICRO-GRID NETWORK", being submitted by M.GAYATHRI in partial fulfillment for the requirement of M.Tech. Degree in Control and Instrumentation Engineering is a record of bonafide work. The results embodied in this report have not been submitted to any other university or institute for the award of any degree or diploma.

Mrs. M. GAYATHRI

(Reg. .No. 16CN007)

Station: Madurai

Dr. G. SIVASANKAR (GUIDE)

Date: 26-04-18

(An Autonomous Institution Affiliated to Anna University)

MADURAI - 625 015



#### CERTIFICATE

Certified that this is a bonafide record of the 14CI410 Project-II done by Mrs. M. ANUSUYA (Reg.No. 16CN002) of Fourth Semester M.E (Control & Instrumentation Engineering) during the year 2017-2018.

Mr .S. Surendhar

(Assistant Professor)

Department of Electrical & Electronics Engg.

(Guide)

Station: Madurai

Dr. S. Baskar

Professor & Head,

Department of EEE

Date: 25.04.2018

INTERNAL EXAMINER

EXTERNAL EXAMINER

H.D.E.E.

This is to certify that the 14C1410 Project -II Report entitled "Electro Magnetic Assisted Capacitive Deionization For Water Treatment", being submitted by M. ANUSUYA in partial fulfillment for the requirement of M.E. Degree in Control and Instrumentation Engineering is a record of bonafide work. The results embodied in this report have not been submitted to any other university or institute for the award of any degree or diploma.

Mrs. M. ANUSUYA

(Reg.No. 16CN002)

Station: Madurai

Mr.S. SURENDHAR (GUIDE)

Date: 25.04. 2018

(An Autonomous Institution Affiliated to Anna University) MADURAI - 625 015



## CERTIFICATE

Certified that this is a bonafide record of the 14C1410 Project done by Ms. P.GAYATHRI ( Reg.No.16CN008 ) of fourth Semester M.E. (Control and Instrumentation Engineering) during the year 2017-2018.

Dr.B.Ashok kumar

(Assistant Professor)

Department of Electrical & Electronics Engg.

(Guide)

Station: Madurai

Professor & Head,

Department of EEE

Date: 25.04 - 2018

Submitted for VIVA-VOCE examination held at Thiagarajar College of Engineering, Madurai - 625 015, on \_\_\_\_\_05/05/2018

INTERNAL EXAMINER CHAPLE.

This is to certify that the 14CI410 Project Report entitled "Analysis for control of converter in a single phase standalone solar pv system", being submitted by P.GAYATHRI in partial fulfillment for the requirement of M.E. Degree in Control and Instrumentation Engineering is a record of bonafide work. The results embodied in this report have not been submitted to any other university or institute for the award of any degree or diploma.

P. Gayatin

Ms. P.GAYATHRI

(Reg.No.16CN008)

Dr. B.ASHOK KUMAR (GUIDE)

Station: Madurai

Date: 25.04-2018

(An Autonomous Institution Affiliated to Anna University)

MADURAI - 625 015



## CERTIFICATE

Certified that this is a bonafide record of the 14CI410 Project-II done by Ms. M.A.J.PRIYA (Reg.No. 16CN012) of Final Semester M.E. (Control and Instrumentation) during the year 2017-2018.

Dr B.ASHOK KUMAR

Assistant professor,

Department of Electrical & Electronics Engg.

(Guide)

Station: Madurai

Dr. S. BASKAR

Professor& Head,

Department of EEE

Date: 24 - 04 - 2018

Submitted for VIVA-VOCE examination held at Thiagarajar College of

Engineering, Madurai – 625 015, on \_\_\_\_\_\_03 os \\_/

INTERNAL EXAMINER

EXTERNAL EXAMINER

SH.D.E.E.

This is to certify that the 14C1410 Project -II Report entitled "Performance Analysis of Single Phase PV System Using Intelligent controller In Standalone Mode", being submitted by M.A.J.PRIYA in partial fulfillment for the requirement of M.E. Degree in Control and Instrumentation is a record of bonafide work. The results embodied in this report have not been submitted to any other university or institute for the award of any degree or diploma.

Ms. M. A. J. PRIYA (Reg. No. 16CN012)

Station: Madurai

Dr. B. ASHOK KUMAR (GUIDE)

Date: 24-04-2018

(An Autonomous Institution Affiliated to Anna University)

## MADURAI - 625 015



## CERTIFICATE

Certified that this is a bonafide record of the 14CI410 Project done by

Ms. P.SUGANDRADEVI (Reg.No. 16CN018) of Four Semester M.E. (Control and Instrumentation Engineering) during the year 2017-2018.

Mr.S.Surendhar

(Assistant Professor)

Department of Electrical & Electronics Engg.

(Guide)

Station: Madurai

Dr.S.Baskar

Professor & Head,

Department of EEE

Date: 27/4/18

Submitted for VIVA-VOCE examination held at Thiagarajar College of Engineering,

Madurai - 625 015, on 03.05.2018

INTERNAL EXAMINER

EXTERNAL EXAMINER

This is to certify that the 14C1410 Project Report entitled "Stabilization of inverted pendulum using FOPID controller", being submitted by P.SUGANDRADEVI in partial fulfillment for the requirement of M.E. Degree in Control and Instrumentation Engineering is a record of bonafide work. The results embodied in this report have not been submitted to any other university or institute for the award of any degree or diploma.

Ms. P.SUGANDRADEVI

(Reg.No. 16CN018)

Station: Madurai

Mr.S. surendhar

(GUIDE)

Date: 27/4/18

(A Govt. Aided Autonomous Institution Affiliated to Anna University)

**MADURAI-625 015** 



## CERTIFICATE

Certified that this is a bonafide record of the 14CI410 Project-II done by Ms.J.RAMALAKSHMI (Reg.No 16CN014) of fourth semester M.E. (Control and Instrumentation) during the year 2017-2018.

Dr.V.Prakash

Associate professor

Department of Electrical and Electronics Engg

(GUIDE)

Station: Madurai

Dr.S.Baskar

Professor & Head

Department of EEE

Date: 25.04.2018

Submitted for VIVA-VOCE Examination held at Thiagarajar College of Engineering Madurai – 625 015, on

INTERNAL EXAMINER 05/2018

EXTERNAL EXAMINER

H.D.E.E. While

This is to certify that the 14CI410 Project-II Report entitled "Instrumentation For Efficiency Estimation Of Motors", being submitted by J.RAMALAKSHMI in partial fulfillment for the requirement of M.E Degree in Control and Instrumentation is a record of bonafide work. The results embodied in this report have not been submitted to any other University or institute for the award of any degree or diploma.

J. Labrett Ms. J. RAMALAKSHMI

(Reg.No.16CN014)

Station: Madurai

Dr. V. PRAKASH

(GUIDE)

Date: 25.04.2018

(An Autonomous Institution Affiliated to Anna University)

MADURAI - 625 015



#### CERTIFICATE

Certified that this is a bonafide record of the 14CI410 Project-II done by Mr. A. BENITTO (Reg.No. 16CN003) of Fourth Semester M.E (Control & Instrumentation Engineering) during the year 2017-2018.

Dr .V. Rrakash

(Associate Professor)

Department of Electrical & Electronics Engg.

Sarash .V.

(Guide)

Station: Madurai

Dr.S. Baskar

Professor & Head,

Department of EEE

Date: 25, 04, 2018

Submitted for VIVA-VOCE examination held at Thiagarajar College of Engineering, Madurai – 625 015, on 03.05.2018.

MARINER EXAMINER

EXTERNAL EXAMINER

P.S. Manes Blooms

This is to certify that the 14CI410 Project—II Report entitled "Design of Double Wound Rogowski Coil to Measure the Power Frequency AC Voltage", being submitted by A. BENITTO in partial fulfillment for the requirement of M.E. Degree in Control and Instrumentation Engineering is a record of bonafide work. The results embodied in this report have not been submitted to any other university or institute for the award of any degree or diploma.

Mr. A. BENITTO

(Reg.No. 16CN003)

Station: Madurai

Dr. V. PRAKASH (GUIDE)

Date: 25-04.2018

(An Autonomous Institution Affiliated to Anna University)

MADURAI - 625 015



## CERTIFICATE

Certified that this is a bonafide record of the 14CI410 Project-II done by Mrs. JENNIFER DELIGHTA.E ( Reg.No. 16CN009 ) of Fourth Semester M.E. (Control and Instrumentation) during the year 2017-2018.

Dr .S.Arockia Edwin Xavier,

Assistant Professor,

Department of Electrical & Electronics Engineering.

Dr.S.Baskar.

Professor& Head,

Department of EEE.

Station: Madurai

Date: 25.04.2018

Submitted for VIVA-VOCE examination held at Thiagarajar College of

Engineering, Madurai – 625 015, on \_\_\_\_\_ 03 os lg

EXTERNAL EXAMINER

This is to certify that the 14C1410 Project -II Report entitled "Implementation of Control Methods towards Wind Turbine Load Mitigation", being submitted by JENNIFER DELIGHTA.E in partial fulfillment for the requirement of M.E. Degree in Control and Instrumentation is a record of bonafide work. The results embodied in this report have not been submitted to any other university or institute for the award of any degree or diploma.

Mrs.E.Jennifer Delighta

(Reg.No: 16CN009)

Station: Madurai

Dr .S.Arockia Edwin Xavier
(GUIDE)

Date: 25.04.2018.

(An Autonomous Institution Affiliated to Anna University)

## MADURAI - 625 015



#### CERTIFICATE

Certified	that	this	is	a	bonafide	record	of the	14CI410	Project-II	done
by Ms.T.	ANG	ULAR	SH	IM.	I (Reg.N	o. 16CN	1001)	of Fourth	Semester	M.E.
(Control	and I	nstru	me	nte	ation) duri	ing the y	ear 20	17-2018.		

Mr. M. VARATHARAJAN

(Assistant Professor)

Department of Electrical & Electronics Engg.

(Guide)

Station: Madurai

Professor & Head,

Department of EEE

Date: 26/4/18

Submitted for VIVA-VOCE examination held at Thiagarajar College of Engineering, Madurai - 625 015, on \_\_\_ 3.5.18

INTERNAL EXAMINER EXTERNAL EXAMINER H.D.E.E.

This is to certify that the 14CI410 Project -II Report entitled "SLIDING MODE, CONTROL OF TWO DEGREE OF FREEDOM HELICOPTER WITH NON-LINEAR SLIDING SURFACE", being submitted by T.ANGULAKSHMI in partial fulfillment for the requirement of M.E. Degree in Control and Instrumentation is a record of bonafide work. The results embodied in this report have not been submitted to any other university or institute for the award of any degree or diploma.

Ms. T. ANGULAKSHMI

(Reg.No. 16CN001)

Station: Madurai

Mr. M. VARATHARAJAN
(GUIDE)

Date: 26/4/18

(An Autonomous Institution Affiliated to Anna University)

MADURAI - 625 015



#### CERTIFICATE

Certified that this is a bonafide record of the 14CI410 Project-II done by Ms. R.REENU (Reg. No. 16CN015) of Fourth Semester M.E. Control and Instrumentation during the year 2017-2018.

Mr. M. Varatharajan
Assistant Professor,
Electrical & Electronics Engg
(Guide)

Dr.S.Baskar,
Professor & Head,
Department of EEE

Date:

Submitted for VIVA-VOCE examination held at Thiagarajar College of Engineering, Madurai – 625 015, on 03 05 1

INTERNAL EXAMINER

Station: Madurai

EXTERNAL EXAMINER

This is to certify that the 14C1410 Project -II Report entitled "Lane Change Collision Warning Algorithm Based on Vehicle to Everything (V2X) Technology" being submitted by R.REENU in partial fulfillment for the requirement of M.E. Degree in Control and Instrumentation is a record of bonafide work. The results embodied in this report have not been submitted to any other university or institute for the award of any degree or diploma.

Ms. R.REENU

Reg.No. 16CN015

Mr. M. Varatharajan

(GUIDE)

Station: Madurai

Date: 25/4/18

(An Autonomous Institution Affiliated to Anna University)

## MADURAI - 625 015



#### CERTIFICATE

Certified that this is a bonafide record of the 14CI410 Project-II done by Ms.DHANALAKSHMI.T (Reg.No:16CN006) of Fourth Semester M.E. (Control and Instrumentation) during the year 2017-2018.

Dr .S.Arockia Edwin Xavier,

Assistant Professor,

Department of Electrical & Electronics Engineering.

Dr.S.Baskar,

Professor& Head,

Department of EEE.

Station: Madurai

Date: 25/04/2018

Submitted for VIVA-VOCE examination held at Thiagarajar College of Engineering, Madurai – 625 015, on \_\_\_\_\_\_\_\_.

INTERNAL EXAMINER

EXTERNAL EXAMINER

Scanned by CamScanner

This is to certify that the **14CI410** Project –II Report entitled "Feed Forward and Feed Back Control On Fault Ride Through In Doubly Fed Induction Generator Based Wind Turbine", being submitted by **DHANALAKSHMI.T** in partial fulfillment for the requirement of **M.E.** Degree in Control and Instrumentation is a record of bonafide work. The results embodied in this report have not been submitted to any other university or institute for the award of any degree or diploma.

T. Dhanalokshi

Ms.T. Dhanalakshmi

(Reg.No: 16CN006)

Station: Madurai

Dr .S.Arockia Edwin Xavier (GUIDE)

Date: 25/04/2018