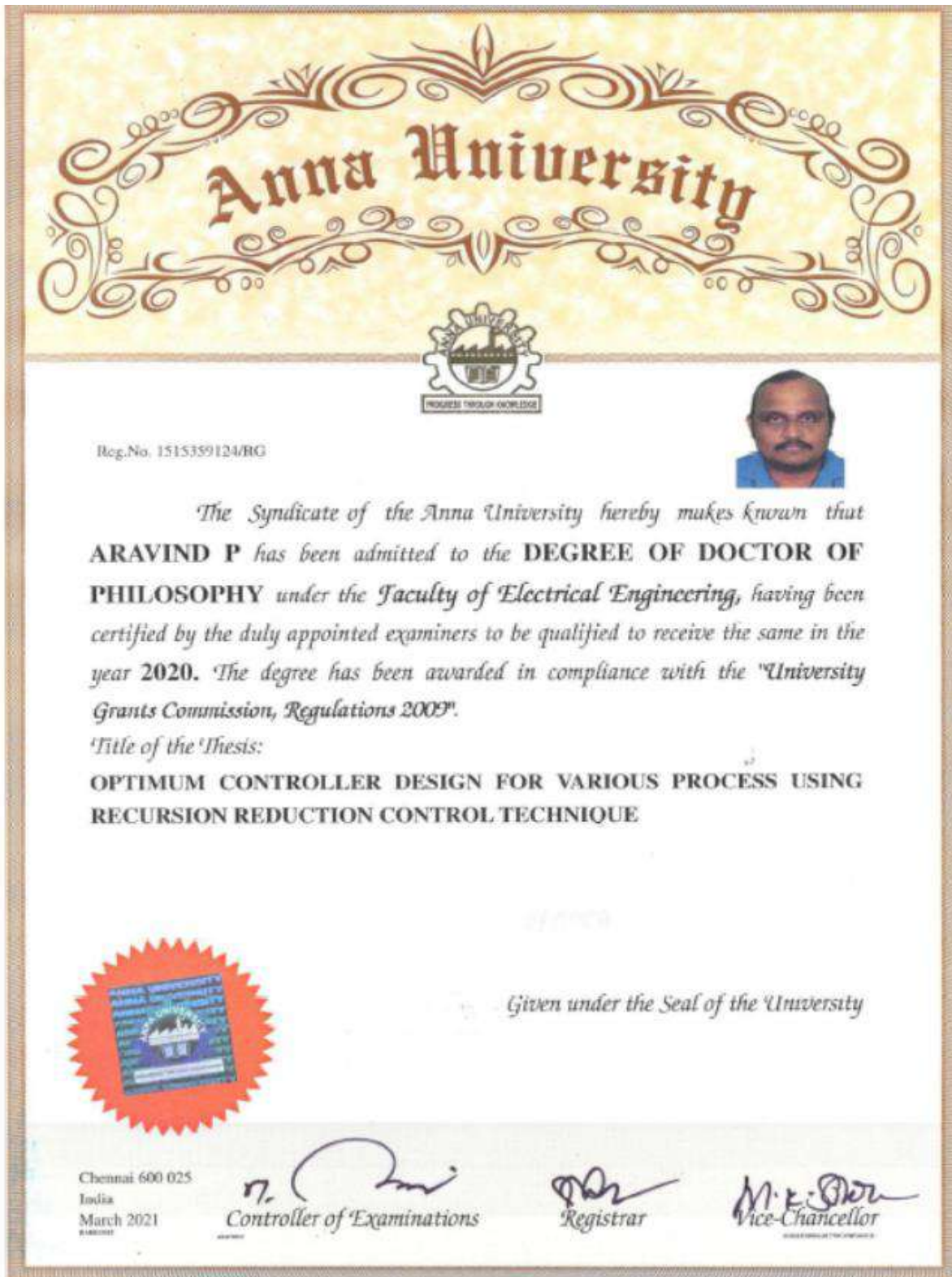


Guide Name: Dr S.M. Girirajkumar, Ph.D Scholar name: Mr. P. Aravind

Registered year: 2015, Completed Year: 2020

Ph.D. Degree from ANNA University



Ph.D Scholar name: Mr. P. Thirumurugan

Registered year: 2013, Completed Year: 2021

Ph.D. Provisional Certificate from ANNA University



# ANNA UNIVERSITY CHENNAI - 600 025

## PROVISIONAL CERTIFICATE

Folio No.: SAR013033

This is to certify that the candidate has qualified for the award of *Degree of Doctor of Philosophy* in compliance of the UGC Regulations 2009 as detailed below:

Name : THIRUMURUGAN P  
Registration Number : 1413379705  
Degree : Ph.D.  
Department/Centre/Subject : ELECTRICAL AND ELECTRONICS  
ENGINEERING  
Faculty : ELECTRICAL ENGINEERING  
Date, Month & Year of Viva-Voce Examination held : 16.07.2021  
Title of the Thesis : NOVEL MULTILEVEL INVERTER USING  
DIFFERENT PWM CONTROL TECHNIQUES  
FOR GRID CONNECTED PHOTOVOLTAIC  
SYSTEM





Controller of Examinations


Chennai - 600 025

Date: 18-AUG-2021

Guide Name: Dr M. Shanmugavalli, Ph.D Scholar name: Mr. R. Nirmal  
Registered year: 2019, Pursing

Progress Report first page from Anna University website


 **CENTRE FOR RESEARCH**  
ANNA UNIVERSITY, CHENNAI-600 025 

AR11 - Dt: 09-12-2021  Registration No.: 19123591139

**Yearly Progress Report January 2021 - December 2021**

1. Particulars of Research Scholar

Name	: Nirmal R
Faculty	: Electrical Engineering
Degree	: Ph.D.
Email	: nirmalpse@gmail.com
Contact No.	: 9894181238
Designation & Institution where employed (if applicable)	: Assistant Professor, Electrical & Electronics Engg.-Trichy engineering college, 621132



2. Registration Details

(a) Category of registration	: Part-Time
(b) Month & Year of Admission	: JAN & 2019
(c) Whether provisional registration confirmed? If yes, give reference No. and date	: Yes / No

3. Name of the Department / Centre where the research is conducted : Department of Electrical and Electronics Engineering

4. Particulars of the Supervisor / Joint Supervisor / Supervisor In-Charge / Research Co-Ordinator

**SUPERVISOR DETAILS:**

Name / Reference No.	: Dr. Shanmugavalli M / 2330217
Designation	: Professor
Department	: Department of Electrical and Electronics Engineering
Address	: Saranathan College of Engineering, Tiruchirappalli
Email / Mobile,	: muthusamyshanmugavalli@yahoo.com / 9865675481
Institute Code	: 4381608-Electrical and Electronics Engineering Saranathan College of Engineering, Tiruchirappalli

**JOINT SUPERVISOR / SUPERVISOR IN-CHARGE DETAILS:**

Joint Supervisor / Supervisor In-Charge	: Not Applicable
---	------------------

5. Tentative title of the Research work: FABRICATION OF NANO CARIOLIS FLOW METER

6. Duration of research outside the University (if applicable) :

7. Break of study period (if applicable) :

**Guide Name:** Dr M. Shanmugavalli,      **Ph.D Scholar name:** Mr. R. Nirmal  
**Registered year:** 2019, Pursing

**Progress Report submitted to Anna University**

**Progress Report of Ph.D Programme**

**[Duration JANUARY 2021-DECEMBER 2021]**

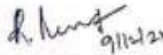
Name of the Scholar : R.NIRMAL  
Reg.No : 19123591139  
Research Topic : "FABRICATION OF NANO CORIOLIS FLOW METER"

**Works Carried Out:**

- I have completed all four course work which is recommended by the doctoral committee members in the first dc meeting which is held in January 2019
- I am planning and making all the arrangements regards to confirmation meeting of provisional registration of research work
- Study of various micromachining techniques (surface micromachining, bulk micromachining and lithography, electroforming and abforming) has been carried out
- The basics of comsol software which is used for micro electro mechanical design is studied.
- Learning of various components of comsol software and handling of their components are carried out. Partial design of micro level flow-meter is carried out in the comsol platform and various design parameters, constraints and applications are discussed with supervisor
- Detailed literature review on fabrication of micro electromechanical systems also carried out with some case studies.

**Webinar/ seminar attended:**

- Attended webinar titled "Best practices to increase chances of getting published in IEEE Journals" by EEE department, SRM TRP Engineering College, Trichy
- Attended webinar titled "IOT based home automation system using proteus simulation software Journals" by EEE department, Meenakshi Ramaswamy Engineering College, Ariyalur

  
Signature of the Candidate  
[R.NIRMAL]


  
Signature of the Supervisor  
Dr. M. SHANMUGAVALLI, BE, M.Tech, Ph.D,  
Professor,  
Dept. Electrical & Electronics Engineering,  
Saranathan College of Engineering,  
Tiruohirappalli - 620 012.


Guide Name: Dr M. Shanmugavalli,

Ph.D Scholar name: Ms. K.Ezhilarasi

Registered year: 2019, Pursing

Provisional Registration from Anna University

 **CENTRE FOR RESEARCH**  
ANNA UNIVERSITY  
CHENNAI - 600 025



Dr. K.P. JAYA  
DIRECTOR

Telephone : +91-44-2235 7366/2235 0361  
Fax : +91-44-2220 1213  
Email : dirresearch@annauniv.edu  
dirresearch@gmail.com

Lr.No.CFR/Ph.D./Admn/JAN/2020

Date : 23.12.2019

To  
Dr.M.Shanmugavalli  
Professor  
Department of Electrical and Electronics Engineering  
Saranathan College of Engineering  
Tiruchirappalli - 620 012

Sub: Ph.D. Programme - Provisional Registration - Order - Issued.

Ref: Res. No. 34.09 of the 34<sup>th</sup> Research Board Meeting held on 18.11.2019

\*\*\*\*

I am to inform that **Ms.Ezhilarasi K** is permitted to register provisionally for Ph.D. programme as **Part-Time** scholar in the Faculty of **Electrical Engineering** of Anna University, Chennai during **January 2020** session under your guidance.

Topic of Research: **NANO SENSOR FOR BIOMEDICAL APPLICATION**

The Research Scholar may be instructed to submit the Enrolment Form (accessed through the website <https://cfr.annauniv.edu/scholars/>) within a period of 15 days from the date of issue of this order. The research scholar should submit the Semester Progress Report and Registration Renewal Form in the prescribed format at the time of payment of regular semester fee, every semester.

The 50% of the programme fee paid will be refunded, if the candidate withdraws his/her admission within 30 days from the date of payment of fee and thereafter caution deposit only will be refunded in full, subject to conditions.

The Registration Number of the research scholar is **20243591181**.

In all future correspondence quote "**20243591181/Ph.D./AR11**" as reference. The research scholar will be governed by the "Regulations for Ph.D. Programme" of this University and any amendments are made to the Regulations from time to time.

*Jayal*  
23/12/19  
DIRECTOR

To  
1. Individual.  
2. The Head of the Department / Director of the Centre.  
3. The Head of the Institution of the scholar.

*[Signature]*  
23/12/19  
*[Signature]*  
23/12/19

Registered year: 2019, Pursing

Progress Report First page from Anna University website



CENTRE FOR RESEARCH  
ANNA UNIVERSITY, CHENNAI-600 025



AR11 - Dt: 13-12-2021

Registration No.: 20243591181

Yearly Progress Report January 2021 - December 2021

1. Particulars of Research Scholar

Name : Ezhilarasi K  
Faculty : Electrical Engineering  
Degree : Ph.D.  
Email : ezhil.haris@gmail.com  
Contact No. : 9629305667  
Designation & Institution where employed (if applicable) : Assistant Professor, Instrumentation And Control Engineering, Saranathan college of engineering, . 620012



2. Registration Details

(a) Category of registration : Part-Time  
(b) Month & Year of Admission : JAN & 2020  
(c) Whether provisional registration confirmed? : Yes / No  
If yes, give reference No. and date :

3. Name of the Department / Centre where the research is conducted : Department of Electrical and Electronics Engineering.

4. Particulars of the Supervisor / Joint Supervisor / Supervisor In-Charge / Research Co-Ordinator

**SUPERVISOR DETAILS:**

Name / Reference No. : Dr. Shanmugavalli M / 2330217  
Designation : Professor  
Department : Department of Electrical and Electronics Engineering  
Address : Saranathan College of Engineering, Tiruchirappalli  
Email / Mobile: muthusamyshamugavalli@yahoo.com / 9865675481  
Institute Code : 4381606-Electrical and Electronics Engineering  
Saranathan College of Engineering, Tiruchirappalli

**JOINT SUPERVISOR / SUPERVISOR IN-CHARGE DETAILS:**

Joint Supervisor / Supervisor In-Charge : Not Applicable

5. Tentative title of the Research work: NANO SENSOR FOR BIOMEDICAL APPLICATION

6. Duration of research outside the University (if applicable) :

7. Break of study period (if applicable)



Guide Name: Dr M. Shanmugavalli,

Ph.D Scholar name: Ms. K.Ezhilarasi

Registered year: 2019, Pursing

Progress Report submitted to Anna University

Progress Report of Ph.D Programme

[Duration JANUARY 2021-DECEMBER 2021]

Name of the Scholar : K.EZHILARASI

Reg.No : 20243591181

Research Topic : "NANO SENSOR FOR BIOMEDICAL APPLICATION"

With the recommendation of DC members, the following Course work paper related to my research work will be registered in the upcoming semester.

Course Work Registered in the upcoming semester:

Course Code	Course Title	Credits	Core Course/Elective/ Special Elective
CU5291	Advanced Wireless Communications System	3	Core Course
CU5096	Pattern Recognition And Machine Learning	3	Elective
TE5201	Instrumentation For Thermal Engineering	3	Core Course
FE1912	Nano Electronics	3	Special Elective

Works Carried Out:

- Study of various micromachining techniques (surface micromachining, bulk micromachining and lithography, electroforming) has been carried out
- The fundamental concept of Comsol and Intellisuite software has been learned through some defined structure models of various Bio sensors.
- Learning of various components in comsol software and handling of components available in software are carried out.
- Detailed Literature review on mathematic modeling of different flow meters has been carried out and also the performance analysis of bio sensors and flow meters with its applications are studied
- Different fabrication techniques of micro electro mechanical system has been carried out and their comparison of different techniques is studied

FDP Attended:

- Attended 3 day FDP titled "Research proposal: Writing and opportunities" organized by Government college of Technology, Coimbatore & ACUCET, Karaikudi

Signature of the Candidate

(K. EZHILARASI)

Signature of the Supervisor:

Dr. M. Shanmugavalli  
Professor,  
Dept. Electrical & Electronics En.  
Saraswathi College of Engineering,  
Tiruchirappalli - 620 012.