

Indian Institute of Technology  
Delhi

Upon the recommendation of the Senate  
hereby confers the degree of

Doctor of Philosophy

on

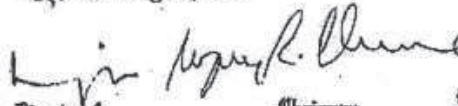
Ram Prakash Rustagi


Thesis title:

Studies in Concurrency Control for Centralized,  
Distributed and Nested Transaction Systems

Given this day under the seal of the Institute at Delhi in  
the Republic of India.

The 14<sup>th</sup> August, 1999

  
Director & Chairman,  
Chairman Senate Board of Governors

  
Registrar



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

HYDERABAD - 500 085, TELANGANA STATE, INDIA

TS 688185



H.T No. : 0703PH0614

*Ms. Rekha B Venkatapur*

*D/o. Venkatapur B*

having fulfilled the academic requirements in *June, 2016*

has this day been admitted by the Executive Council to the Degree of

*Doctor Of Philosophy*

*Computer Science And Engineering*

Topic : *A Robust Hierarchical Clustering Algorithm for Video Watermark*

Given under the Seal of the University

Date: 09-09-2016



*[Signature]*  
DEAN FOR EMERGENCY TRAINING  
*[Signature]*  
14-8-16

*[Signature]*  
REGISTRAR

*[Signature]*  
VICE CHANCELLOR



40281652772

PC NO  
316000364

K.S. INSTITUTE OF TECHNOLOGY  
- BENGALURU - 560 109



क्रमांक  
Serial No. 00216



अनुक्रमांक  
Enrollment No. PU10-7085

पैसिफिक उच्चतर शिक्षा और अनुसंधान अकादमी विश्वविद्यालय, उदयपुर

यह प्रमाणित किया जाता है कि

दयानन्दा आर बी

द्वारा विश्वविद्यालय के सम्बन्धित विनियमनों में विहित अपेक्षाओं को सफलतापूर्वक पूर्ण  
कर लेने पर विश्वविद्यालय प्रबन्ध मण्डल की अनुशंसा पर इन्हें वर्ष 2015 में

**अभियान्त्रिकी संकाय**

के कम्प्युटर साइन्स विभाग में

**विद्या-वाचस्पति**

की उपाधि प्रदान की गयी है।

शोध का विषय था सेक्यूरिटी एंड डाटा इन्टिग्रिटी यूजिंग एट्रिब्यूट  
बेस्ड एन्क्रिप्शन ऑन क्लाउड

Pacific Academy of Higher Education and Research University, Udaipur

This is to certify that on the recommendation of  
the Board of Management of the University

DAYANANDA R.B.

has been conferred the degree of

**Doctor of Philosophy**

in the Department of Computer Science

**In Faculty of Engineering**

on successful fulfillment of the requirements prescribed

under the relevant regulations of the University in the year of 2015.

The topic of research was Security and data integrity using attribute  
based encryption on cloud



निर्गमन दिनांक: 18 मार्च, 2016  
Date of Issue: 18<sup>th</sup> March, 2016

प्रिंसिपल  
Prinidona

13PHD1033

Sl. No. 103470



The Board of Management of the  
Vellore Institute of Technology (VIT)  
hereby confers on

DEEPA S.R

the degree of

DOCTOR OF PHILOSOPHY

in recognition of the research work entitled

**BIO-INSPIRED CLUSTER OPTIMIZATION IN WIRELESS SENSOR NETWORK**

for having fulfilled the prescribed requirements.

The degree has been awarded in compliance with the  
"University Grants Commission, Regulation 2009"

given this day the 14 September 2020

Given under the seal of this university



*R.B. Kockali*  
Vice - Chancellor

*[Signature]*  
Chancellor

Dated : 19-Oct-2020

Vellore - 632 014, Tamil Nadu, India



VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI  
KARNATAKA, INDIA



*This is to certify that*

SWATHI K

*has been conferred the Degree of*

**Doctor of Philosophy**

*in*

FACULTY OF COMPUTER & INFORMATION SCIENCES

*for the thesis entitled*

EXPLORATION MODEL FOR SOFTWARE DEFECT PREDICTION TO  
ENHANCE QUALITY OPTIMIZATION IN SMALL AND MEDIUM LEVEL  
SOFTWARE FIRMS

*in recognition of the fulfillment of requirements  
for the said degree*

PH 000793 Given under the seal of the University  
19

USN: 1EW16PEJ02



BELAGAVI

DATE

APRIL 03, 2021

*He*  
en/21

  
VICE CHANCELLOR

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI  
KARNATAKA, INDIA



*This is to certify that*

VANEETA M

*has been conferred the Degree of*

**Doctor of Philosophy**

*in*

FACULTY OF COMPUTER & INFORMATION SCIENCES

*for the thesis entitled*

NOVEL KEY DISTRIBUTION AND SECURITY FRAMEWORK FOR NODE  
LEVEL COMMUNICATION FOR WIRELESS SENSOR NETWORKS

*in recognition of the fulfillment of requirements  
for the said degree*

PH  
19 001635

Given under the seal of the University

USN: 1KS15PEJ04



BELAGAVI

DATE : MARCH 10, 2022

VICE CHANCELLOR



CC 051364

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR



ANANTAPUR - 515 002, ANDHRA PRADESH, INDIA

H.T.No: 0803PH0822

*Pattipathi Naga Sudha*

*D/o Ranga Reddy B*

*having fulfilled the academic requirements in November, 2013 has this day  
been admitted by the Monitoring & Development Committee to the Degree of*

*Doctor of Philosophy*

**(Electronics & Communication Engineering)**

**for the Thesis entitled,  
"SPEECH COMPRESSION AND ERROR CORRECTION FOR MOBILE  
COMMUNICATION"**

*Monday, 16 December, 2013.*

**Given under the Seal of the University**





**Director of Evaluation**



**Registrar**



**Vice Chancellor**



# JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

HYDERABAD - 500 085, TELANGANA STATE, INDIA

TS 688303



H.T No. : 0803PH08A42

*Ms. Surekha Borra*

*D/o. Venkata Narayana*

having fulfilled the academic requirements in *February, 2015*

has this day been admitted by the Executive Council to the Degree of

*Doctor Of Philosophy*

*Electronics & Communication Engineering*

Topic : Image Data Hiding for Copyright Protection based on Visual  
Cryptography Schemes

Given under the Seal of the University -

Date:17-09-2016



*Csf*

DIRECTOR OF EVALUATION

*Hadiya*

REGISTRAR

*Alessy*

VICE-CHANCELLOR



460201552883

PC No  
21777026418



ENROLMENT NO.: AU141787



Hereby confers the degree of

**DOCTOR OF PHILOSOPHY**



In  
**Electronics & Communication Engineering**  
on

**Sangappa**

who has fulfilled all the requirements prescribed  
under the regulations and successfully defended the thesis on

14th, July 2017

entitled

**A Cross Layer Architecture Based Robust Routing Protocol for  
Inter-Vehicular Communication in VASNET**

एतद् द्वारा प्रदात करता है

**डॉक्टर ऑफ फिलॉसफी**

की उपाधि

इलेक्ट्रॉनिक्स एण्ड कम्युनिकेशन इंजीनियरिंग

में

**संगप्पा**

को उसके द्वारा उपाधी हेतु विविध विधि सभी आवश्यकताओं को पूर्णकर अपने शोध प्रबंध को

14 जुलाई 2017 में

सफलतापूर्वक प्रस्तुत करने पर, जिसका शीर्षक है :

**अ क्रॉस लेयर आर्किटेक्चर बेस्ड रोबस्ट राउटिंग प्रोटोकॉल फॉर इन्टर-वीकूलर  
कम्युनिकेशन इन वासनेट**

Given this day under the seal of the University at Raisen  
(Madhya Pradesh) in the Republic of India

Registrar

Date : 20/02/2018  
Raisen (M.P.) India

Vice-Chancellor

JUC 70029

JGI



## JAIN UNIVERSITY

Declared as Deemed-to-be University u/s 3 of the UGC Act, 1956  
vide MHRD Notification No. F-9-51/2007-13(A)

*We, the Chancellor, Vice Chancellor,  
Members of the Board of Management &  
Academic Council of Jain University certify that*

**B Sudarshan**

*having been examined in February-2017  
with Reg. No. 10PPECE146  
has been conferred with the Degree of*

**DOCTOR OF PHILOSOPHY**  
*in Electronics Engineering*

*by Jain University, Bengaluru  
on the 6<sup>th</sup> day of January 2018.  
In Testimony whereof are set the seal of the  
said University and the signature of the  
said Vice Chancellor*

Date : 06.01.2018

*N. Sundarshan*  
Vice Chancellor

## जैन विश्वविद्यालय

विश्वविद्यालय अनुदान आयोग अधिनियम, 1956 के अनुभाग 3 के अन्तर्गत मान्य संस्थापन विकास मंत्रालय की  
अभिज्ञान संख्या एफ. 9-57/2007-13(A) के द्वारा स्वयंविश्वविद्यालय के रूप में घोषित

हम, जैन विश्वविद्यालय के कुलाधिपति, कुलपति,  
प्रबन्धन परिषद् के सदस्य एवं  
शिक्षा समिति, प्रमाणित करते हैं कि

**बि. सुदर्शन**

जिनकी पंजीयन संख्या 10PPECE146 है,  
फरवरी - २०१७ के परीक्षोपरांत

पीएच. डी.  
विद्युन्मान अभियांत्रिकी

की उपाधि में उत्तीर्ण हुए।  
जैन विश्वविद्यालय, बेंगलूरु की ओर से  
दिनांक ६ जनवरी २०१८ को इन्हें यह उपाधि  
प्रदान की गई है, जिसके प्रमाण स्वरूप उक्त  
विश्वविद्यालय की मोहर एवं  
उक्त कुलपति के हस्ताक्षर अंकित हैं।

*बि. सुदर्शन*  
कुलपति





## International Institute of Information Technology Bangalore

The Governing Body upon the recommendation of  
the Senate of the Institute hereby confers upon

**Joy Prabhakaran M**

the degree of

**Doctor of Philosophy**

given this Eighth day of July

Two Thousand and Eighteen at Bangalore.

S. Sadagopan

Director

S.R. Sridhar

Registrar

S. Gopalakrishnan

Chairman

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM  
KARNATAKA, INDIA



*This is to certify that*

**CHANDA V REDDY**

*has been conferred the Degree of*

**Doctor of Philosophy**

*in*

*Faculty of Electrical & Electronics Engineering Sciences*

*for the thesis entitled*

*Bit Loading Algorithm With Optimised Bitrate And Power  
Allocation In Wireless Communication System*

*in recognition of the fulfillment of requirements  
for the said degree*

PH  
13 001433

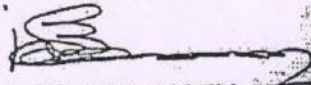
Given under the seal of the University:

USN: 1RV10PEN01



BELGAUM

DATE : March 18, 2019

  
VICE CHANCELLOR



VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI  
KARNATAKA, INDIA



*This is to certify that*

REKHA N

*has been conferred the Degree of*

**Doctor of Philosophy**

*in*

FACULTY OF ELECTRICAL & ELECTRONICS ENGINEERING SCIENCES

*for the thesis entitled*

NOISE CANCELLATION IN GSM LOGICAL CHANNEL USING SEARCH  
ALGORITHM

*in recognition of the fulfillment of requirements  
for the said degree*

PH  
19 000746

Given under the seal of the University

USN: 1KS14PEM01



BELAGAVI

DATE

: APRIL 03, 2021

  
VICE CHANCELLOR

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI  
KARNATAKA, INDIA



*This is to certify that*

DEVIKA B

*has been conferred the Degree of*

**Doctor of Philosophy**

*in*

FACULTY OF ELECTRICAL & ELECTRONICS ENGINEERING SCIENCES

*for the thesis entitled*

OPTIMIZING POWER IN AD HOC NETWORKS

*in recognition of the fulfillment of requirements  
for the said degree*

PH 000811 Given under the seal of the University  
19

USN: 1KS14PEM03



BELAGAVI  
DATE : APRIL 03, 2021

  
VICE CHANCELLOR



VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI  
KARNATAKA, INDIA



*This is to certify that*

DINESH KUMAR D S

*has been conferred the Degree of*

**Doctor of Philosophy**

*in*

FACULTY OF ELECTRICAL & ELECTRONICS ENGINEERING SCIENCES

*for the thesis entitled*

A NOVEL MULTI ALGORITHM BASED SPEECH & FACE RECOGNITION  
(MULTI MODAL) SYSTEM FOR THE ANALYSIS OF FAR & FRR

*in recognition of the fulfillment of requirements  
for the said degree*

PH  
19 001061

Given under the seal of the University

USN: 1TJ12PEN04



BELAGAVI

DATE : APRIL 03, 2021

VICE CHANCELLOR





# Indian Institute of Technology, Madras


*hereby confers the degree of*  
**Doctor of Philosophy**  
*of the Institute*  
*on*

**VENKATESWARA ALIAS BALAJI K**

*for successfully completing the prescribed programme of study and  
presenting the thesis entitled*

**A STUDY OF SOME PSYCHOLOGICAL ANTECEDENTS  
IN INDUSTRIAL ACCIDENTS**

*Given this day the Twentysixth of July, 1996  
under the seal of the Institute.*

  
PRINCIPAL  
K.S. INSTITUTE OF TECHNOLOGY  
BENGALURU - 560 109.



*Benfano J -*  
Registrar

*R. Narayan*  
Director

*D. S. Rameshwarthi*  
Chairman, Board of Governors



Registration No.



03221012A



**National Institute of Technology Karnataka, Surathkal**

hereby confers the degree of

**Doctor of Philosophy**



on

*Dilip Kumar K*

in recognition of the research work on

*Computer Aided Prediction Of Forming Severity In L-Bending Of Aluminum Sheet Metal*

carried out in the Department of

**Mechanical Engineering**

and completed all the requirements

in May 2009

Given under the seal of the Institute,

on 5<sup>th</sup> May 2010



*H. Prasad*  
Registrar

*A. Srinivas*  
Director

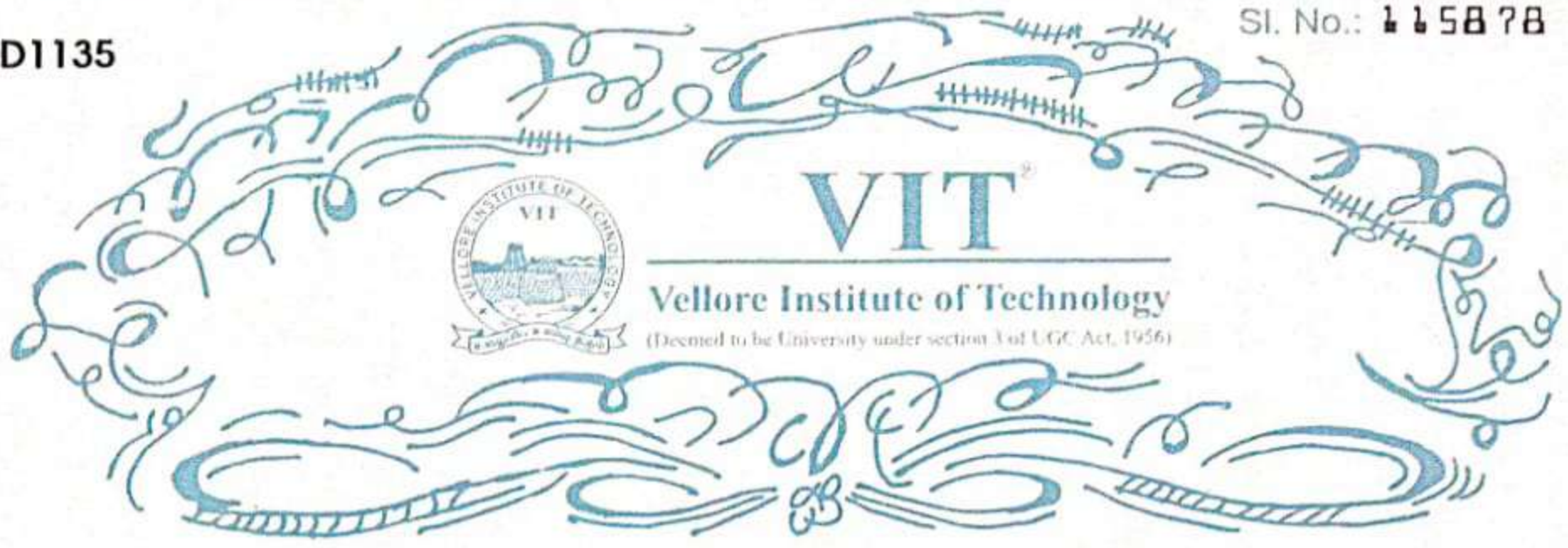
*C. M. Venkatesh*  
Chairman, Board of Governors

Sl. No. PH09036



13PHD1135

Sl. No.: 115878



The Board of Management of the  
Vellore Institute of Technology (VIT)  
hereby confers on

**M UMASHANKAR**

*the degree of*

**DOCTOR OF PHILOSOPHY**

*in recognition of the research work entitled*

**TRIBOLOGICAL STUDIES ON ZINC-ALUMINIUM CAST ALLOYS**

*for having fulfilled the prescribed requirements.*

*The degree has been awarded in compliance with the  
"University Grants Commission, Regulation 2009"*

*given this day the 16 June 2021*

*Given under the seal of this university*



*R B Iccidelli*  
Vice - Chancellor

*[Signature]*  
Chancellor

Dated: 08-Oct-2021

Vellore - 632 014, Tamil Nadu, India



VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI  
KARNATAKA, INDIA



*This is to certify that*

**NAGAPRASAD K S**

*has been conferred the Degree of*

**Doctor of Philosophy**

*in*

*Faculty of Mechanical Engineering Sciences*

*for the thesis entitled*

*A Study on Effect of Fluid Injection on Diesel Engine  
Performance and Emissions*

*in recognition of the fulfillment of requirements  
for the said degree*

PH  
19 000332

Given under the seal of the University

USN: 1DA08PMN03



BELAGAVI

DATE : Feb 08, 2020

VICE CHANCELLOR



*This is to certify that*

**GIRISH T R**

*has been conferred the Degree of*

**Doctor of Philosophy**

*in*

*Faculty of Mechanical Engineering Sciences*

*for the thesis entitled*

*Development And Characterization of Hybrid Composite Using  
Jute And Glass Fiber*

*in recognition of the fulfillment of requirements  
for the said degree*

PH  
13

001511

Given under the seal of the University

USN: 5VX12PMN37



BELGAUM  
DATE

: March 18, 2019

VICE CHANCELLOR



**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR**  
ANANTHAPURAMU - 515 002, ANDHRA PRADESH, INDIA

CC 067139

H.T.No:10PH0340

Aadhaar No:890764913798



*L Nirmala*

*D/o. L Rangaiah  
&  
Lingutla Ramathulasi*

*having fulfilled the academic requirements in August, 2019 has this day  
been admitted by the Executive Council to the Degree of*

*\*\*\* Doctor of Philosophy \*\*\**  
(Mechanical Engineering)

for the Thesis entitled,  
"STUDIES ON ABRASIVE WEAR, CORROSION RESISTANCE AND MICROSTRUCTURAL  
PROPERTIES OF ZA27 NICKEL ALLOY"

Date of Viva Voce : 24.08.2019 Given under the Seal of the University  
Saturday, 24 April, 2021.



  
DIRECTOR OF EVALUATION

  
REGISTRAR

  
VICE CHANCELLOR



P-020

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD  
HYDERABAD - 500 085, TELANGANA STATE, INDIA

S 1503275



T No.: 0903PH1526

*Mr. Saleem Khan*

*S/o. Gulam Hussain*

has fulfilled the academic requirements in *November - 2020*

and has been admitted by the Executive Council to the Degree of

*Doctor of Philosophy*

*Mechanical Engineering*

Topic: "Development of Hybrid Al6061-Si<sub>3</sub>N<sub>4</sub>-C<sub>f</sub> Metal Matrix Composite".

Given under the Seal of the University

Date: 26-02-2022



*[Signature]*

RECTOR OF EVALUATION

*[Signature]*

PROVOST

*[Signature]*

VICE CHANCELLOR



410114100092

PC No  
320001720





*This is to certify that*

JALAJA P

*has been conferred the Degree of*

**Doctor of Philosophy**

*in*

FACULTY OF APPLIED SCIENCES (MATHEMATICS)

*for the thesis entitled*

A NUMERICAL STUDY OF UNSTEADY INCOMPRESSIBLE BOUNDARY  
LAYER THROUGH DOUBLE CHOKING SUPERSONIC EJECTORS

*in recognition of the fulfillment of requirements  
for the said degree*

PH  
19 001156

Given under the seal of the University

USN: 1EW15PGJ04



BELAGAVI

DATE : APRIL 03, 2021

VICE CHANCELLOR



ವಿಶ್ವವಿದ್ಯಾಲಯದ ಕುಲಾಧಿಪತಿ, ಸಮಕುಲಾಧಿಪತಿ, ಕುಲಪತಿ,  
*We, the Chancellor, the Pro-Chancellor, the Vice-Chancellor,*  
 ವಿದ್ಯಾವಿಷಯಕ ಪರಿಷತ್ತು ಮತ್ತು ಸಿಂಡಿಕೇಟ್ ಸದಸ್ಯರಾದ ನಾವು  
*the members of the Academic Council and the Syndicate*

**Certify that**

**KIRAN KUMAR S R**

ಇವರು ಪರೀಕ್ಷಕರಿಂದ ಪರೀಕ್ಷಿಸಲ್ಪಟ್ಟು, ಪರೀಕ್ಷಕರ ಮಂಡಳಿಯ ಶಿಫಾರಸ್ಸಿನಂತೆ,  
*on the recommendation of the Board of Examiners, admitted to the degree of*

**Doctor of Philosophy**  
**(Chemistry)**

ಪದವಿಗೆ ಅರ್ಹರಾಗಿರುತ್ತಾರೆಂದು ಪ್ರಮಾಣೀಕೃತವಾಗಿರುವುದರಿಂದ  
*in recognition of the fulfilment of requirements*  
 ೩೦ನೇ ಘಟಿಕೋತ್ಸವದಲ್ಲಿ ಸದರಿ ಪದವಿಗೆ ಇವರನ್ನು ಅಂಗೀಕರಿಸಲಾಗಿದೆ.  
*for the said Degree at the THIRTIETH Convocation*

ಅಧಿಸೂಚನೆ ದಿನಾಂಕ / Date of Notification : 12/06/2019

ಘಟಿಕೋತ್ಸವ ದಿನಾಂಕ / Date of Convocation : 29th July 2020

ವಿಶ್ವವಿದ್ಯಾಲಯದ ಮೊಹರಿನೊಂದಿಗೆ ನೀಡಲಾಗಿದೆ.

*Given under the seal of the University.*



Jnana Sahyadri, Shankaraghatta-577451  
 Shivamogga District,  
 Karnataka, India

Date of Issue : 29/07/2020

KUS



*Jnana Sahyadri*

ಕುಲಪತಿ

Vice-Chancellor





பாரதியார் பல்கலைக் கழகம்  
Bharathiar University

அறிவியல் புலம்  
FACULTY OF SCIENCE

பாரதியார் பல்கலைக் கழகத்தார்ல்

முறையாக

அமைக்கப்பட்ட

தேர்வாளர்

குழு.

ரேணுகா ச,

2018 ஆம் ஆண்டு, நவம்பர் 22 ஆம்

நாளில்

இயற்பியல்

என்னும்

பிரிவில்

ஆய்வியல் அறிஞர்

என்னும்

பட்டம்

பெறத்

தகுதியடைந்திருப்பதாகச்

சான்றளித்ததை

எற்று,

அவருக்கு

அந்தப்

பட்டத்தைப்

பல்கலைக்

கழக

இலச்சிளையுடன்,

பாரதியார் பல்கலைக் கழக

ஆட்சிக்

குழு

வழங்குகின்றது.

The Syndicate of the Bharathiar University hereby makes known that RENUKA C has been admitted to the Degree of DOCTOR OF PHILOSOPHY in PHYSICS, having been certified by duly appointed Examiners to be qualified to receive the same on 22nd NOVEMBER 2018.

Given under the Seal of the University.



சோயம்புத்தூர்

Coimbatore

41953463

நாள்

தேர்வாளையார்(பொ)

பதிவாளர்(பொ)

Registrar (I/c)

Vice-Chancellor

துணைவேந்தர்

Dated: 18th December 2019 Controller of Examinations i/c  
ISSUED ON - 3 OCT 2020



VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI  
KARNATAKA, INDIA



*This is to certify that*

VENKATARAMANA B S

*has been conferred the Degree of*

**Doctor of Philosophy**

*in*

FACULTY OF APPLIED SCIENCES (MATHEMATICS)

*for the thesis entitled*

STUDIES ON POWER EXPONENTIAL MEAN IN SEVERAL VARIABLE  
AND ITS APPLICATIONS

*in recognition of the fulfillment of requirements  
for the said degree*

PH  
19 001822

Given under the seal of the University

USN: IJS15PGJ05



BELAGAVI

DATE : MARCH 10, 2022

VICE CHANCELLOR