



This is to certify that **DEBASMITA MISHRA** 

from

### VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, BURLA

has participated the Online Training Program on

3D MODELING OF MECHANICAL SYSTEMS

conducted on 20 May 2020.

M

Mr. Damodara M S
Business Manager,
Entuple Technologies Pvt. Ltd.



### LENDI INSTITUTE OF ENGINEERING AND TECHNOLOGY

AN AUTONOMOUS INSTITUTE UNDER JNTU, KAKINADA
Accredited by NAAC with 'A' Grade & NBA
Jonnada (Village), Denkada (Mandal ), Vizianagaram Dist. – 535 005.
Phone No. 08922-241111, 241112
E-Mail: lendi\_2008@yahoo.com Website: www.lendi.org

### Certificate of Participation

Proudly Presented to

### Dr. DEBASMITA MISHRA

**Assistant Professor** 

Veer Surendra University of Technology, Burla

for participating in the 3-Day Faculty Development Programme on "Advanced Material Characterization Techniques"- A Research perspective orgainized by the Department of Mechanical Engineering, Lendi Institute of Engineering and Technology, from 28th-30th May, 2020.

Pradeep Kumar M Convenor

Dr. S. Srikiran
Head of the Department

Dr. V.V. Rama Reddy Principal

V. V ~ J







This is to certify that **DEBASMITA MISHRA** 

from

### VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, BURLA

has participated the Online Training Program on

### INTRODUCTION TO ANSYS WORKBENCH

conducted on 21 May 2020.

N

Mr. Damodara M S
Business Manager,
Entuple Technologies Pvt. Ltd.





This is to certify that **DEBASMITA MISHRA** 

from

### VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, BURLA

has participated the Online Training Program on

### MATERIAL CHARACTERIZATION USING NANATOM

conducted on 25, 26 & 27 May 2020.

M

Mr. Damodara M S
Business Manager,
Entuple Technologies Pvt. Ltd.





This is to certify that **DEBASMITA MISHRA** 

from

VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, BURLA

has participated the Online Training Program on

INTRODUCTION TO THERMAL ANALYSIS

conducted on 02 June 2020.

N

Mr. Damodara M S
Business Manager,
Entuple Technologies Pvt. Ltd.





This is to certify that **DEBASMITA MISHRA** 

from

### VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, BURLA

has participated the Online Training Program on

### INTRODUCTION TO OPTIMIZATION TECHNIQUES

conducted on 04 June 2020.

N

Mr. Damodara M S
Business Manager,
Entuple Technologies Pvt. Ltd.



### **TEQIP Online Certification**



(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

### **Dr. Debasmita Mishra**VSS University of Technology, Burla

for successfully completing the 2 week course on

### Digital Transformation In Teaching Learning Process

(March 16th to March 30th, 2020)

Prof. P M Khodke Central Project Advisor NPIU, TEQIP III Prof. Sridhar Iyer Instructor IDP-ET, IIT Bombay Dr. Sameer Sahasrabudhe Instructor IDP-ET, IIT Bombay











2aMqKM0E0W

Supported by





### MLR INSTITUTE OF TECHNOLOGY

(AUTONOMOUS)

**Department of Aeronautical Engineering** 

### Certificate of Participation

THIS TO CERTIFY THAT

### **Debasmita Mishra**

has participated in one week Faculty Development program titled "Manufacturing and Analysis of Advanced Materials and Engineering Structure" organized by Department of Aeronautical Engineering, MLR Institute of Technology from 26-05-2020 to 30-05-2020.

Head of the Department

**AERONAUTICAL - MLRIT** 

Principal

MLRIT

supported by T.E.M.S Academy - https://academy.wingsofaero.in





2aMqKM0E0W

Supported by





### MLR INSTITUTE OF TECHNOLOGY

(AUTONOMOUS)

**Department of Aeronautical Engineering** 

### Certificate of Participation

THIS TO CERTIFY THAT

### **Debasmita Mishra**

has participated in one week Faculty Development program titled "Manufacturing and Analysis of Advanced Materials and Engineering Structure" organized by Department of Aeronautical Engineering, MLR Institute of Technology from 26-05-2020 to 30-05-2020.

Head of the Department

**AERONAUTICAL - MLRIT** 

Principal

MLRIT

supported by T.E.M.S Academy - https://academy.wingsofaero.in

### Aditya Institute of Technology & Management, Tekkali

An Autonomous Institution Affiliated to JNTUK, Kakinada
Accredited by NBA; NAAC A+ Grade; Recognized by UGC under 2(f) & 12(B)
K.Kotturu, Tekkali-532201, Srikakulam, Andhra Pradesh-India
https://www.adityatekkali.edu.in/

### Certificate

One week Faculty Development Program on

### "Advanced Manufacturing Enterprise in Digital Era"

This is to certify that

### Dr. DEBASMITA MISHRA

ASSISTANT PROFESSOR VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, BURLA

has participated in One week Online Faculty Development Program on "Advanced Manufacturing Enterprise in Digital Era" Organized by Department of Mechanical Engineering from 1st to 5th June 2020

Dr.D.Sreeramulu Convenor Dr.C.J.Rao HoD-ME Dr.A.S.Srinivasa Rao Principal Prof.V.V.Nageswara Rao Director



### Outcome Based Education Software

Course Outcome and Program Outcome Attainment

www.vmedulife.com

### vmedulife®

### CERTIFICATE

This is to certify that

Dr.Debasmita Mishra

from

Veer Surendra Sai University of Technology, Burla

has attended webinar for faculty development program on

### "Outcome Based Education Software"

organised by vmedulife software services on 14th May, 2020.











### MLR INSTITUTE OF TECHNOLOGY

(AUTONOMOUS)

**Department of Aeronautical Engineering** 

### Certificate of Participation

THIS TO CERTIFY THAT

Dr.Debasmita Mishra

Veer Surendra Sai University of Technology, Burla

has participated in one week *Faculty Development Program* titled "Manufacturing and Analysis of Advanced Materials and Engineering Structure" organized by Department of Aeronautical Engineering, MLR Institute of Technology from 26-05-2020 to 30-05-2020.

W.S.W.

Head of the Department
Aeronautical Engineering, MLRIT

Principal MLRIT CERTIFICATE

DESIGN OF EXPERIMENTS: AN ENGINEERING PERSPECTIVE

PROUDLY PRESENTED TO

### **Debasmita Mishra**

Veer Surendra Sai University of Technology, Burla

For active participation in the three days online workshop on "Design of Experiments: An Engineering Perspective" organized by Journal of Advanced Engineering Research & powered by hexacube India, on 22<sup>nd</sup>, 23<sup>rd</sup> & 24<sup>th</sup> April 2020.







jaeronline.com



Unique Number: JAER20W01C86
Online Verification Link: jaeronline.com/verify-certificate







### 1<sup>ST</sup> INTERNATIONAL FACULTY DEVELOPMENT PROGRAM

ON

"RESEARCH AND DEVELOPMENT IN MATERIALS BEHAVIOUR, PROCESSING AND CHARACTERIZATION TECHNIQUES"

Sr. No. 87

### Certificate of Participation

This is to certify that Prof./Dr./Mr./Ms./Mrs. DEBASMITA MISHRA

from Veer Surendra Sai University of Technology, Burla

has successfully completed One Week ONLINE International Faculty Development Program on Research and Development in Materials Behaviour, Processing and Characterization Techniques from 9<sup>th</sup> - 14<sup>th</sup> June, 2020 organised by Department of Mechanical Engineering, GLA University, Mathura in association with The Indian Institute of Metals (IIM), Mathura Chapter and Panjab University, Chandigarh.

Prof. Piyush Singhal
Chairman
IIM Mathura Chapter

FDP Coordinator
GLA University, Mathura

Panjab University, Chandigarh

Prof. R.K. Dwivedi FDP Coordinator MANIT, Bhopal







### ALL INDIA COUNCIL FOR TECHNICAL EDUCATION

Nelson Mandela Marg, Vasant Kunj, New Delhi – 110 070

### **AICTE Training And Learning (ATAL) Academy**

### **Certificate**

This is certified that JANAKI DEHURY, Assistant Professor of VSSUT participated & completed successfully AICTE Training And Learning (ATAL) Academy Online FDP on "3D Printing & Design" from 2021-1-18 to 2021-1-22 at Veer Surendra Sai University of Technology (VSSUT).

Muchasone

**Director ATAL Academies** 





Coordinator

### HONOUR CODE CERTIFICATE Issued: 1 January, 2020



### **Subhadra Sahoo**

### SSA101x: Hands-on training on Solar Study Lamp Assembly

An online course, recognized by Skill Council for Green Jobs, conducted from 01 May 2019 to 31 Dec 2019 for Student Solar Ambassador Workshop 2019.

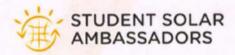
This course is offered by IITBombayX, an online learning initiative of Indian Institute of Technology Bombay.

9

Chetan Singh Solanki
Professor, Dept of Energy Science and Engineering
IIT Bombay







### VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, ODISHA



### CENTRE FOR DISTANCE AND CONTINUING EDUCATION



### CERTIFICATE OF PARTICIPATION

This is to certify that

Ms. SUBHADRA SAHOO

VSSUT, BURLA

has participated in

TEQIP III Sponsored One Week Faculty Development Programme (FDP)

on

Design and Development of Materials for Technological Applications (D-MTA)

Organized by Department of Physics

from 21st October to 26th October, 2019

Dr. A.K. Pattanaik

Dr. S. K. Patri

Dr. M. P. K. Sahoo

Coordinators, D-MTA 2019

Prof. U. R. Jena

Dean CDCE & Head Physics



The Path for Success...!
#345, 6th Main, H Block, R K Nagar, Mysuru - 570022.
+91-7892702575, info.diksoochi@gmail.com

### **Certificate of Participation**

This is to Certify,
Mr. /Ms. LINGRAJ DORA
VSSUT, BURLA

for his/her active Participation during the 3-Days Free Webinar FDP on "Digital Era of Teaching" conducted by Diksoochi, Mysuru

from 11th May to 13th May 2020.

The Path for Success...!

For Diksoochi, Mysuru.



### AICTE-QIP



Certificate of Participation

This is to certify that

Prof./Dr./Mr./Ms. RENUPRAVA DALAI

of VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, BURLA

Participated in the Short Term Course on ADVANCES IN POWDER METALLURGY AND 3D PRINTING

held from 10.11.2019 to 16.11.2019, organized by the Department of Metallurgical and Materials Engineering

Dean (CE) & QIP Coordinator

Course Coordinator



The Path for Success...!
#345, 6th Main, H Block, R K Nagar, Mysuru - 570022.
+91-7892702575, info.diksoochi@gmail.com

### **Certificate of Participation**

This is to Certify,
Mr. /Ms. MANILA MALLIK
VSSUT, BURLA

for his/her active Participation during the 3-Days Free Webinar FDP on "Digital Era of Teaching" conducted by Diksoochi, Mysuru

from 11th May to 13th May 2020.

The Path for Success...!

For Diksoochi, Mysuru.



### VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, ODISHA

TEQIP III Sponsored
FACULTY DEVELOPMENT PROGRAMME on
MODERN ELECTRIC POWER SYSTEM NETWORKS
"MEPSN-2019"

(Operation, Control, Metering, Trading & Maintenance)

05th - 10th August, 2019

### CERTIFICATE OF PARTICIPATION

This is to certify that Mr/Mrs/ Prof./Dr. Bibhuti Prasad Sahoo
of VSSUT, Burla
has attended the TEQIP III sponsored faculty development programme on "MODERN ELECTRIC POWER SYSTEM NETWORKS, MEPSN-2019 (Operation, Control, Metering,
Trading & Maintenance)" organized by Department of Electrical Engineering, VSSUT, Burla
during 05th - 10th August, 2019.

Prof. P. K. Hota / Mrs. N Saha Course Coordinator(s) Dr. B. Mohanty
Head of Department

13. mohamit

TEQIP Coordinator



### ELECTRONICS & ICT ACADEMY NDIAN INSTITUTE OF TECHNOLOGY ROORKEI





Faculty Development Programme on Deep Learning and Its Applications

This is to certify that **Sanjib Kumar Nayak** from **Veer Surendra Sai University of Technology**, **Burla** has participated in faculty development programme (online live instructor-led) on "Deep Learning and Its Applications" conducted by Electronics and ICT Academy, IIT Roorkee from 04 May – 13 May, 2020.

Em

**Dr. Sanjeev Manhas**Principal Investigator
E&ICT Academy, IIT Roorkee

Dr. Partha Pratim Roy Local Coordinator E&ICT Academy, IIT Roorkee







Is Hereby Awarded To

Dr./Mr./Ms. Manila Mallik

(Veer Surendra Sai University of Technology, Burla, Sambalpur, Odisha)

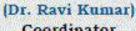
For proactively participating in the Five Days Online Short-Term Training Program on

"Bio-Energy: Technologies & Transitions"

Jointly Organized by National Institute of Technology, Kurukshetra and Government

Engineering College, Bikaner from 13 - 17 May, 2020 under TEOIP-III:

Mentoring/Twinning System



Coordinator **GEC Bikaner**  (Dr. Rajneesh)

monde

Coordinator NIT Kurukshetra (Dr. O. P. Jakhar)

Convener | TEQIP-III Coordinator Convener | TEQIP-III Coordinator **GEC Bikaner** 

(Prof. Sathans)

NIT Kurukshetra

Online Short-Torm Training Program on "Bio-Energy: Technologies & Transitions" sponsored by TEOIP-III

Jointly organized by: Department of Mechanical Engineering, Engineering College Bikener and NTT Kuruksheira

### तकनीकी शिक्षा गुणवत्ता सुधार कार्यक्रम Technical Education Quality Improvement Programme



### भारतीय प्रौद्योगिकी संस्थान रुड़की Indian Institute of Technology Roorkee

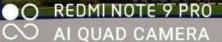


This is to certify that	Renuprava Dalai	from
	UT Burla	
Technologies: Synthesis from 7 <sup>th</sup> to 11 <sup>th</sup> December	the MHRD sponsored TEQIP assisted coof Alternative Fuels, Characterization, er, 2020 organized by the Department of the Engineering, IIT Roorkee	and Molecular Simulations"
M.	Ar Vr. Ars.	De 20.

Course Coordinator

Course Coordinator

TEQIP Coordinator





### **TEQIP Online Certification**

NPIU

National Project Implementation Unit

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

### Mr. Gautam Behera VSS University of Technology, Burla, Odisha

for successfully completing the 2 week course on

### Digital Transformation In Teaching Learning Process

(April 6th to April 22nd, 2020)

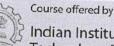
Be-ho

Prof. P M Khodke Central Project Advisor NPIU, TEQIP III Prof. Sridhar lyer Instructor

IDP-ET, IIT Bombay

Dr. Sameer Sahasrabudhe Instructor

IDP-ET, IIT Bombay



Indian Institute of Technology Bombay







# OP JINDAL UNIVERSITY

OP Jindal Knowledge Park, Punjipathra, Raigarh - 496109 [C.G.]

# Advances In Steel, Power And Construction Technology 4<sup>th</sup> International Conference On (NOVEMBER 21-22, 2019)

IN ASSOCIATION WITH

SPONSORED BY

















# Certificate

This certificate is awarded to Dr/Mr./Ms./Mrs. Gautam Behera V.S.S.U.T Bush in appreciation of his/her participation in the "4" International Conference on Advances in Steel, Power and Construction Technology" Organized by OP Jindal University, Raigarh (C.G.), INDIA during November 21-22, 2019. He/She chaired one of the technical session/delivered plenary talk during the Tiloz Posticles On FSL OF 7075 Al Alloy
Awaded as Best Paper for the session.

X vousiance Convener

Chairman



# VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY ODISHA **BURLA, SAMBALPUR-768018, ODISHA, INDIA**

Role of Revised Accreditation Framework for Enhancing the Quality and Innovation in Education (RRAFEQIE)-2020 NAAC Sponsored Two Day Workshop on

22<sup>nd</sup> to 23<sup>rd</sup> February, 2020

## Certificate

ify that Mr/Mrs/Prof./Dr VSSUT, Burla	This is to certify that Mr/Mrs/ Prof./Dr. Dr. Man of VSSUT, Burla	certify that Mr/Mrs/ Prof./Dr. Dr. Manila Mallik VSSUT, Burla	of	This is to cert
/Prof./Dr <b>Burla</b>	/Prof./Dr. Dr. Man Burla	/Prof./Dr. Dr. Manila Mallik Burla	VSSUT,	fy that Mr/Mrs,
	Dr. Man	Dr. Manila Mallik	Burla	/ Prof./Dr

has attended the NAAC Sponsored Two Day Workshop on Role of Revised Accreditation by Internal Quality Assurance Cell (IQAC), VSSUT, Burla during 22<sup>nd</sup> to 23<sup>rd</sup> February, 2020 Framework for Enhancing the Quality and Innovation in Education (RRAFEQIE)-2020 organized















### **Subhadra Sahoo**

### SSA101x: Hands-on training on Solar Study Lamp Assembly

An online course, recognized by Skill Council for Green Jobs, conducted from 01 May 2019 to 31 Dec 2019 for Student Solar Ambassador Workshop 2019.

This course is offered by **IITBombayX**, an online learning initiative of **Indian Institute of Technology Bombay**.

Chetan Singh Solanki

Professor, Dept of Energy Science and Engineering IIT Bombay









### Govt. College of Engineering Kalahandi, Bhawanipatna







### **CERTIFICATE**

This is to certify that Prof./Dr. LINGRAJ DORA of VSSUT, BURLA has successfully completed the one week Faculty Development Programme on Moodle Learning Management System organized by Government College of Engineering Kalahandi in association with Spoken Tutorial Project, IIT Bombay from 25th May to 30th May 2020.

Kamabuhya frasad Nayah

**Co-ordinator** 

Convener

Principal

Certificate ID:GCEK-FDP-2020-MOODLE-018

NPIU National Project Implementation Unit

### TEQIP-III SPONSORED ONLINE FACULTY DEVELOPMENT PROGRAMME



ON

### RECENT ADVANCEMENT IN SIGNAL PROCESSING, MACHINE LEARNING AND NEXT GENERATION WIRELESS ACCESS NETWORKS

(RASWAN-2020)

### **CERTIFICATE OF PARTICIPATION**

This is to certify that Mr./Ms./Mrs./Dr. Sanjib Kumar Nayak of VSSUT, BURLA successfully

completed a two-weeks Faculty Development Programme on "RECENT ADVANCEMENT IN SIGNAL PROCESSING,

MACHINE LEARNING AND NEXT GENERATION WIRELESS ACCESS NETWORKS (RASWAN-2020)" organized by

the Department of Electronics & Telecommunication Engineering, I.G.I.T., Sarang from 11<sup>th</sup> – 24<sup>th</sup> June 2020.

Mr. Kodanda Dhar Sa FDP Co-ordinator

Kodandadhar Se P. Parayos

Mr. Paresh Kumar Pasayat FDP Co-ordinator

Dr. Urmila Bhanja H.O.D

Electronics & Telecomm. Engg.

Ralindra Behava

Dr. Rabindra Behera TEQIP-III Co-ordinator Dr. Satyabrata Mohanta
Director

I.G.I.T., Sarang

NPIU National Project Implementation Unit

### **TEQIP-III SPONSORED ONLINE FACULTY DEVELOPMENT PROGRAMME**



ON

### RECENT ADVANCEMENT IN SIGNAL PROCESSING, MACHINE LEARNING AND NEXT GENERATION WIRELESS ACCESS NETWORKS

(RASWAN-2020)

### **CERTIFICATE OF PARTICIPATION**

This is to certify that Mr./Ms./Mrs./Dr. Lingraj Dora of VSSUT, Burla successfully completed a

two-weeks Faculty Development Programme on "RECENT ADVANCEMENT IN SIGNAL PROCESSING, MACHINE

LEARNING AND NEXT GENERATION WIRELESS ACCESS NETWORKS (RASWAN-2020)" organized by the

Department of Electronics & Telecommunication Engineering, I.G.I.T., Sarang from 11<sup>th</sup> – 24<sup>th</sup> June 2020.

Mr. Kodanda Dhar Sa FDP Co-ordinator

Kodendadhar Se P. Parayos

Mr. Paresh Kumar Pasayat FDP Co-ordinator

Dr. Urmila Bhanja H.O.D

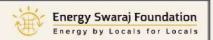
Electronics & Telecomm. Engg.

Ralindra Behava

Dr. Rabindra Behera TEQIP-III Co-ordinator Dr. Satyabrata Mohanta
Director

I.G.I.T., Sarang

HONOUR CODE CERTIFICATE SWC1-3644



### **Certificate of Energy Literacy**



This is to certify that

### Dr. Manila Mallik

has successfully completed a short course on "Learn to Design your own Solar Home System".

The recipient got basic understanding of energy, power, electricity bill, and solar systems. The recipient can estimate the electricity needs of a home and design a solar system for the same. The certificate has been awarded as a part of Energy Literacy Drive of the Energy Swaraj Foundation.



29 May 2020

Date



Swati Kalwar Chief Executive Officer



The authenticity of this certificate can be validated at https://energyswaraj.org/honor.php



### **TEQIP Online Certification**



(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

### Mr. Bibhuti Prasad Sahoo VSS University of Technology, Burla, Odisha

for successfully completing the 2 week course on

### Digital Transformation In Teaching Learning Process

(February 14th to March 6th, 2020)

Prof. P M Khodke Central Project Advisor NPIU. TEOIP III Prof. Sridhar Iyer Instructor IDP-ET, IIT Bombay Dr. Sameer Sahasrabudhe Instructor IDP-ET, IIT Bombay









### **DUMKA ENGINEERING COLLEGE**

(ESTD. by Govt. of JHARKHAND & run by TECHNO INDIA under PPP)



### Certificate of Participation

This is to certify that

Dr Manila Mallik

has participated in the National Webinar on "ACTIVE LEARNING METHODOLOGY" (NWALM)

by **Prof. S. K. Das Mandal** on May 22- May 24, 2020,

Organized by Department of Electronics & Communication Engineering,

Dumka Engineering College,

Jharkhand.

Date of Certification 26-May-2020

Certificate ID DFC/FCF/2020/HS8PLO-CF000347

Indira Chosh Dostidar Ms. Indira Ghosh Dastidar (Co-ordinator, NWALM)

Mr. Souvik De (Joint Coordinator, NWALM)

Mr. Sujit Khamaru (Coordinator, TEQIP-III, DEC)



Dr. Palash Pal (Principal, Dumka Engineering College)













### Webinar series on "Role of Intellectual Property in Creating Innovation Ecosystem for Growth" (6th-10th June 2020)

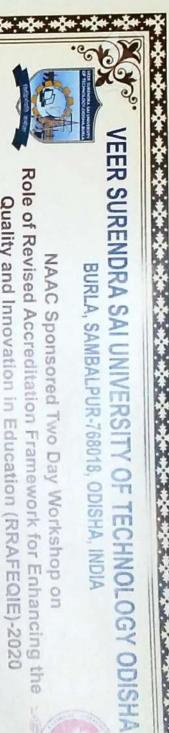
### CERTIFICATE OF PARTICIPATION



This is to certify that DR. MANILA MALLIK, ASSISTANT PROFESSOR, VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, BURLA, SAMBALPUR, ODISHA has attended the Webinar series on Role of Intellectual Property in Creating Innovation Ecosystem for Growth organized by School of Physics, Gangadhar Meher University, Amruta Vihar, Sambalpur, Odisha, India-768004 during 6-10 June 2020.

Susanta Kuman Dag

Convenor Co-Convenor



Role of Revised Accreditation Framework for Enhancing the Quality and Innovation in Education (RRAFEQIE)-2020

22<sup>nd</sup> to 23<sup>rd</sup> February, 2020

### Certificate

of	This is to
VSSI	This is to certify that Mr/Mrs/ Prof./
VSSUT, Burla	/Mrs/ Prof./DI
	Mr.
	Prasanta Kumar Parida
	Kumar P
	arida

has attended the NAAC Sponsored Two Day Workshop on Role of Revised Accreditation by Internal Quality Assurance Cell (IQAC), VSSUT, Burla during 22nd to 23rd February, 2020. Framework for Enhancing the Quality and Innovation in Education (RRAFEQIE)-2020 organized



Convenor

Director AQAC

Vice-Chancellor







(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

# Prasanta Kumar Parida VSS University of Technology, Burla

for successfully completing the 2 week course on

# Digital Transformation In Teaching Learning Process

(March 16th to March 30th, 2020)

Prof. P M Khodke Central Project Advisor NPIU, TEQIP III

Prof. Sridhar Iyer Instructor IDP-ET, IIT Bombay











(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

#### **Lingraj Dora** VSS University of Technology, Burla

for successfully completing the 2 week course on

# Digital Transformation In Teaching Learning Process

(March 16th to March 30th, 2020)

Prof. P M Khodke Central Project Advisor NPIU, TEQIP III Prof. Sridhar Iyer Instructor IDP-ET, IIT Bombay











(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

#### Sanjib Kumar Nayak VSS University of Technology, Burla

for successfully completing the 2 week course on

# Digital Transformation In Teaching Learning Process

(March 16th to March 30th, 2020)

Prof. P M Khodke Central Project Advisor NPIU. TEOIP III

Prof. Sridhar Iyer Instructor IDP-ET, IIT Bombay









#### Govt. College of Engineering Kalahandi, Bhawanipatna







#### **CERTIFICATE**

This is to certify that Prof./Dr. BIBHUTI PRASAD SAHOO of VSSUT has successfully completed the one week Faculty Development Programme on Moodle Learning Management System organized by Government College of Engineering Kalahandi in association with Spoken Tutorial Project, IIT Bombay from 25th May to 30th May 2020.

Kamabuhya frasad Nayah

**Co-ordinator** 

Convener

Principal

Certificate ID:GCEK-FDP-2020-MOODLE-058

#### Aditya Institute of Technology & Management, Tekkali

An Autonomous Institution Affiliated to JNTUK, Kakinada
Accredited by NBA; NAAC A+ Grade; Recognized by UGC under 2(f) & 12(B)
K.Kotturu, Tekkali-532201, Srikakulam, Andhra Pradesh-India
https://www.adityatekkali.edu.in/

#### Certificate

One week Faculty Development Program on

#### "Advanced Manufacturing Enterprise in Digital Era"

This is to certify that

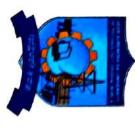
#### Dr. MANILA MALLIK

ASSISTANT PROFESSOR VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, BURLA

has participated in One week Online Faculty Development Program on "Advanced Manufacturing Enterprise in Digital Era" Organized by Department of Mechanical Engineering from 1st to 5th June 2020

Dr.D.Sreeramulu Convenor Dr.C.J.Rao HoD-ME Dr.A.S.Srinivasa Rao Principal Prof.V.V.Nageswara Rao Director

# VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, ODISHA



# CENTRE FOR DISTANCE AND CONTINUING EDUCATION

# CERTIFICATE OF PARTICIPATION

TE(UIP - III

This is to certify that

Dr. MANILA MALLIK

VSSUT, BURLA

has participated in

TEQIP III Sponsored One Week Faculty Development Programme (FDP)

Design and Development of Materials for Technological Applications (D-MTA) from 21st October to 26th October, 2019 Organized by Department of Physics

Dr. A.K. Pattanaik

Coordinators, D-MTA 2019

Dr. M. P. K. Sahoo

P

Prof. U. R. Jena

Dean CDCE & Head Physics





(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

# Manila Mallik VSS University of Technology, Burla

for successfully completing the 2 week course on

# Digital Transformation In Teaching Learning Process

(March 16th to March 30th, 2020)

Prof. P M Khodke Central Project Advisor NPIU, TEQIP III

Prof. Sridhar Iyer Instructor IDP-ET, IIT Bombay









### Outcome Based Education Software

Course Outcome and Program Outcome Attainment

www.vmedulife.com

# vmedulife®

#### CERTIFICATE

This is to certify that

DR. MANILA MALLIK

from

VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, BURLA, SAMBALPUR, ODISHA-768018

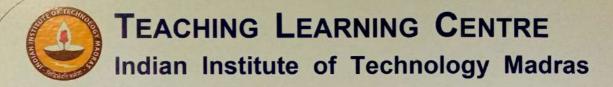
has attended webinar for faculty development program on

#### "Outcome Based Education Software"

organised by vmedulife software services on 14th May, 2020.



vmedulife software services



This is to certify that

#### **Bibhuti Prasad Sahoo**

Veer Surendra Sai University of Technology, Burla

has participated in the

#### **TEQIP III Faculty Development Programme**

on

Robotics and Automation

Organised by the Department of Engineering Design, IIT Madras

from 17th to 28th February 2020

Head, Teaching Learning Centre

Prof. Asokan Thondiyath Coordinator

Scanned with CamScanner





(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

# **Dr. Sasmita Acharya**VSS University of Technology, Burla

for successfully completing the 2 week course on

# Digital Transformation In Teaching Learning Process

(March 16th to March 30th, 2020)

Prof. P M Khodke Central Project Advisor NPIU, TEQIP III

Prof. Sridhar Iyer Instructor IDP-ET, IIT Bombay







# COLLEGE OF ENGINEERING THE PARTY OF THE PART

#### GOVERNMENT COLLEGE OF ENGINEERING KARAD

&



#### RAJKIYA ENGINEERING COLLEGE AZAMGARH

Jointly Organized

One Week Online Faculty Development Program on

'Machine Learning and Deep Learning Applications in Engineering & Science"

(16<sup>th</sup> May 2020 to 20<sup>th</sup> May 2020)

under

Technical Education Quality Improvement Program - III

#### **CERTIFICATE OF PARTICIPATION**

This is to certify that

Sasmita Acharya

of

**VSSUT**, Burla

Registration Number 2304

has Participated in One Week TEQIP - Online Faculty Development Program on "Machine Learning and Deep Learning Applications in Engineering and Science (MLDLAES - 2020)" from 16<sup>th</sup> May - 20<sup>th</sup> May 2020 (Sponsored by Technical Education Quality Improvement Program -III) Organized by Civil Engineering Department, Government College of Engineering, Karad.

Prof. Amarsinh B. Landage

Coordinator

Prof. B. A. Konnur

Convener & TEQIP III Coordinator

Prof. S. S. Valunjkar

Chairman & Head of Department

Prof. A. T. Pise

Principal GCE Karad





(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

# **Dr. Sasmita Acharya**VSS University of Technology, Burla

for successfully completing the 2 week course on

# Digital Transformation In Teaching Learning Process

(March 16th to March 30th, 2020)

Prof. P M Khodke Central Project Advisor NPIU, TEQIP III

Prof. Sridhar Iyer Instructor IDP-ET, IIT Bombay







# TOLLEGE OF ENGINEERING THE PROPERTY OF THE PRO

#### GOVERNMENT COLLEGE OF ENGINEERING KARAD

&



#### RAJKIYA ENGINEERING COLLEGE AZAMGARH

Jointly Organized

One Week Online Faculty Development Program on

'Machine Learning and Deep Learning Applications in Engineering & Science"

(16<sup>th</sup> May 2020 to 20<sup>th</sup> May 2020)

under

Technical Education Quality Improvement Program - III

#### **CERTIFICATE OF PARTICIPATION**

This is to certify that

Sasmita Acharya

of

**VSSUT**, Burla

Registration Number 2304

has Participated in One Week TEQIP - Online Faculty Development Program on "Machine Learning and Deep Learning Applications in Engineering and Science (MLDLAES - 2020)" from 16<sup>th</sup> May - 20<sup>th</sup> May 2020 (Sponsored by Technical Education Quality Improvement Program -III) Organized by Civil Engineering Department, Government College of Engineering, Karad.

Prof. Amarsinh B. Landage

Prof. B. A. Konnur

Chairman & Head of Department

Prof. S. S. Valunjkar

Prof. A. T. Pise

Coordinator

Convener & TEQIP III Coordinator

Principal GCE Karad





(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

# **Dr. Sasmita Acharya**VSS University of Technology, Burla

for successfully completing the 2 week course on

# Digital Transformation In Teaching Learning Process

(March 16th to March 30th, 2020)

Prof. P M Khodke Central Project Advisor NPIU, TEQIP III

Prof. Sridhar Iyer Instructor IDP-ET, IIT Bombay









Dr. D. Y. Patil Educational Enterprises Charitable Trust's

#### Dr. D. Y. PATIL SCHOOL OF ENGINEERING & TECHNOLOGY

Dr. D. Y. Patil Knowledge City, Charholi (Bk.), via. Lohgaon, Pune - 412 105, Maharashtra.

#### Certificate of Appreciation

This is to certify that SANTI BEHERA of Veer Surendra Said University
of technology, Burla has

successfully completed online **Faculty Awareness Programme on NBA** on 26-5-2020, with a passing score of **60%** organized by Department of Electronics & Telecommunication Engineering, Dr. D. Y. Patil School of Engineering & Technology, Pune.

Certificate ID Z7QF9M-CE000864

Deef Court D. Dhave

Prof. Sharan Inamdar HoD (E&TC)

Inamaclos

Dr. Ashok Kasnale Principal

Prof. Sagar D. Dhawale Quiz Co-ordinator





(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

# **Lipsamayee Mishra**VSS University of Technology, Burla

for successfully completing the 2 week course on

# Digital Transformation In Teaching Learning Process

(March 16th to March 30th, 2020)

Prof. P M Khodke Central Project Advisor NPIU, TEQIP III Prof. Sridhar Iyer Instructor IDP-ET, IIT Bombay

















#### **SWAYAM ARPIT ONLINE COURSE CERTIFICATION**

This Certificate is awarded to

#### **BIRENDRA KUMAR BARIK**

for successfully completing the ARPIT Course for

Career Advancement Scheme(CAS) promotion

**Pedagogical Innovations And Research Methodology** 

with a "A" Grade in the proctored examination held on 16.02.2020

Guru Jambeshwar university of Science & Technology Hisar, Haryana

Authorized Signatory of Institution (Course Coordinator)

Guru Jambeshwar university of Science & Technology Hisar, Haryana

Authorized Signatory of AICTE

Date of Issue: 30/06/2020 www.swayam.gov.in











#### **SWAYAM ARPIT ONLINE COURSE CERTIFICATION**

This Certificate is awarded to

#### **BIRENDRA KUMAR BARIK**

for successfully completing the ARPIT Course for

Career Advancement Scheme(CAS) promotion

Refresher Course on Teacher and Teaching in Higher Education

with a "B" Grade in the proctored examination held on 16.02.2020

Savitribai Phule Pune University

Authorized Signatory of Institution (Course Coordinator)

Savitribai Phule Pune University

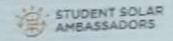
Authorized Signatory of AICTE

Date of Issue : 30/06/2020

www.swayam.gov.in

HONOUR CODE CERTIFICATE





#### FICATE of LEARNING

This certificate is awarded to

#### LIPSAMAYEE MISHRA

for learning to make his/her own solar study lamp in the Student Solar Ambassadors Workshop organized globally on 2<sup>nd</sup> October 2019 to commemorate the 150<sup>th</sup> Birth Anniversary of Mahatma Gandhi.

CHETAN SINGH SOLANKI

Profesior, Dept of Energy Science and Engineering IIT Bombay

SUPPORTED BY





























Name / Jack Street House the Trade 1 (2011) 200



Organised by:

VEER SURENDRA SAI
UNIVERSITY OF TECHNOLOGY BURLA, ODISHA
SIDDHI VIHAR, BURLA, ODISHA, INDIA



A FINISHER
ANISHA EKKA

Fit VSSUT Plogging

FIT INDIA PLOGGING

02nd Oct 2019

Co-ordinator

In collaboration with













INDIAN INSTITUTE OF TECHNOLOGY GANDHINAGAR
WITH
GLOBAL INITIATIVE OF ACADEMIC NETWORKS
PRESENTS THIS

### Certificate of Participation

to

#### Birendra Kumar Barik

for his active and invaluable participation during the conduct of six-day course on

"Microstructural Evolution During Friction Stir Processing"

held from September 16th to September 21st, 2019

at Indian Institute of Technology Gandhinagar,

Palaj, Gujarat - India 382355



3 m Sin.

Dr: Amit Arora

Course Coordinator IIT Gandhinagar, Inida Dr. Rajiv Mishra

Course Instructor University of North Texas, USA



# Photografia.3

WORKSHOP

PHOTOGRAPHY, PHOTOJOURNALISM AND VISUAL STORYTELLING

भारतीय जन संचार संस्थान, ढेंकानाल Indian Institute of Mass Communication



This is to certify that

Amit Chatterjee

of

V.S.S. University of Technology, Burla

participated in "Photografia.3" the photojournalism and visual storytelling workshop from 22 to 25 September 2019.

Dr. Tapeenah Anjum Qureshi

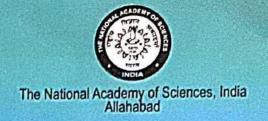
Dr. Mrinal Chatterjee
Professor and Regional Director

Himanshu Vyas









# SUMMER RESEARCH FELLOWSHIP PROGRAMME CERTIFICATE

This is to certify that Mr Birendra Rumar Barih worked on a project entitled "Elimination of exit-hole using friction stir plunging with consumable tool" during May - July 2018 as a Summer Research Fellow under the supervision of Dr Satish Vasu Kailas, Indian Institute of Science, Bengaluru. The Summer Research Fellowship Brogramme is jointly sponsored by INSC (Bengaluru), INSA (New Delhi) and NASI (Allahabad). During the period of this fellowship, he also attended the two-day Mid-Year Meeting of scientific lectures (29 - 80 June 2018) held at Infosys Development Genter, Mysuru.

M-RIN. MI

Llace: Bengaluru Date: 20-09-2018 M.R.N. Murthy Chairman, Science Education Lanel







(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

#### **Dinesh Kumar Mishra** VSS University of Technology, Burla

for successfully completing the 2 week course on

# Digital Transformation In Teaching Learning Process

(March 16th to March 30th, 2020)

Prof. P M Khodke Central Project Advisor NPIU, TEQIP III Prof. Sridhar Iyer Instructor IDP-ET, IIT Bombay











#### **DINESH KUMAR MISHRA**

SSA101x: Hands-on training on Solar Study Lamp Assembly

An online course, recognized by Skill Council for Green Jobs, conducted from 01 May 2019 to 31 Dec 2019 for Student Solar Ambassador Workshop 2019.

This course is offered by IITBombayX, an online learning initiative of Indian Institute of Technology Bombay.

Chetan Singh Solanki
Professor Dept of Energy Science

Professor, Dept of Energy Science and Engineering IIT Bombay











(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

#### Ms. Anisha Ekka VSS University of Technology, Burla, Odisha

for successfully completing the 2 week course on

#### Digital Transformation In Teaching Learning Process

(February 14th to March 6th, 2020)

Prof. P M Khodke Central Project Advisor NPIU, TEQIP III Prof. Sridhar Iyer Instructor IDP-ET, IIT Bombay







NPIU National Project Implementation Unit

#### TEQIP-III SPONSORED ONLINE FACULTY DEVELOPMENT PROGRAMME



ON

#### RECENT ADVANCEMENT IN SIGNAL PROCESSING, MACHINE LEARNING AND NEXT GENERATION WIRELESS ACCESS NETWORKS

(RASWAN-2020)

#### CERTIFICATE OF PARTICIPATION

This is to certify that Mr./Ms./Mrs./Dr. Sakambhari Mahapatra of VSSUT, BURLA successfully

completed a two-weeks Faculty Development Programme on "RECENT ADVANCEMENT IN SIGNAL PROCESSING,

MACHINE LEARNING AND NEXT GENERATION WIRELESS ACCESS NETWORKS (RASWAN-2020)" organized by

the Department of Electronics & Telecommunication Engineering, I.G.I.T., Sarang from 11<sup>th</sup> – 24<sup>th</sup> June 2020.

Mr. Kodanda Dhar Sa FDP Co-ordinator

Kodandadhar Se P. Parayos

Mr. Paresh Kumar Pasayat FDP Co-ordinator

Dr. Urmila Bhanja H.O.D

Electronics & Telecomm. Engg.

Ralindra Behera

Dr. Rabindra Behera TEQIP-III Co-ordinator

Dr. Satyabrata Mohanta
Director

I.G.I.T., Sarang



06/25/2020

#### SAMBEET KUMAR SAHU

has successfully completed

#### Advanced Manufacturing Process Analysis

an online non-credit course authorized by University at Buffalo and The State University of New York and offered through Coursera COURSE CERTIFICATE



Rahul Rai

Rahul Rai Associate Professor Mechanical and Aerospace Engineering

Verify at coursera.org/verify/9LCDXV8FPXBP

Coursera has confirmed the identity of this individual and  $\label{eq:course} \text{their participation in the course}.$ 





## Department of Production Engineering Veer Surendra Sai University of Technology, Burla





This is to certify that

Anisha Ekka from

#### Veer Surendra Sai University of Technology, Burla

has participated and successfully completed in the Short Term Training Programme on "Advance of Materials Design, Machining and Characterization (AMDMC-2020)" Organized by Department of Production Engineering, Veer Surendra Sai University of Technology, Burla during 21<sup>st</sup> to 26<sup>th</sup> November 2020 under the Sponsorship of AQIS scheme of AICTE, Government of India.

Dr. P. C. Jena

Programme Coordinator

Dr. K. Pal

Head of the Department

Us gina

Prof. U.R. Jena

Dean, CDCE

#### Aditya Institute of Technology & Management, Tekkali

An Autonomous Institution Affiliated to JNTUK, Kakinada
Accredited by NBA; NAAC A+ Grade; Recognized by UGC under 2(f) & 12(B)
K.Kotturu, Tekkali-532201, Srikakulam, Andhra Pradesh-India
https://www.adityatekkali.edu.in/

#### Certificate

One week Faculty Development Program on

#### "Advanced Manufacturing Enterprise in Digital Era"

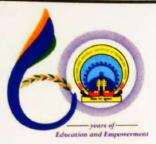
This is to certify that

#### Mrs. SUNITA SETHY

ASSISTANT PROFESSOR VSSUT, BURLA

has participated in One week Online Faculty Development Program on "Advanced Manufacturing Enterprise in Digital Era" Organized by Department of Mechanical Engineering from 1st to 5th June 2020

Dr.D.Sreeramulu Convenor Dr.C.J.Rao HoD-ME Dr.A.S.Srinivasa Rao Principal Prof.V.V.Nageswara Rao Director



मौलाना आज़ाद राष्ट्रीय प्रौद्योगिकी संस्थान, भोपाल (म. प्र.) भारत Maulana Azad

National Institute of Technology, Bhopal (M. P.) India

Workshop

ОП

"Scientific and Technological Writing Skills (STWS)"

(Writing of Research Proposals, Theses, Reports, Research Papers, Drafting and filing of Patents)



		1- 1/1.
This is to certify that Dr./ Mr./ Ms	Hoisha	L KKa
HIS IS to certify that Dr. 141.		

has participated in the

5 days workshop on "Scientific and Technological Writing Skills" (Writing of Research Proposals, Theses, Reports, Research Papers, Drafting and filing of Patents) held during 16 – 20<sup>th</sup> December, 2019 organised by Department of Materials and Metallurgical Engineering, MANIT Bhopal.

Dr. C. Sasikumar

Dr. Ramesh Kumar Nayak

Coordinator

Dr. K. R. Aharwal

HOD MME

Coordinator





#### **SMART MANUFACTURING**



This certificate is presented to

Mr. Birendra Kumar Barik

For attending the one day hands-on workshop on Smart Manufacturing

hosted by Indian Institute of Technology Indore, India on December 11, 2019

under

**Industry Academia Consortium for Smart Manufacturing** 

IndAC-SM

Dr. Bhupesh K. Lad

IIT Indore

Prof. Makarand S. Kulkarni

IIT Bombay

Dr. Ajith Parlikad

University of Cambridge







#### **Lipsamayee Mishra**

#### SSA101x: Hands-on training on Solar Study Lamp Assembly

An online course, recognized by Skill Council for Green Jobs, conducted from 01 May 2019 to 31 Dec 2019 for Student Solar Ambassador Workshop 2019.

This course is offered by **IITBombayX**, an online learning initiative of **Indian Institute of Technology Bombay**.

Chetan Singh Solanki

Professor, Dept of Energy Science and Engineering IIT Bombay









#### Department of Electronics Engineering

Zakir Husain College of Engineering and Technology

Aligarh Muslim University, Aligarh



Powered by
Ministry of Human Resources and
Development, Government of India.

REF.: AMU/ELED/FDP/COVID/2020/OP009 PARTICIPANT ID: BIRENBARIK\_PE@VSSUT.AC.IN

# Certificate of Participation

This certificate is awarded to

#### Mr. Birendra Kumar Barik

for participation in **One Week Online Faculty Development Program on** "**MOODLE: Learning Management System**" organized by Department of Electronics Engineering, AMU, Aligarh in association with Spoken Tutorial Project, IIT Bombay from 27<sup>th</sup> May to 31<sup>st</sup> May 2020.

PROF. PERVEZ MUSTAJAB

DEAN, F/O ENGINEERING AND TECHNOLOGY,
ALIGARH MUSLIM UNIVERSITY

PROF. OMAR FAROOQ
CHAIRMAN, D/O ELECTRONICS ENGINEERING,
ALIGARH MUSLIM UNIVERSITY

( jeg

DR. MOHD WAJID
COORDINATOR,
FACULTY DEVELOPMENT PROGRAM

#### **UCDAVIS**

Jul 9, 2019

#### Birendra Kumar Barik

has successfully completed

Materials Science: 10 Things Every Engineer Should Know

an online non-credit course authorized by University of California, Davis and offered through Coursera

assp. left

James Shackelford
Distinguished Professor Emeritus
Department of Chemical Engineering and Materials Science

#### COURSE CERTIFICATE



 $Verify\ at\ coursera.org/verify/FFUTVDAQK5CN$ 

Coursera has confirmed the identity of this individual and their participation in the course.





(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

#### **Sambeet Kumar Sahu** VSS University of Technology, Burla

for successfully completing the 2 week course on

# Digital Transformation In Teaching Learning Process

(March 16th to March 30th, 2020)

Prof. P M Khodke Central Project Advisor NPIU, TEQIP III

Prof. Sridhar Iyer Instructor IDP-ET, IIT Bombay











#### Organised by:

VEER SURENDRA SAI
UNIVERSITY OF TECHNOLOGY BURLA, ODISHA
SIDDHI VIHAR, BURLA, ODISHA, INDIA



# A FINISHER

Fit VSSUT Plogging

FIT INDIA PLOGGING

02nd Oct 2019

Co-ordinator

In collaboration with











This is digitally generated certificate, based on the informat provided by the organiser/participant of the event.

www.fitindia.aov.ir





#### Organised by:

VEER SURENDRA SAI
UNIVERSITY OF TECHNOLOGY BURLA, ODISHA
SIDDHI VIHAR, BURLA, ODISHA, INDIA



#### IAM

#### **A FINISHER**

PREMANIANDA EKKA

**Fit VSSUT Plogging** 

FIT INDIA PLOGGING

02nd Oct 2019

Co-ordinator

In collaboration with











this is digitally generated certificate, based off the information provided by the organiser/participant of the event.

www.fitindia.gov.in





#### anisha ekka

#### SSA101x: Hands-on training on Solar Study Lamp Assembly

An online course, recognized by Skill Council for Green Jobs, conducted from 01 May 2019 to 31 Dec 2019 for Student Solar Ambassador Workshop 2019.

This course is offered by **IITBombayX**, an online learning initiative of **Indian Institute of Technology Bombay**.

Chetan Singh Solanki
Professor Dept of Energy Science

Professor, Dept of Energy Science and Engineering IIT Bombay









#### INDIRA GANDHI UNIVERSITY, MEERPUR, REWARI

(A State University Established under Haryana Act No. 29 of 2013)

Ref No: IGU/FDP/2020/209

#### FACULTY DEVELOPMENT PROGRAMME

ON

MOOCS AND MOODLE BASED LEARNING MANAGEMENT SYSTEM (June 15-22, 2020)

#### **CERTIFICATE OF PARTICIPATION**

This is to certify that <u>SAMBEET KUMAR SAHU</u>, Assistant Professor of Veer Surendra Sai University of Technology, Burla has participated in Faculty Development Programme on "MOOCs and MOODLE Based Learning Management System" from June 15-22, 2020 through online mode organized by Indira Gandhi University, Meerpur, Rewari.





Prof. Tej Singh
FDP Director

**Date: 22 June, 2020** 





#### **Sunita Sethy**

#### SSA101x: Hands-on training on Solar Study Lamp Assembly

An online course, recognized by Skill Council for Green Jobs, conducted from 01 May 2019 to 31 Dec 2019 for Student Solar Ambassador Workshop 2019.

This course is offered by IITBombayX, an online learning initiative of Indian Institute of Technology Bombay.

Chetan Singh Solanki

Professor, Dept of Energy Science and Engineering IIT Bombay







Open Access

#### Abstract



**Document Sections** 

- I. Introduction
- II. Filtering Algorithm of Sparse  $H_{\infty}$
- III. Model of Symmetrical Component Estimation
- IV. Frequency Estimation Model
- V. Simulation Results and Discussions

#### Show Full Outline ▼

Authors

Figures

References

Citations

Keywords

PDF

Abstract: The estimation of sequence or symmetrical components and frequency in three-phase unbalanced power system is of great importance for protection and relay. This paper prop... View more

#### ▶ Metadata

#### Abstract:

The estimation of sequence or symmetrical components and frequency in three-phase unbalanced power system is of great importance for protection and relay. This paper proposes a new H ... filter based on sparse model to track the sequence components and the frequency of three-phase unbalanced power systems. The inclusion of sparsity improves the error convergence behavior of estimation model and hence short-duration non-stationary PQ events can easily be tracked in the time domain. The proposed model is developed using I 1 norm penalty in the cost function of H ୍ଥ filter, which is quite suitable for estimation across all the three phases of an unbalanced system. This model uses leal state space modeling across three phases to estimate amplitude and phase parameters of sequence components. However, frequency estimation uses complex state space modeling and Clarke transformation generates a complex measurement signal from the unbalanced three-phase voltages. The state vector used for frequency estimation consists of two state variables. The proposed sparse model is tested using distorted three-phase signals from IEEE-1159-PQE database and the data generated from experimental laboratory setup. The analysis of absolute and mean square error is presented to validate the performance of the proposed model.

Published in: Journal of Modern Power Systems and Clean Energy (Volume: 8, Issue: 5, September 2020)

Page(s): 981 - 990 **INSPEC Accession Number: 20091192**  Metrics

More Like This

Date of Publication: 28 February 2020 ?

▶ ISSN Information:

DOI: 10.35833/MPCE.2018.000440

Publisher: SGEPRI

Contents

#### **SECTION I.**Introduction

Q

тТ

The steady-state operation condition of the three-phase balanced power system is disrupted due to several reasons such as single-phase loading, unbalanced impedance of transmission lines and transformers, incomplete transposition of lines, lightning, line breaks, etc. Unbalance is considered as one of the PQ issues which can be measured through sequence components [1]. Due to the unbalanced situation of voltage across the phases, the system performance degrades and shortens the life of the equipment used in industry. Similarly, any deviation of system frequency from the normal value is a clear indicator of unbalanced condition between load and generation, which may lead to the grid failure by inadequate load shedding.

Therefore, the detection and subsequent mitigation of faults by designing protective equipment are crucial for a healthy power grid. To protect the grid, sequence components across all the phases and system frequency have to be estimated correctly. The amplitude and phase information of all the three phases in an unbalanced system can be extracted by analyzing the sequence components in terms of zero, positive, and negative sequence components. Adaptive filters are efficient to estimate the sequence components and frequency by modeling the three-phase voltage and current equations in a parametric form.

Several techniques have been proposed to estimate the symmetrical components and frequency from three-phase voltage and current signals. Discrete Fourier transform (DFT) is a popular nonparametric method used for frequency estimation, but this method suffers from inaccuracies due to the presence of system noise, inter- and intra-harmonics and spectral leakage [2], [3]. However, the errors due to the effect of spectral leakage and picket-fence are mitigated by modulated sliding discrete Fourier transform (msDFT) which is proposed for the measurement of harmonic and sequence components [4]. Reference [5] proposes an adaptive method using DFT and online algorithm, which is based on converting signal into phasor for symmetrical component estimation. Reference [6] also proposes a DFT-based technique for frequency estimation, which has good resistance to harmonICS.

Artificial intelligence and soft computing techniques such as neural network, fuzzy logic, and genetic algorithm are quite popular for tracking PQ disturbances [7], [8]. These methods can track the signal parameters accurately with longer tracking time and slower convergence. Adaptive linear combiner structure is a single-layer model frequently used for harmonic and frequency estimation for single-phase power system [9]. However, the model based on multi-output can be used to track the symmetrical components of a three-phase system. Least mean square (LMS) is used for the update of weight vector, which requires a proper choice of step size and the overall convergence rate is quite slow [10].

PDF Help

Compared to Kalman filter, extended Kalman filter (EKF) is an effective approach to estimate nonstationary PQ disturbances with increased noise level. Although EKF shows good estimation performance, it does not have stable convergence in the case of abrupt frequency change. Reference [11] proposes unscented Kalman filter (UKF) which is a derivative-free filter for the estimation of frequency in balanced and unbalanced power systems with the reduced complexity of computation [11]. However, the estimation accuracy of UKF is affected by the factors such as the divergence of estimation error due to some poorly-chosen initial conditions and the nature of noise. To overcome the above limitations,  $H_{\infty}$  filter is proposed, which is a robust form of Kalman filter to estimate the parameters of the sinusoid corrupted by white Gaussian noise [12], [13].





(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

#### Mr. Birendra Kumar Barik VSS University of Technology, Burla, Odisha

for successfully completing the 2 week course on

# Digital Transformation In Teaching Learning Process

(February 14th to March 6th, 2020)

Prof. P M Khodke Central Project Advisor NPIU. TEOIP III

Prof. Sridhar Iyer Instructor IDP-ET, IIT Bombay









#### **Knowledge Incubation for TEQIP**



Indian Institute of Technology Kanpur

V.N.- IITK/AM/201216

#### CERTIFICATE

OF PARTICIPATION ————

This certificate is awarded to <u>Ms. Anisha Ekka</u>		
of College/Univers	ityVSSUT, Burla	
for participating in Online FDP on Introduction to Additive Manufacturing		
from <u>01 Decem</u>	ber to <u>05 December, 2020</u> held at IIT Kanpur.	

Dr. Niraj Sinha (Course Coordinator) Dr. C.S. Upadhyay

(Project Investigator, TEQIP, IIT Kanpur)



