



SARANATHAN COLLEGE OF ENGINEERING

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)

6.3.3. Average number of professional development /administrative training programs organized by the institution for teaching and non teaching staff DURING THE YEAR

INDEX

SL. NO	Department	Page No
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Report of Two-Day Faculty Development Programme (FDP)
on
“Valuation of Immovable Property Land with Building”
[29-07-2020 & 30-07-2020]

Department Organized : Civil Engineering

Venue: Online

Participated by: Teaching staff

Event: A “2” day Faculty Development Program on “Valuation of Immovable Property Land with Building” from “29/07/2020 to 30/07/2020”.

Resource Person: **Er. V. Ilanchezhian, M.E., M.Sc.(REV), P.E., FIV.,**
Senior Professional Engineer, Chartered Structural Engineer
Registered Valuer – Income Tax, I.B.B.I., Class 1- A Engineer
RAISER Structural Engineers, Tiruchirappalli-03.

Number of participants: 74

Highlights of Event:

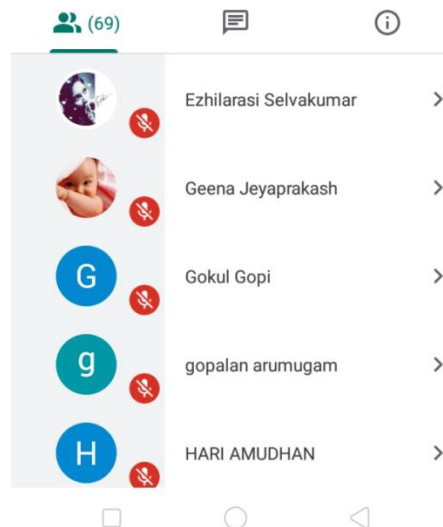
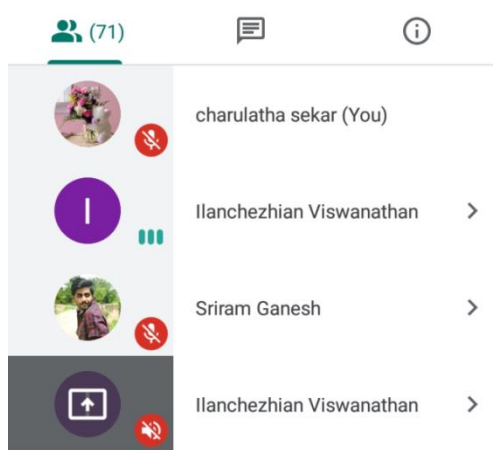
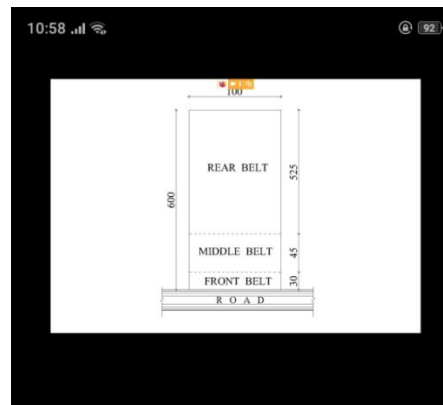
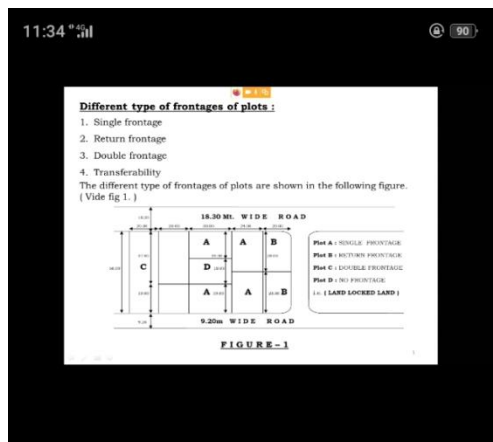
A Two-Day Faculty Development Programme was organized by the Department of Civil Engineering, Saranathan College of Engineering on the topic **“Valuation of Immovable Property Land with Building”**. The session commenced at 10.30 a.m. on 29th July 2020 via Google Meet App. Around 74 members attended the session. The programme started with the welcome address by the Head of the Department, Dr.G. Dhanalakshmi. The objective of this FDP was to enrich the knowledge of the Faculty during the COVID-19 Lockdown period. Following this, the session was initiated by an expert in the field:

The expert started the session with an introduction on how the valuation of real properties have gained an extra-ordinary importance in the past 50 years, and

taxation policies of government. He then spoke about the lack of training in this subject due to which beginners often face difficulties in the field. He also classified the land and properties other than land. The session became enthralling as he gave examples and explained every bit that the participants needed to know while they are in the field. Following this, he explained about the remedies that law grants in case of any adversity. He explained about cost, price and value differ from each other and also about their importance. He spoke about different types of values depending upon its use and purpose and explained some including Annual letting value, Accommodation value, Auction value, Book value and Break-up value which was so edifying. He then spoke about different type of frontages of plots with a fantastic layout, so it was easier to catch the drift and also explained some numerical problems on compound interest. The first day session winded up after a query session.

30th July, second day of the session, started with an explanation of Belting Theory alongwith different types of belts with a diagram and a problem which was quite informative. He then went on to explain each point in the annexure very clearly in a manner easy to understand. He elucidated on how valuation of a site is done and how its report is processed. He also shared his experiences on different approaches of estimating value of a property with a numerical problem. Then he continued with various topics like depreciation methods and its various aspects and different types of obsolescence which was so enlightening. He shared knowledge about the Law of transfer and the Rights involved which was highly helpful. This session provided an insight and a clear understanding needed for the participants when they step-out as Professionals. It was a very enriching experience for us. There was a query session arranged for the participants to clear their doubts surrounding the topic. The session then ended with a Vote of Thanks.

Photographs:



Resource Person - Er. V. ILANCHEZHIAN

Signature
“Mr. C. Kesavaraja”
 (Coordinator)

Signature
“Dr. G. Dhanalakshmi”
 (HoD/Civil)



SARANATHAN COLLEGE OF ENGINEERING

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING



AICTE
sponsored

online Short Term Training Programme (STTP)
on

**Novel Design & Control Strategies and Innovative
Technical Practices in LV/HV Modern Switchgear**

15.07.2020 - 21.07.2020 (Phase I)

KEYNOTE SPEAKERS



Dr. R. Sarathi
Professor, IIT Madras



Dr. B.K. Panigrahi
Professor, IIT Delhi



Dr. Kalyan Chatterjee
ASP & Head, IIT (ISM) Dhanbad



Dr. M. Jaya Bharata Reddy
Professor, NIT Trichy



Dr. M. Venkata Kirthiga
Asso. Professor, NIT Trichy



Dr. R. Gnanadass
Professor, PEC



Dr. V. Saravanan
Professor, TCE, Madurai



Dr. D. Kalyana Kumar
Professor, SCE, Trichy



Dr. S. Venkatesh
Asso. Professor, VIT, Vellore



Dr. K. Selvajyothi
AP, IIITD&M, Kancheepuram



Dr. B. Chitti Babu
AP, IIITD&M, Kancheepuram



Mr. S. Selva Kumar
Head-E&D, Power Projects

Dr. C. Krishnakumar
HoD / EEE, Coordinator

Dr. D. Valavan
Principal

Shri. S. Ravindran
Secretary

Register at: <https://forms.gle/wGAA6fV5N6oYyW5E8>
www.saranathan.ac.in

1. No Registration Fee
2. E-Certificate will be provided to all the
Active Participants

AICTE



Sponsored

**One week online Short Term Training Programme (STTP)
On**

**Novel Design & Control Strategies and Innovative
Technical Practices in LV/HV Modern Switchgear
(Phase I)**

15.07.2020 to 21.07.2020

Proceedings and Photo Collage

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**DEPARTMENT OF ELECTRICAL AND ELECTRONICS
ENGINEERING**

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SARANATHAN COLLEGE OF ENGINEERING

Venkateswara Nagar, Panjappur,

Tiruchirappalli – 600 012

Brochure



SARANATHAN COLLEGE OF ENGINEERING

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DEPARTMENT OF
ELECTRICAL AND ELECTRONICS ENGINEERING



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AP, IIITD&M, Kancheepuram



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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
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**AICTE Sponsored Six day Online Short Term Training Programme on
Novel Design & Control Strategies and Innovative Technical Practices in LV/HV
Modern Switchgear (Phase I)
15.07.2020 to 21.07.2020**

SCHEDULE OF TRAINING PROGRAMME

Day/ Session	FORENOON SESSION (10.00 A.M -12.00 P.M)		AFTERNOON SESSION (2.00 P.M -4.00 P.M)
15.07.20 WED	Inauguration (9.30 AM) Dr.R.Sarathi Professor, IIT Madras High Voltage Engineering	L U N C H B R E A K	Mr.S.Selvakumar Head – Engineering & Design, Power Projects Power System Protection in off-grid / on- grid Renewable Energy Systems
16.07.20 THU	Dr.B.K.Panigrahi Professor, IIT Delhi AI applications on Power Systems		Dr. K Selvajyothi AP/EEE, IIITD&M, Kancheepuram Frequency Locked Loops for Single Phase Grid Synchronization
17.07.20 FRI	Dr.Jaya Bharata Reddy, Professor, NIT Trichy Synchrophasor applications in Smart Grid		Dr. B. Chitti Babu AP/EEE, IIITD&M, Kancheepuram Control of Self-Excited Induction Generator (SEIG) with improved power Quality in the off-grid system
18.07.20 SAT	Dr. Kalyan Chatterjee, HOD & Associate Professor, IIT(ISM), Dhanbad Fault ride-through capability of WECS		Dr. R. Gnanadass Professor, PEC, Pondicherry Protection Schemes in Smart Grid
20.07.20 MON	Dr.S.Venkatesh Associate Professor, VIT Vellore Trends and Challenges in High Voltage Circuit Breaker Testing, Quality Assessment and Condition Monitoring		Dr.V.Saravanan, Professor, TCE, Madurai Selection and Ratings of Protective Devices for Domestic & Commercial Electrical Installation
21.07.20 TUE	Dr. M.Venkata Kirthiga ASP, NIT Trichy Islanding Detection Schemes in Micro-grids		Dr.D.Kalyana Kumar Professor, SCE TECHNICAL REQUIREMENTS - from Protection Perspectives for Power System Reliability



SARANATHAN COLLEGE OF ENGINEERING

Venkateswara Nagar, Panjappur, Tiruchirappalli – 12



**DEPARTMENT OF ELECTRICAL AND ELECTRONICS
ENGINEERING**
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Cordially invites you

for the Inaugural function of the

AICTE Sponsored
One Week online Short Term Training Programme (STTP)
on

**Novel Design & Control Strategies and Innovative
Technical Practices in LV/HV Modern Switchgear
(Phase I)**

Chief Guest

Dr.R.Sarathi
Professor, EEE
IIT Madras, Chennai

July 15, 2020
09:30 am

Google Meet Link: <https://meet.google.com/jes-msgp-wzq>

Dr.C.Krishnakumar
Coordinator, Prof & Head /EEE

Dr.D.Valavan
Principal

Shri. S. Ravindran
Secretary



15.07.2020

Wednesday

Dr.R.Sarathi

**Professor, Department of Electrical and Electronics Engineering
Indian Institute of Technology Madras
Chennai**

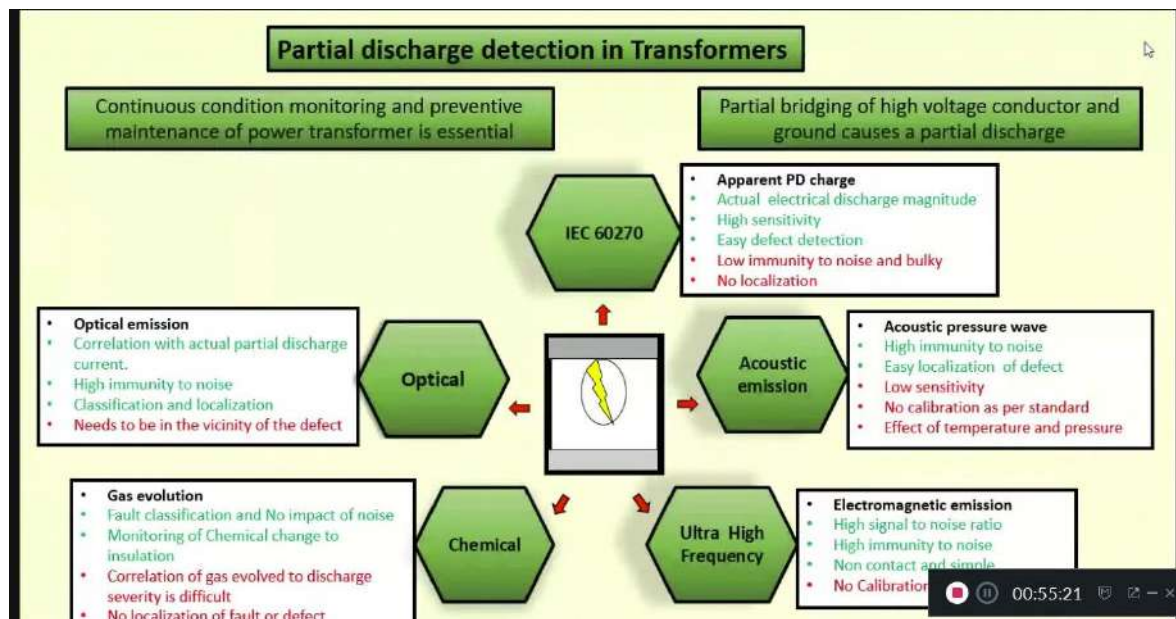
**Topic: Health Monitoring of Transformers adopting Multi Sensor
Fusion Technique**

15.07.2020
Wednesday
FN Session
10.00 AM to 12.00 PM

INAUGURAL CEREMONY

The one week AICTE Sponsored Online Short Term Training Programme on Novel Design & Control Strategies and Innovative Technical Practices in LV/HV Modern Switch Gear (Phase - I) started on 15th July with an inauguration ceremony. Coordinator of the STTP, Dr. C.Krishnakumar, Professor & Head, Department of Electrical and Electronics Engineering welcomed all the participants in his welcome address. Dr. D.Valavan, Principal of Saranathan College of Engineering, added a special value to the STTP by delivering felicitation address. The Inauguration ceremony ended with vote of thanks given by Dr.K.Rajkumar, Assistant Professor, EEE, SCE.





Source localization Accuracy

Table IV. Actual Sensor and Source location.

Sensors and source	x, y, z (m)
Source	1.2, 2.4, 0.62
Sensor 1	1.6, 0.0, 0.72
Sensor 2	0.8, 0.0, 0.72
Sensor 3	0.0, 0.8, 0.72
Sensor 4	2.4, 0.8, 0.72

Table V. Actual and estimated source locations.

Method	x, y, z (m)
Actual position	1.20, 2.40, 0.62
Practically calculated	1.20, 2.34, 0.63
Calculated by Simulation	1.20, 2.39, 0.62

- A maximum deviation of 6 cm is observed in practical case.
- A maximum deviation of 1 cm is obtained in the simulated case
- A non- iterative method has method has been employed for source localization
- Designed model automatically disregard invalid time groups

Mr.S.Selvakumar

Head – Engineering & Design

Power Projects

Bengaluru

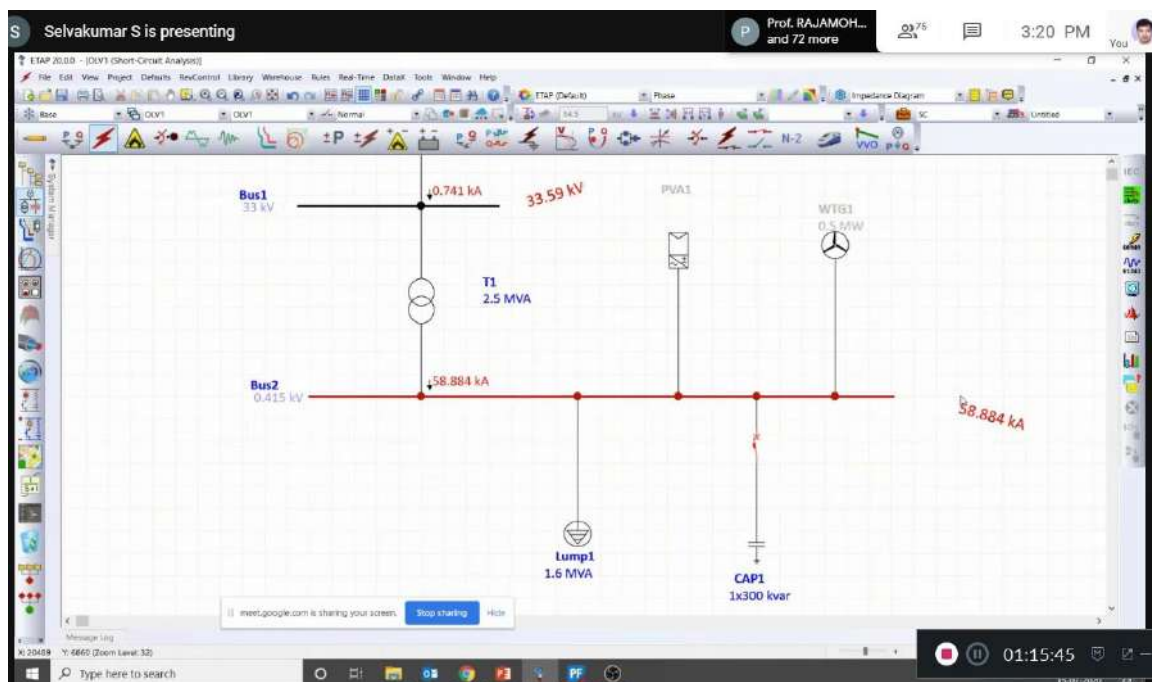
Topic: Power System Protection in off-grid / on-grid Renewable Energy Systems

15.07.2020

Wednesday

AN Session

02.00 PM to 04.00 PM



S Selvakumar S is presenting

K KALYANA KUMA... and 71 more

3:00 PM

The diagram illustrates a Microgrid system architecture. On the left, 'Utility supply' is connected to a 'Static Switch' and a 'Bypass Circuit'. Below this, 'Solar' and 'Wind' sources are connected to 'Energy Storage' and 'A2-PCS' (AC/DC Power Conversion System). These components are part of the 'Merus ESS - UPQ' (Energy Storage System - Uninterruptible Power Quality) unit. The output of the system is connected to 'Micro Grid Loads'. A small inset graph shows a waveform, likely representing the power output or load profile.

What is Microgrid

Meeting details

Turn on

00:55:49

S Selvakumar S is presenting

Davraj Thangell... and 73 more

3:04 PM

Meet - jss-mgq-wzq

meet.google.com/jss-mgq-wzq

S You are presenting

You're presenting to everyone

Stop presenting

Meeting details

People (76)

Chat

Sir I need today's morning feedback link

You 3:01 PM:
<https://www.youtube.com/watch?v=HMAH8z7Ga&t=2802s>

Prof. NATARAJAN .S 3:01 PM:
Sir,

You 3:02 PM:
<https://www.youtube.com/watch?v=Fc9y9KE2w8&t=19s>

Prof. NATARAJAN .S 3:02 PM:
Sir, For educational institutions we are not supposed to export solar generation which is surplus
Net metering is not allowed for educational institutions.

You 3:04 PM:
<https://resol.tnrel.gov/todi>

Participants:

- Divya Vignesh
- Dr.S. Srinath
- Cenate Sushil
- Muralicharan S
- Usha S
- Ashlesha Samohinvisu
- Gnanasekaran Namachivayam
- Dr.M.V.Suganyadevi EEE



16.07.2020

Thursday

Dr.B.K.Panigrahi

Professor, Department of Electrical and Electronics Engineering
Indian Institute of Technology Delhi
New Delhi

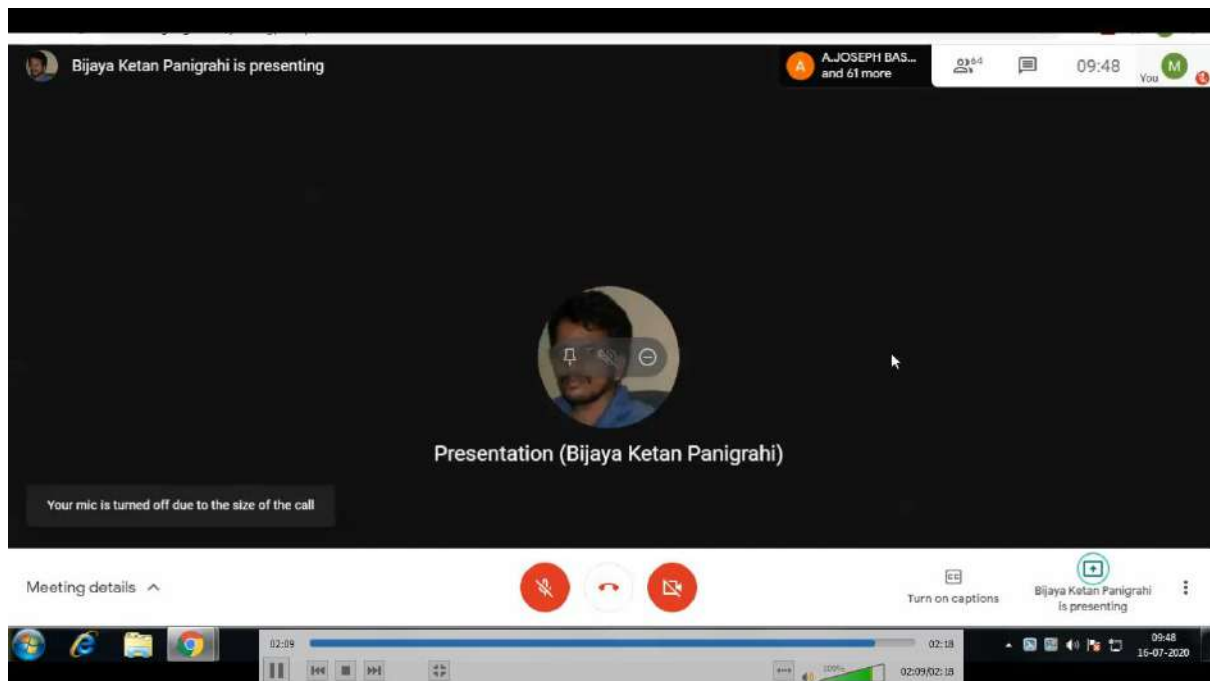
Topic: AI applications on Power Systems

16.07.2020

Thursday

FN Session

10.00 AM to 12.00 PM



Bijaya Ketan Panigrahi is presenting

Paveethra S.R. and 71 more

10:07

61

Problem formulation

- Problem formulation for optimal relay coordination
- The main objective is to minimize total operating time of relay all primary relay (OF) as well as coordination time interval (CTI).

$$\min (OF) = \sum_{k=1}^{N_L} \sum_{i=1}^{N_S} (T_{pi_near}^i + T_{pi_far}^i)$$

$$T_{pi_near}^i = \frac{\alpha * TDS^i}{[(\frac{I_{pi_near}^i}{PS^i * CT_{near}^i * I_{psc}^i})^\beta - \gamma]}$$

$$T_{pi_far}^i = \frac{\alpha * TDS^{i'}}{[(\frac{I_{pi_far}^{i'}}{PS^{i'} * CT_{near}^{i'} * I_{psc}^{i'}})^\beta - \gamma]}$$

$$TDS_i^{\min} \leq TDS_i \leq TDS_i^{\max}$$

$$PS_i^{\min} \leq PS_i \leq PS_i^{\max}$$

Types of characteristics	α	β	γ
Standard Inverse (SI)	0.14	0.02	1
very Inverse (VI)	13.5	1	1
Extremely	80	2	1

Activate Windows
Go to Settings to activate Windows.

Relay Coordination in Distribution Network with DG Penetration

Gnanasekaran Namachivayam
Nice Presentation Sir

Dr.K.Selvajyothi

Assistant Professor, Department of EEE
Indian Institute of Information Technology, Design & Manufacturing
Kancheepuram, Tamil Nadu

Topic: Frequency Locked Loops for Single Phase Grid Synchronization

16.07.2020

Thursday

AN Session

02.00 PM to 04.00 PM

S Selvajyothi Kamakshy is presenting

MAHANTESHA A and 43 more

Home Tools FLL 16 July 2020 s... 2 / 28 80.8% Sign In Share

FLL for Single Phase Grid Synchronization Dr K Selvajyothi, IITDM Kancheepuram

Frequency Locked Loop for Single Phase Grid Synchronization

for
AICTE sponsored STTP @ Saranathan College of Engineering
on
16/07/2020

*Novel Design & Control Strategies and Innovative Technical Practices
in LV/HV Modern Switch Gear*

Presented by: Dr. K. Selvajyothi
Assistant Professor

Department of Electronics and Communication Engineering
INDIAN INSTITUTE OF INFORMATION TECHNOLOGY DESIGN AND MANUFACTURING, KANCHEEPURAM

00:00

Meet - jes-msgp-wzq

meet.google.com/jes-msgp-wzq

S Selvajyothi Kamakshy is presenting

Jegan smart and 69 more

Home Tools FLL 16 July 2020 s... 14 / 28 75.8% Sign In Share

Fill & Sign

FLL for Single Phase Grid Synchronization Dr K Selvajyothi, IITDM Kancheepuram

Design with frequency correction

$$\Lambda_m = \begin{bmatrix} \alpha_m & \alpha_m^{-1} \\ \alpha_m + 1 & \alpha_m \end{bmatrix} \quad \text{where, } \alpha_m = \cos(m \cdot \omega_1 T)$$
$$x_{m1}((k+1)T) = x_{m1}(kT) \cos(m(\omega_1 + \Delta\omega)T) + x_{m2}(kT) (\cos(m(\omega_1 + \Delta\omega)T) - 1) + d_{m1} \cdot e(kT)$$
$$x_{m2}((k+1)T) = x_{m2}(kT) (\cos(m(\omega_1 + \Delta\omega)T) + 1) + x_{m1}(kT) \cos(m(\omega_1 + \Delta\omega)T) + d_{m2} \cdot e(kT)$$

For small frequency changes, $(m \cdot \Delta\omega T) \rightarrow 0$
 $\sin(m \cdot \Delta\omega T) \rightarrow (m \cdot \Delta\omega T)$ and $\cos(m \cdot \Delta\omega T) \rightarrow 1$

$$A_m = \begin{bmatrix} \alpha_m - \beta_m (m \cdot \Delta\omega T) & \alpha_m - \beta_m (m \cdot \Delta\omega T) - 1 \\ \alpha_m - \beta_m (m \cdot \Delta\omega T) + 1 & \alpha_m - \beta_m (m \cdot \Delta\omega T) \end{bmatrix}$$

where $\beta_m = \sin(m \cdot \omega_1 T)$

Block diagram of the PLL system showing input signal $x(t)$, reference signal $\sin(\omega_1 t)$, and output signal $\hat{x}(t)$.

Graphs showing the reconstructed signal and fundamental component (Fund.) for the PLL system. The top graph shows the reconstructed signal and fundamental component for the PLL system. The bottom graph shows the reconstructed signal and fundamental component for the PLL system.

14

00:00

Meet - jes-msgp-wzq

meet.google.com/jes-msgp-wzq

S Selvajothi Kamakshy is presenting

Geetha Raman and 69 more

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Fill & Sign

FLL for Single Phase Grid Synchronization

Dr K Selvajothi, IITDM Kancheepuram

Purpose of Phase Locking Arrangement

- Frequency variations beyond $\pm 1.5\%$ of the basic frequency a phase locking arrangement is essential to keep track of the varying input frequency.
- This makes the phase error to zero.
- Consider the m^{th} sub block of $[A]$, tuned to $\omega_m = m \cdot \omega_1$

Supposing there is a drift in the fundamental frequency $= \Delta\omega$, the m^{th} observer block must be re-tuned to $m \cdot (\omega_1 + \Delta\omega)$ so that the gain is unity and the phase is zero.

- If $\Delta\omega$ could be estimated on-line and the frequency parameter of the various sub-blocks of the composite observer changed from ω_m to $\omega_m' = (\omega_m + m \cdot \Delta\omega)$, adaptively, all the harmonics can be properly estimated.
- Now, $\Delta\omega(\rightarrow 0)$ can be estimated by performing the cross-correlation between the overall error signal $e(t)$ and the quadrature component of the fundamental sub-block.
- The integrand will vanish when, either $e(t)=0$ or $e(t)$ contains signal components, which are orthogonal to x_{12} .

Meet - jes-msgp-wzq

meet.google.com/jes-msgp-wzq

S Selvajothi Kamakshy is presenting

Fathema Farzen... and 71 more

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Home Tools FLL 16 July 2020 s... 24 / 28 75.8% Sign In

Fill & Sign

FLL for Single Phase Grid Synchronization

Dr K Selvajothi, IITDM Kancheepuram

Grid Connected Inverter

Discrete TF of inverter: $G_{inv}(z) = \frac{T/L}{z-1+RT/L} = \frac{\beta}{z-1+R\beta}$

Discrete TF of PR controller:

$$G_p(z) = K_p + G_c(z) = K_p + \frac{L_1(z-\alpha) + L_2(\alpha-1)}{z^2 - 2\alpha z + 1}$$

Pole placement technique is used to calculate the controller gains

Actual closed loop poles of PR controller: $(z-0.999)(z^2-2\alpha z+1) + g(K_p z^2 + (L_1-2\alpha K_p)z + C) = 0$

Assumed closed loop poles of PR controller:

$$(z-h)(z^2-2e^{-\alpha\omega T}\alpha z + e^{-2\alpha\omega T}) = 0$$

Parameter values:

Parameter	Values
Grid Voltage (V_g)	100 V _{rms}
Grid Frequency (ω)	50 Hz
Inverter Filter Inductor (L)	4 mH
Inverter Battery Voltage (V_{dc})	64 V

Frequency Spectral Analysis:



17.07.2020

Friday

Dr.Jaya Bharata Reddy

Professor, Department of Electrical and Electronics Engineering
National Institute of Technology Trichy
Tiruchirapalli, Tamil Nadu.

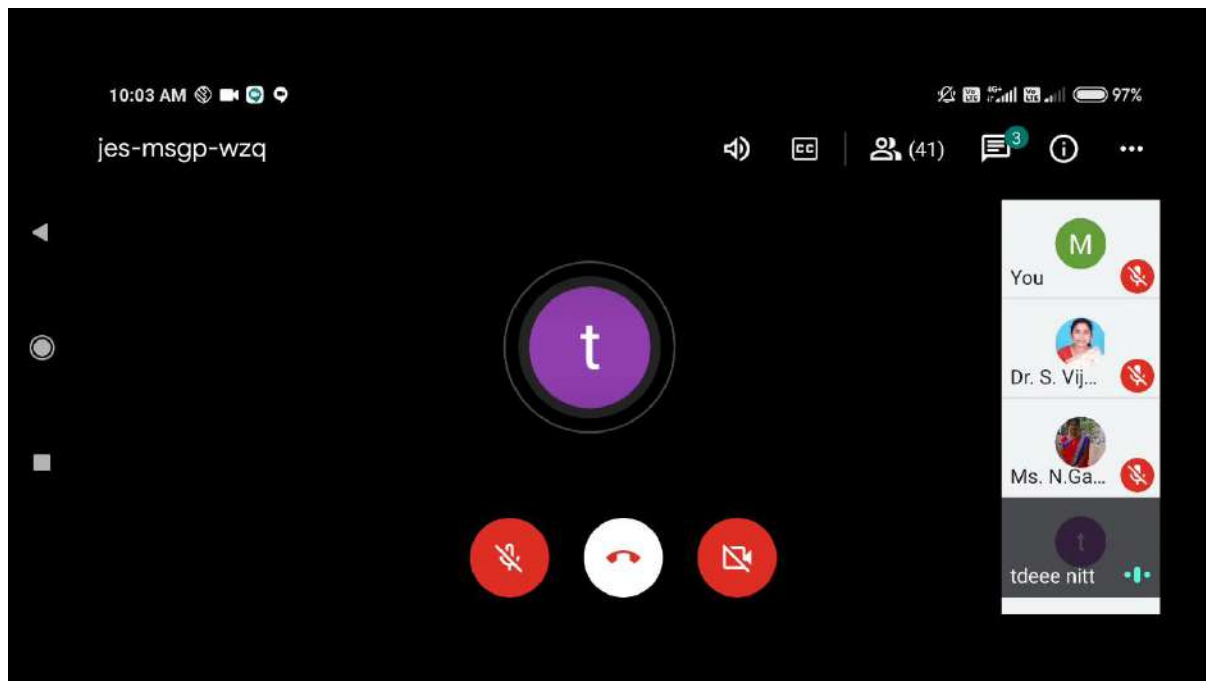
Topic: Synchrophasor applications in Smart Grid

17.07.2020

Friday

FN Session

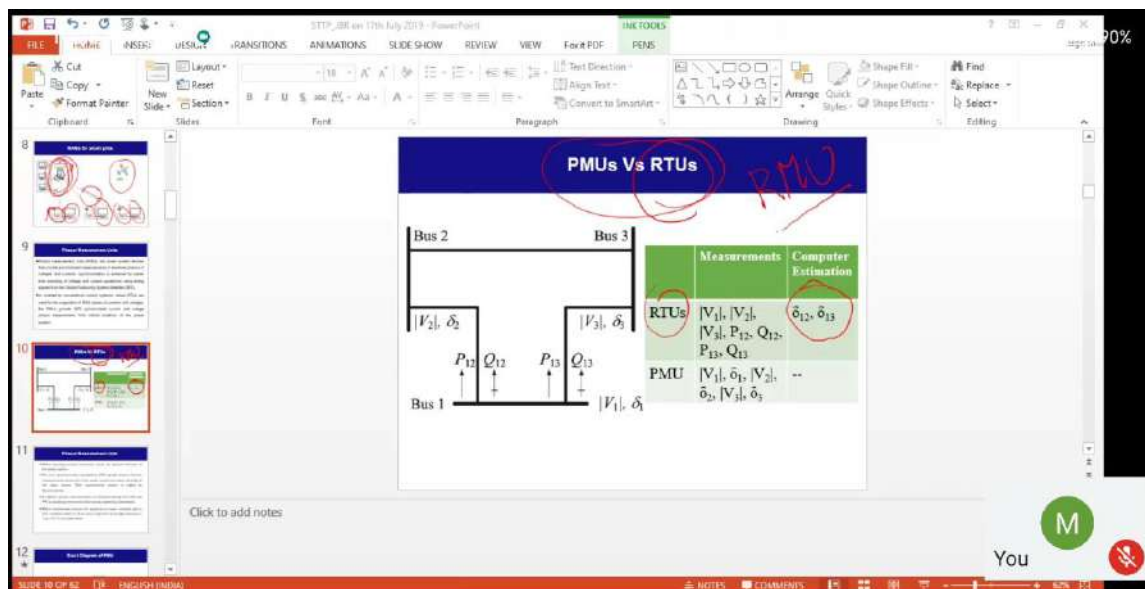
10.00 AM to 12.00 PM



Comparative Study		
Feature	Current Grid	Smart Grid
Communications	One-way	Two-way, real-time
Customer Interaction	Limited	Extensive
Metering	Electromechanical	Digital
Operation & Maintenance	Manual equipment checks, time-based maintenance	Remote monitoring, predictive, condition-based maintenance
Generation	Centralized	Centralized and distributed
Power Flow Control	Limited	Comprehensive
Reliability	Prone to failures and cascading outages	Pro-active, real-time protection and islanding
Restoration	Manual	Self-healing
Topology	Radial	Network

WAMS for Smart grids

- Smart grid implementation requires advanced monitoring infrastructures embedded in transmission/distribution networks like Wide Area Measurement System (WAMS).
- Synchronized phasor measurements from Phasor Measurement Units (PMUs) are the important element of wide area measurement systems used in advanced power system monitoring, protection, and control applications.
- PMUs can report the precise phasor values of the monitored buses, synchronized to GPS satellite time base.



Dr.B.Chittibabu

Assistant Professor, Department of EEE
Indian Institute of Information Technology, Design & Manufacturing
Kancheepuram, Tamil Nadu

Topic: Control of Self-Excited Induction Generator (SEIG) with improved the power Quality in the off-grid system

17.07.2020

Friday

AN Session

02.00 PM to 04.00 PM

The screenshot shows a Google Meet interface. The main window displays a presentation slide with the text "You're presenting to everyone" and a "Stop presenting" button. The slide is titled "Indian Lecture (EEC, Trichy)" and is a Microsoft PowerPoint. The bottom of the slide shows a list of participants: Rajesh Rajan, V. V. V. V. V., Praveen P.A., D.G. Satish, Anishtha S., Anishtha S., Pradeep Verma, gyanesh datta, and Sunil Kumar. To the right of the main window is a chat window with messages from participants. The messages include: "Sunil Kumar Gunda 3:35 PM: Excellent session Sir.. What is the plagiarism percentage allowed to the above journal Sir...", "B Chitti Babu 3:37 PM: including references it should be less than 20%", "Muralidharan S. 3:37 PM: Will the same procedure could be used for permanent magnet IG?", "B Chitti Babu 3:37 PM: NO..", "Sunil Kumar Gunda 3:37 PM: Thank you so much Sir", "B Chitti Babu 3:37 PM: PMSG...", "You 3:37 PM: no need to type sir we can hear you here", and "Send a message to everyone".



Barriers and Challenges of Today's Power System

- **Complexity of traditional power systems:**
 - Fully coupled dynamics of generation, distribution, and delivery.
 - System stability is enabled by imposing an overwhelming, slow, electromechanical or electrochemical dynamics of the sources.
- **Local focus of power electronics:**
 - Concentrated on load dynamics
 - Evolving focus on source dynamics (UPS, distributed generation, fuel cells, alternative energy sources)
 - Until now, only "fixing the problems" of power distribution

Challenge:

Reduce system cost, increase efficiency and availability by decoupling the dynamics of energy sources, distribution system, and loads through the use of power electronics.

7/17/2020

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3-Pha Induction Generator @ SCE, Trichy

7

B Chitti Babu is presenting 01:00:59



Presentation outline

- Distributed Generation (DG) System- Overview
- DGs Integration with Utility Grid
- Impact on Voltage and Harmonics in DG System
- Requirements of DG system Interconnected with Utility Grid
- Power Quality Requirements & Power Quality Standard in DG System

7/17/2020

macgoogle.com is sharing your screen. Stop sharing Hide

SCE, Trichy 2

B Chitti Babu is presenting 01:15:41



Impact on Voltage and Harmonics in System

- Noticeable voltage fluctuation may be caused by DG.
- Fluctuation can be either a simple issue or a complex issue as far as its analysis and mitigation are concerned.
- It can be the result of starting a machine (e.g. induction generator) or step changes in DG output which result in a significant voltage change on the feeder.
- In the case of wind and solar energy systems, the outputs will fluctuate significantly as the sun and wind intensity change. This causes power quality problems.
- Distributed generators may also introduce harmonics. The type and severity will depend on the power converter technology and interconnection configuration.
- In the case of inverters, there has been particular concern over the possible harmonic current contributions.

7/17/2020

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SCE, Trichy 12

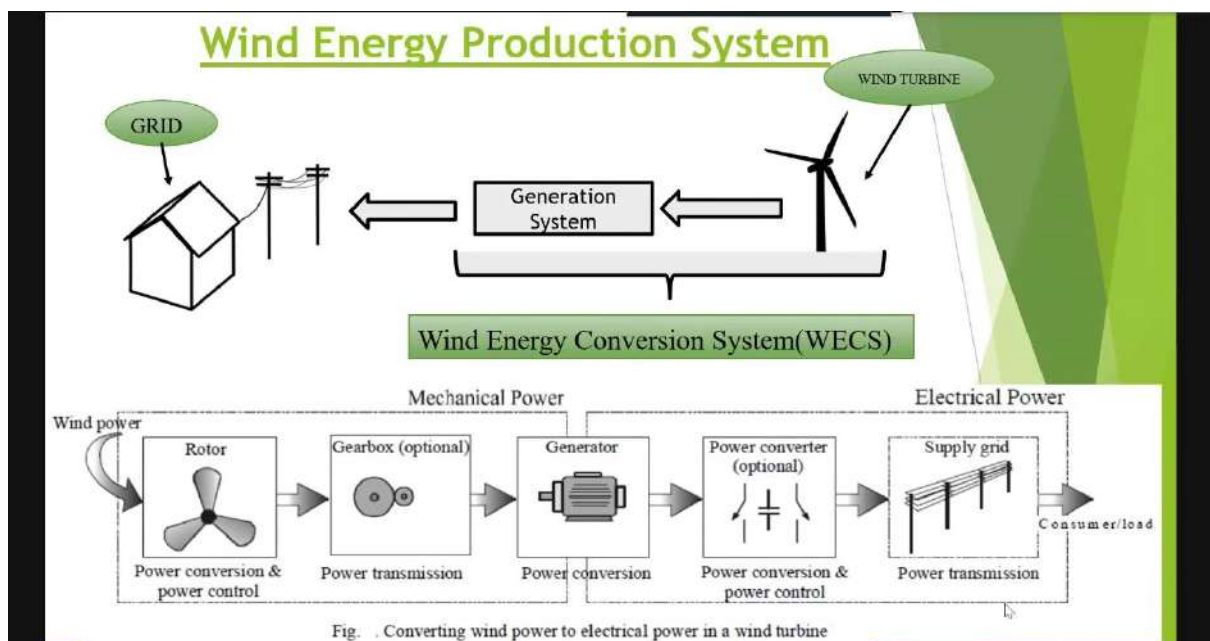
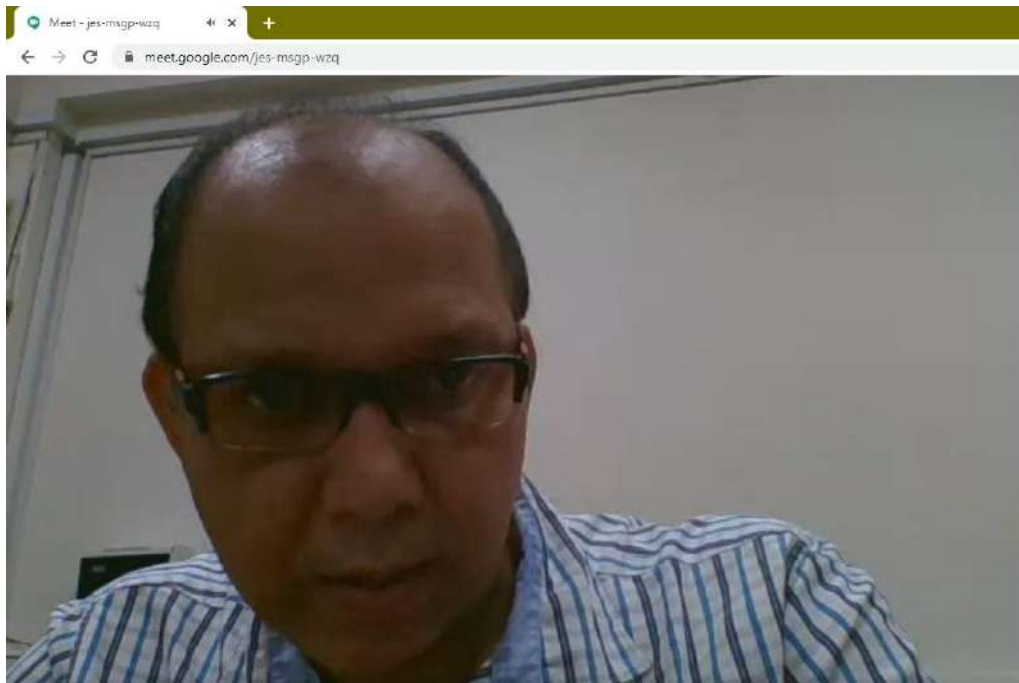


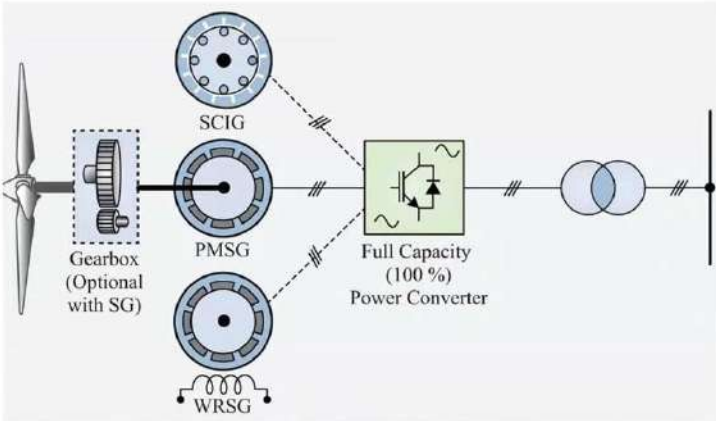
18.07.2020

Saturday

Dr. Kalyan Chatterjee
HOD & Associate Professor, Department of EEE
Indian Institute of Technology Dhanbad
Dhanbad.
Topic: Fault ride-through capability of WECS

18.07.2020
Saturday
FN Session
10.00 AM to 12.00 PM



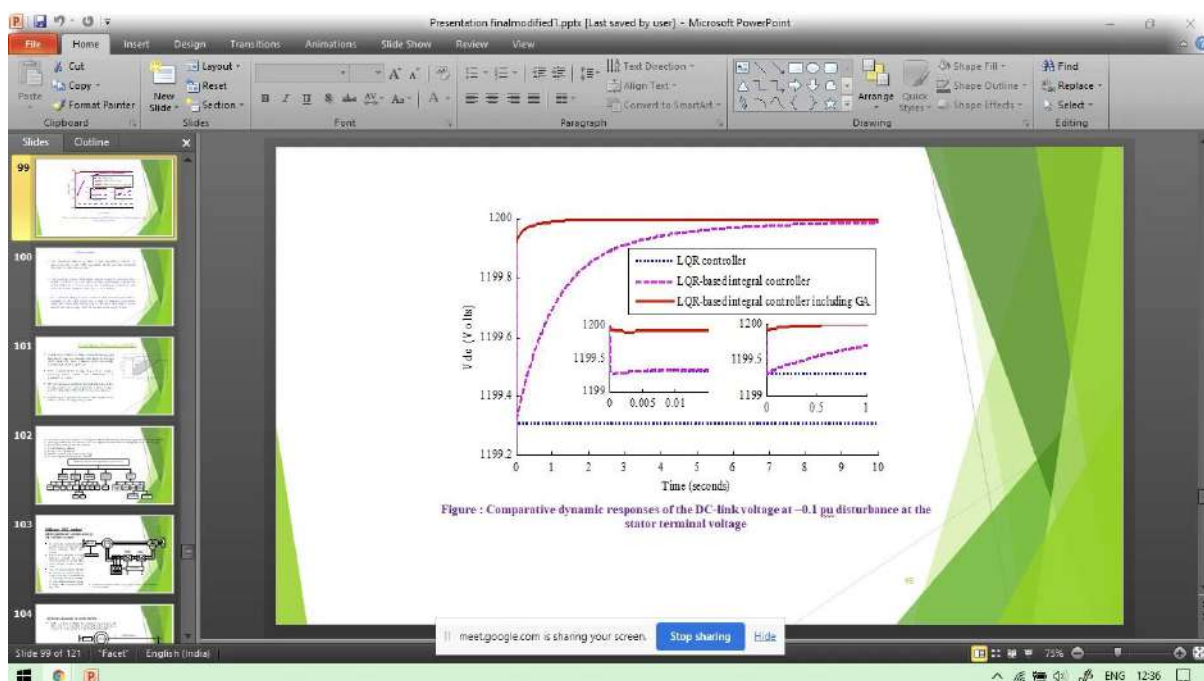


Type 4: Full-variable speed (0–100%) WECS with SCIG, PMSG or WRSB

Cont.

- This configuration is more **robust** against power system faults compared to the Type 1, 2, and 3 turbines

- The performance of WECS can be greatly enhanced with the use of full-scale (100%) power converters as shown in Figure (Type 4 turbine)
- The power converters enable the system to perform reactive power compensation and smooth grid connection.
- The wind energy conversion efficiency is highest in these turbines compared to other types of turbines



Dr. R. Gnanadass

Professor, Department of Electrical and Electronics Engineering
Pondicherry Engineering College
Pondicherry.

Topic: Protection Schemes in Smart Grid

18.07.2020

Saturday

AN Session

02.00 PM to 04.00 PM

Dr. Gnanadass Ramachandran is presenting

VIDHYA.EEE K. A... and 34 more

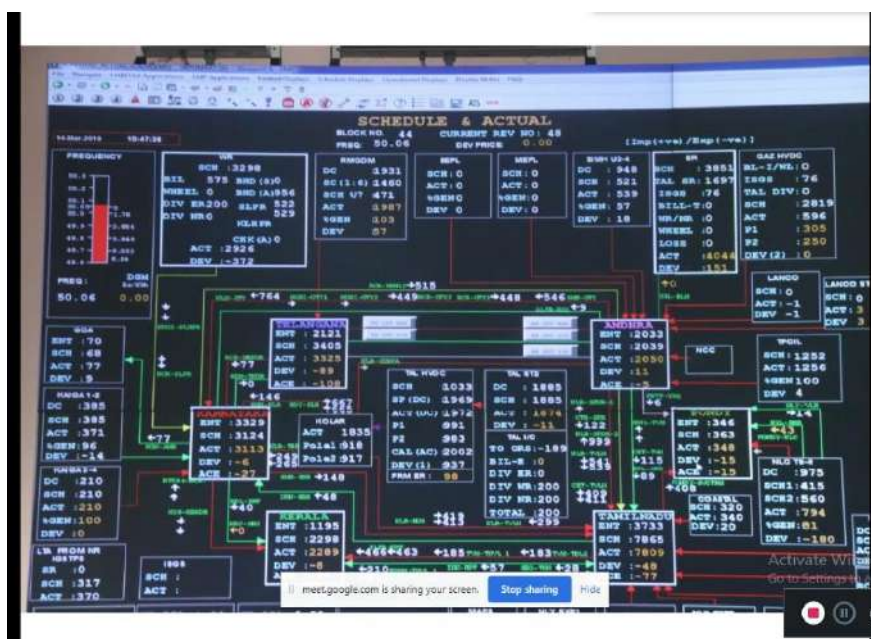
PROTECTIVE SCHEMES FOR SMART GRID



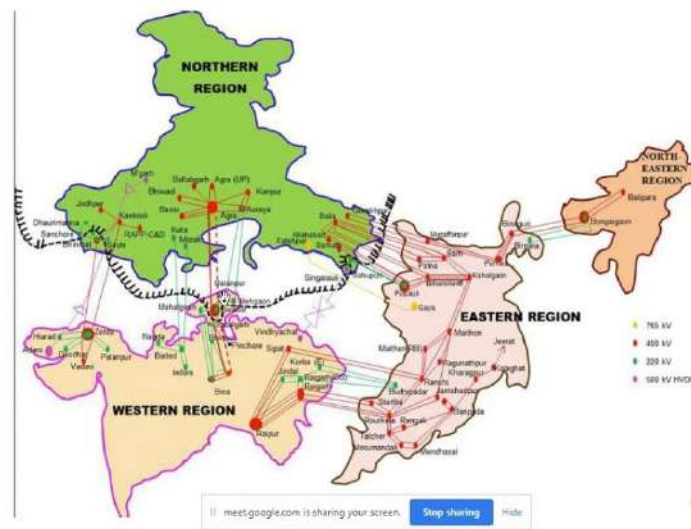
Dr. R. GNANADASS, BOYSCAST Fellow
Professor, EEE Department
Pondicherry Engineering College, Puducherry - 605 014
(An Autonomous Institution of Government of Pondicherry)

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Mobile: 9443084441



Angular Separation on 30th July 2012



Ref: Report of the Enquiry Committee on Grid Disturbance, 16th August 2012

AI based PS Research Problems

- Transformer Loading Prediction
 - Transmission Line Overloading Prediction
 - Battery failure Prediction
 - Power Quality Prediction
 - Power System Fault Prediction
 - Maximum Demand Prediction
 - ABT Prediction
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20.07.2020

Monday

Dr.S.Venkatesh

Associate Professor, Department of EEE
Vellore Institute of Technology
Vellore.

**Topic: Trends and Challenges in High Voltage Circuit Breaker
Testing, Quality Assessment and Condition Monitoring**

20.07.2020

Monday

FN Session

10.00 AM to 12.00 PM

V Venkatesh S is presenting

Ms. N.Gayathri ... and 23 more

Contents

- Terminologies– Switchgear, Disconnecter & Circuit Breaker
- Chronological Survey of Evolution of Circuit Breakers
- Evolution of IEC standards for High Voltage Circuit Breakers
- Major International Standards – Circuit Breakers
- Characteristics and Rated Specifications as per Standards
- Classification of CB based on Duty Cycle
- Classification of Circuit Breakers
- Principle & Working of Various Circuit Breakers- An Overview
 - ABCB
 - OCB
 - VCB
 - SF₆ CB
- Testing of Circuit Breakers – Types
 - Type Tests
 - Routine Tests
 - Field Tests
- Condition Monitoring & Assessment of Circuit Breakers
- Challenges in Circuit Breaker Testing, QA and Condition Monitoring

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SF ₆ CIRCUIT BREAKER			
BREAKER SERIAL NUMBER	kV		420
RATED VOLTAGE	A		3150
NORMAL CURRENT	Hz		60
FREQUENCY			
POWER FREQUENCY WITHSTAND VOLTAGE	kV rms		610
ACROSS OPEN CONTACTS	kV rms		520
TO EARTH	kVp		1425
LIGHTNING IMPULSE WITHSTAND VOLTAGE	kVp		1050
SWITCHING SURGE WITHSTAND VOLTAGE			181
FIRST-POLE-TO-CLEAR FACTOR	kA		60
SHORT-TIME WITHSTAND CURRENT	S		3
DURATION OF SHORT-CIRCUIT			
SHORT-CIRCUIT BREAKING CURRENT	kA		60
SYMMETRICAL	kA		61.2
ASYMMETRICAL	kAp		125
SHORT-CIRCUIT MAKING CURRENT	KA rms		12.5
OUT-OF-PHASE BREAKING CURRENT	A		600
LINE CHARGING BREAKING CURRENT			
OPERATING SEQUENCE	O - 0.3s - CO - 3min - CO		
SF ₆ GAS PRESSURE AT 20° C, 1012 hPa	bar (gauge pressure)		6.5
TOTAL MASS OF SF ₆ GAS	kg		61.1
MASS OF THE CIRCUIT BREAKER	kg		7245
REFERENCE STANDARD			IEC 62271-100
YEAR OF MANUFACTURE			
CLASSIFICATION			C2-M2
CUSTOMER			
NOA No.			

Classification of CB based on Duty Cycle

- **Mechanical Operation- Class M1 and M2**
 - **Class M1** - Relatively small switching transmission lines (type tested for 2000 operations)
 - **Class M2** - Frequent switching of reactors, capacitor banks, industrial applications (type tested for 10000 operations)
- **Electrical Endurance- Class E1 and E2**
 - **Class E1:**
 - No requirement for electrical endurance for circuit-breakers at voltages ≥ 52 kV
 - Generally, Class E1 CB are adequate
 - **Class E2:**
 - Proposes a test procedure for electrical endurance tests for rated voltages ≥ 72.5 kV
 - Special applications (e.g. frequent fault occurrence, pumping stations, capacitor banks, etc.)
- **Capacitive Current Switching Operations- Class C1 and C2**
 - **Class C1** - Medium voltage circuit-breakers and circuit-breakers applied for infrequent switching of transmission lines and cables.
 - **Class C2** - Capacitor bank circuit-breakers and those used on frequently switched transmission lines and cables

References

- [1] C. H. Flurscheim, "Power Circuit Breaker Theory and Design", IEE Power Engineering Series 1, Peter Peregrinus Ltd., 2nd Edition, 1985
- [2] Ruben D Garzon, "High Voltage Circuit Breakers- Design and Application", Marcel Dekker, New York, 2nd Edition, 2002
- [3] IEC 62271- High-voltage switchgear and controlgear - Part 1: Common specifications for alternating current switchgear and controlgear
- [4] IEC/TR 62271-306 - High-voltage switchgear and controlgear, Part 306: Guide to IEC 62271-100, IEC 62271-1 and other IEC standards related to alternating current circuit-breakers
- [5] IEEE Std C37.010- IEEE Application Guide for AC High Voltage Circuit Breakers > 1000 Vac Rated on a Symmetrical Current Basis
- [6] IEC 60947-2 - Low-Voltage Switchgear and Controlgear, Part 2: Circuit Breakers [ETD 7: Low Voltage Switchgear and Control-gear
- [7] IEC 60427 - Synthetic Testing of High-Voltage Alternating Current Circuit-breakers
- [8] IEC/TR 62271-300 -High-voltage switchgear and controlgear - Part 300: Seismic qualification of alternating current circuit-breakers
- [9] IEEE C37.20.2-2015 - IEEE Standard for Metal-Clad Switchgear
- [10] IEEE C37.04-2018 - IEEE Standard for Ratings and Requirements for AC High-Voltage Circuit Breakers with Rated Maximum Voltage Above 1 kV

Dr. V. Saravanan

Professor, Department of Electrical and Electronics Engineering
Thiagarajar College of Engineering
Madurai.

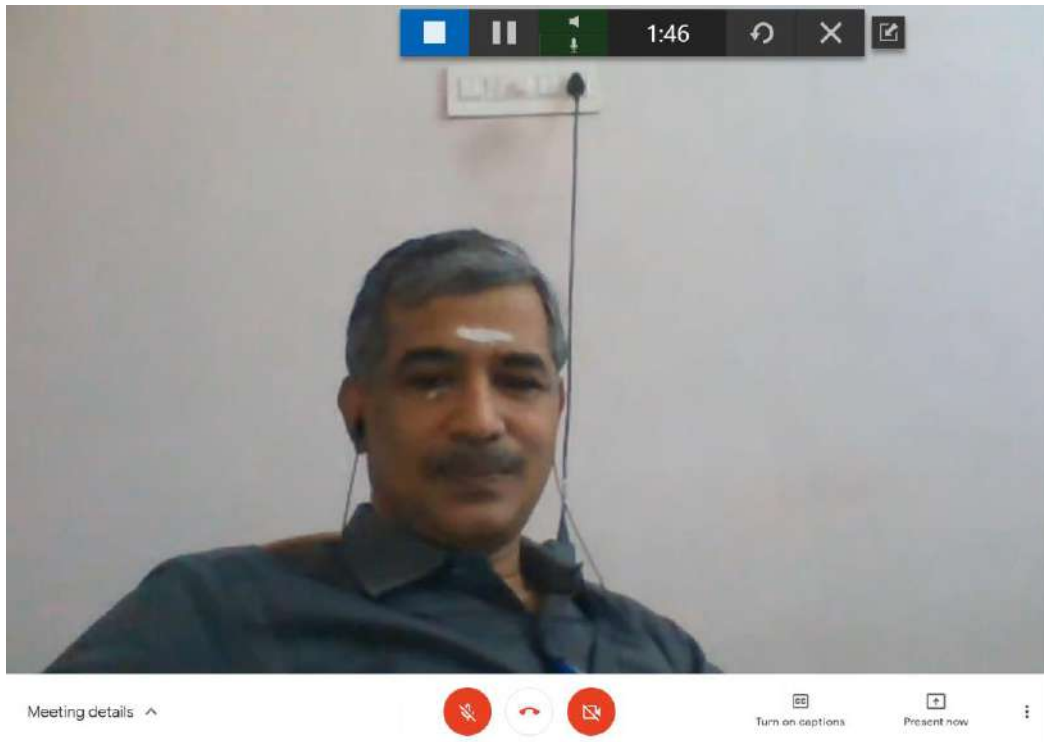
Topic: Selection and Ratings of Protective Devices for Domestic & Commercial Electrical Installation

20.07.2020

Monday

AN Session

02.00 PM to 04.00 PM



Motor Protection Circuit Breakers(MPCB)

- MPCB may provide the following Protective & Control functions.
- **Disconnect for Motor Branch Circuit**
- **Short-Circuit Protection (Magnetic Protection)**
- **Overload Protection (Thermal Protection)**
- **High Current Limiting**
- **High Switching Capacity**

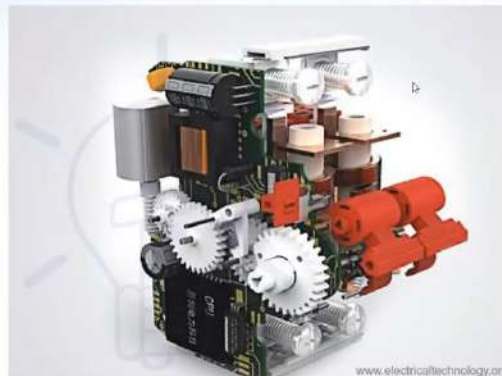
Range 0.1 to 630 A



Paveethra S.R. has left the meeting

WiFi Circuit Breaker

- WiFi circuit breakers are same like normal and ordinary CBs with
 - An antenna for WiFi signals
 - a special mechanical switch mechanism for automatic ON/OFF operation



Selection of Protective Devices

Purpose	Device	Protection
11KV Incomer	Vacuum CB	OL, SC & Earth Fault
MV Main DB	Air Blast CB	OL, SC & Earth Fault
125A to 630A	MCCB	OL, SC & Earth Fault
1A to 125A	MCB	OL & SC
Up to 20A	Fuse	OL & SC
Domestic/Public Bldg.	ELCB	OL, SC & Earth Fault
Voltage Sensitive Devices	SPD / LA	Surge Protection



21.07.2020

Tuesday

Dr. M.Venkata Kirthiga

Associate Professor, Department of EEE
National Institute of Technology Trichy
Tiruchirapalli.

Topic: Islanding Detection Schemes in Micro-grids

21.07.2020

Tuesday

FN Session

10.00 AM to 12.00 PM



What is Distributed Generation?

- Generation applied at Distribution level
- Generator capacity – 15 to 10000kW
- Generators may be located either at the site of utility consumer or at isolated site
- Co-generation and new technologies are incorporated
- Non-dispatchable (mostly)

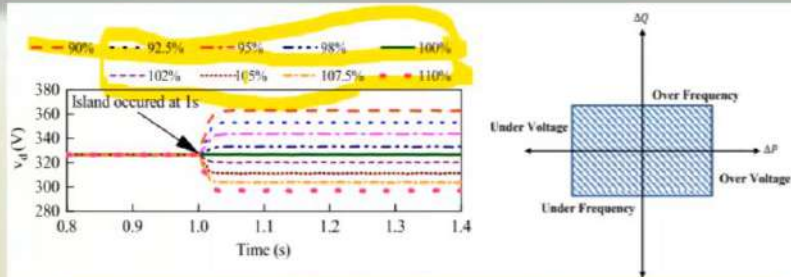
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M. Venkata Kirthiga / NITT

0

NON-DETECTION ZONE



Greater power mismatch condition

- Power generation > Power demand and Power generation < Power demand

Lesser power mismatch condition

- Power generation $\approx$ Power demand
- Power generation == Power demand (Perfectly matched power condition or zero power mismatch condition)

AICTE STTP on Novel Design & Control Strategies

7/21/2020

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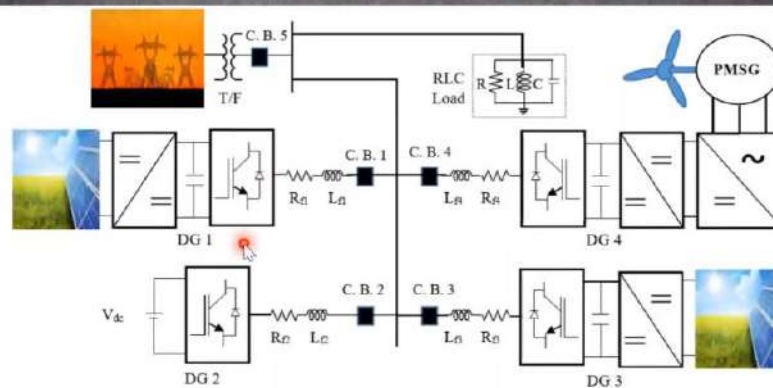
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TEST SYSTEM



Each DG is incorporated with the proposed methodology

DG	Power Rating (kW)	DG	Power Rating (kW)
1	100	3	300
2	200	4	400

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24

Dr.D.Kalyanakumar

Professor, Department of Electrical and Electronics Engineering
Thiagarajar College of Engineering
Madurai.

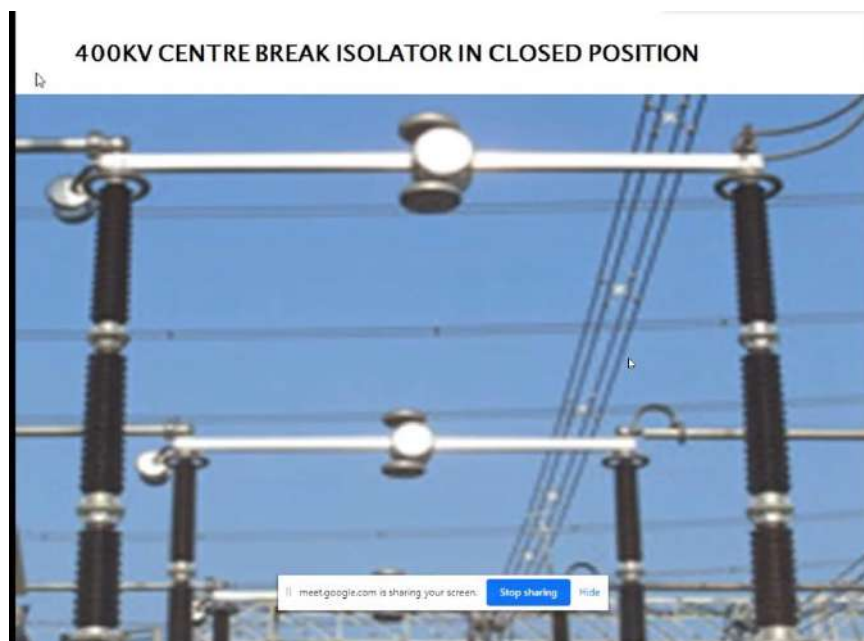
**Topic: TECHNICAL REQUIREMENTS - from Protection
Perspectives for Power System Reliability**

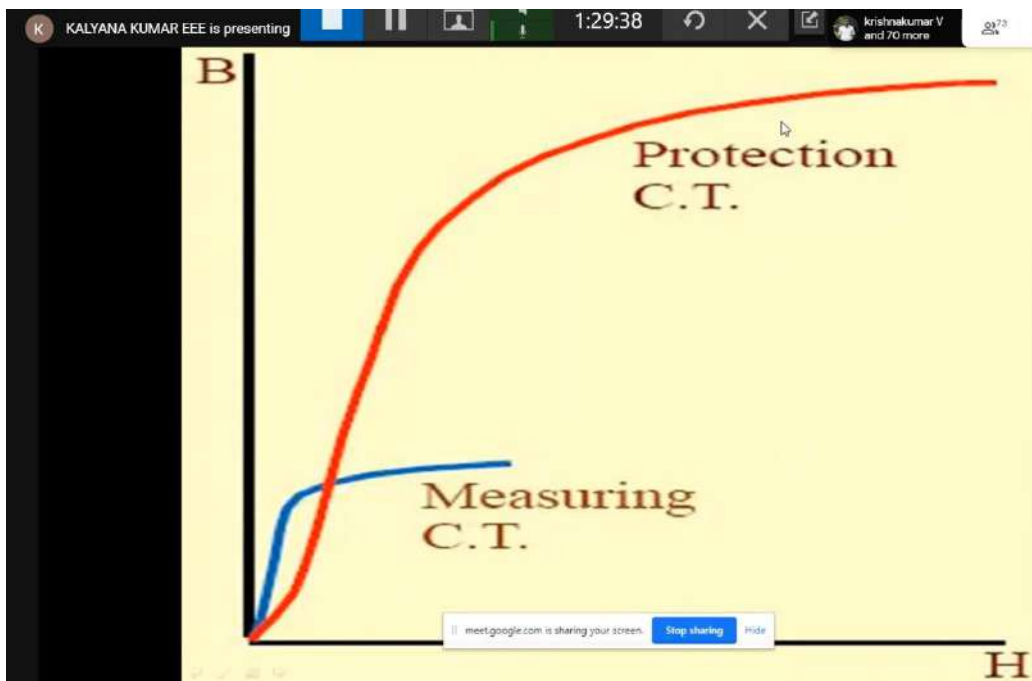
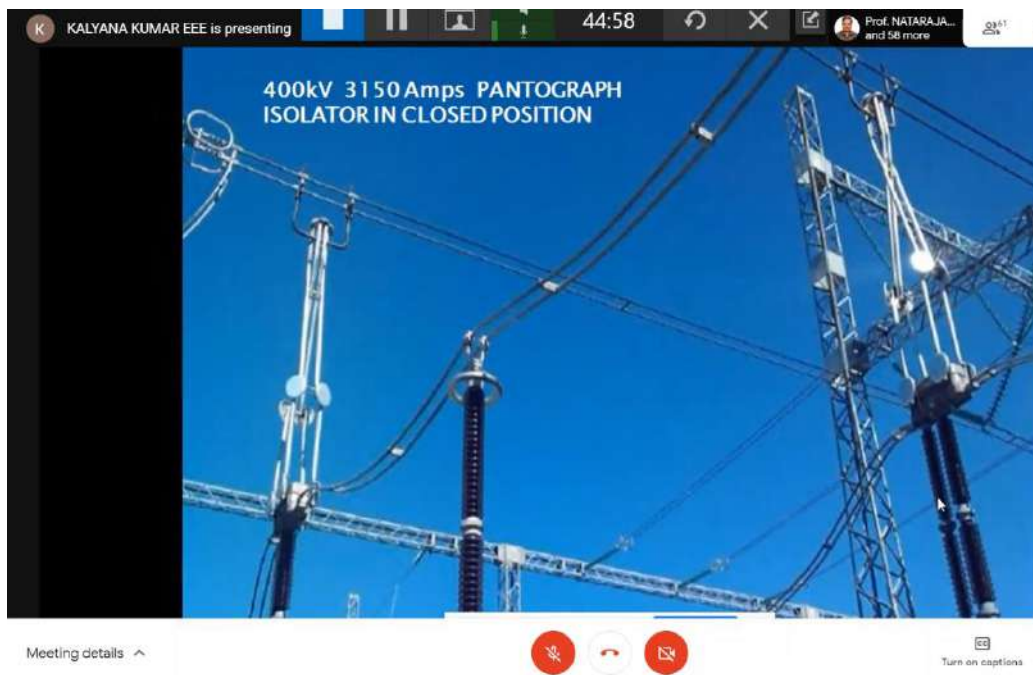
21.07.2020

Tuesday

AN Session

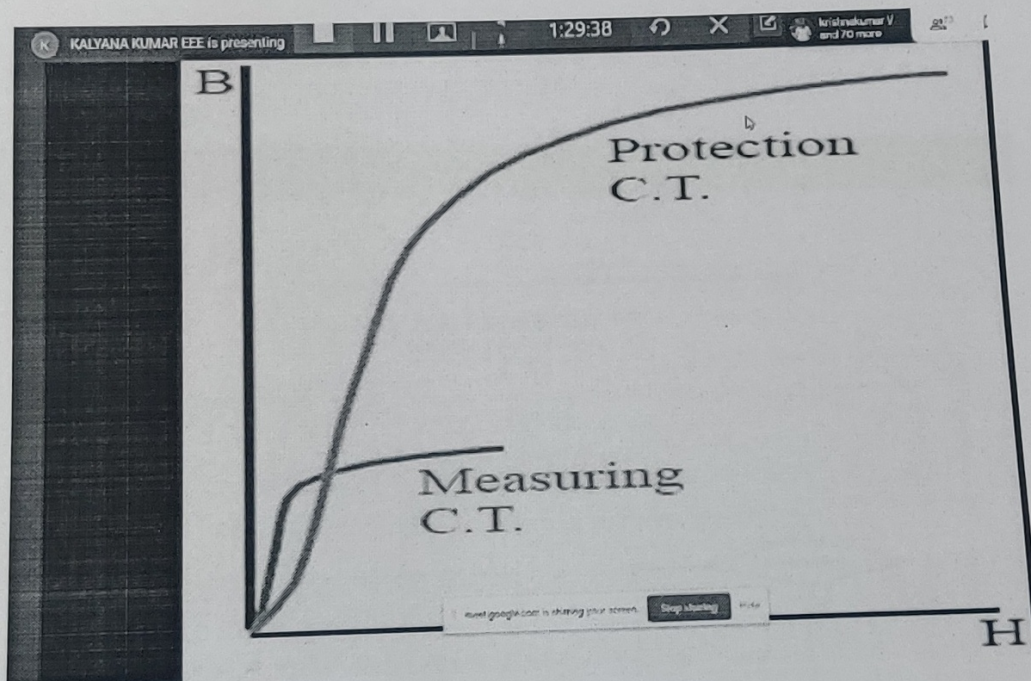
02.00 PM to 04.00 PM





VALEDICTORY SESSION

The six days AICTE Sponsored Online Short Term Training Programme on Novel Design & Control Strategies and Innovative Technical Practices in LV/HV Modern Switch Gear (Phase - I) ended with a valedictory session. Mr.P.Ram Prakash, Assistant Professor, Department of Electrical and Electronics Engineering thanked all the participants and resource person with his valedictory speech.



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Signature and Name of the Coordinator
Dr. C. Krishnakumar

Signature of the HoD



SARANATHAN COLLEGE OF ENGINEERING
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
TIRUCHIRAPALLI - 620 012.
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Report

Department Organized: EEE

Venue: Online (Google Meet)

Participated by: Teaching staff and Research scholars

Event: 6 days "AICTE sponsored online STTP on Novel Design & Control Strategies and Innovative Technical Practices in LV/HV Modern Switchgear (Phase I)" from "15-07-2020 to 21-07-2020".

Resource Persons : From IIT's and NIT's

Number of participants : Around 77

Highlights of Event:

- The one week AICTE Sponsored Online Short Term Training Programme on Novel Design & Control Strategies and Innovative Technical Practices in LV/HV Modern Switch Gear (Phase - I) started on 15th July 2020 with an inauguration ceremony. Coordinator of the STTP, Dr. C.Krishnakumar, Professor & Head, Department of Electrical and Electronics Engineering welcomed all the participants in his welcome address. Dr. D.Valavan, Principal of Saranathan College of Engineering, added a special value to the STTP by delivering felicitation address.
- On first day the Session-I was inaugurated and Handled by "Dr.R.Sarathi Professor, EEE IIT Madras, Chennai" on the topic: Health Monitoring of Transformers adopting Multi Sensor Fusion Technique.
- The Inauguration ceremony ended with vote of thanks given by Dr.K.Rajkumar, Assistant Professor, EEE, SCE.
- Each day scheduled as two sessions: Session-I starts at 10:00AM to 12:00PM and : Session-II starts at 02:00AM to 04:00PM.
- Around 77 Participants of Faculty members and Research Scholars from various Institutions got benefited.
- The six days STTP (Phase - I) ended with a valedictory session. Mr.P.Ram Prakash, Assistant Professor, Department of Electrical and Electronics Engineering thanked all the participants and resource person with his valedictory speech.

Signature

"Name of the Coordinator"

Dr. C. Krishnakumar

Signature of HoD



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Venkateswara Nagar, Panjappur, Tiruchirapalli - 620012



DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING



AICTE sponsored

online Short Term Training Programme (STTP)
on

Novel Design & Control Strategies and Innovative Technical Practices in LV/HV Modern Switchgear

23.07.2020 - 29.07.2020 (Phase II)

KEYNOTE SPEAKERS



Dr. H D Mathur
Asso. Professor, BITS Pilani



Dr. Manas Kumar Jena
AP, IIT Palakkad



Dr. S. Kumaravel
Asso. Professor, NIT Calicut



Dr. Shelas Sathyan
AP, NIT Trichy



Dr. Manoranjan Sahoo
AP, NIT Trichy



Dr. V. Saravanan
Professor, TCE Madurai



Dr. C. K. Babulal
Professor, TCE Madurai



Dr. C. Sharmeela
AP, AU Chennai



Dr. K. Vijayakumar
AP, IIITD&M Kancheepuram



Dr. P. Maruthupandi
AP, GCT Coimbatore



Mr. A. Annamalai
Manager, BHEL Trichy



Mr. P. Gnanagirija
Expert, DNV GL Chennai

Dr. C. Krishnakumar
HoD / EEE, Coordinator

Dr. D. Valavan
Principal

Shri. S. Ravindran
Secretary

Register at: <https://forms.gle/7eMBQDEWCnyigFLy8>
www.saranathan.ac.in

1. No Registration Fee
2. E-Certificate will be provided to all the
Active Participants

AICTE



Sponsored

**One week online Short Term Training Programme (STTP)
On**

**Novel Design & Control Strategies and Innovative
Technical Practices in LV/HV Modern Switchgear
(Phase II)**

23.07.2020 to 29.07.2020

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING



AICTE sponsored

online Short Term Training Programme (STTP)
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Asso. Professor, BITS Pilani



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AP, IIT Palakkad



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Asso. Professor, NIT Calicut



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Dr. C. Sharmela
Asso. Professor, AU Chennai



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**AICTE Sponsored Six day Online Short-Term Training Programme on
Novel Design & Control Strategies and Innovative Technical Practices in LV/HV
Modern Switchgear (Phase II)**

SCHEDULE OF TRAINING PROGRAMME

Day/ Session	FORENOON SESSION (10.00 A.M -12.00 P.M)		AFTERNOON SESSION (2.00 P.M -4.00 P.M)
23.07.20 THU	Inauguration Dr. Hitesh Dutt Mathur Associate Professor, BITS Pilani Protection Challenges and Strategies in Smart Grid Scenario	L U N C H B R E A K	Mr. A. Annamalai Manager, BHEL Trichy HVDC System: Direct solutions for Long distance Bulk Power Transmission
24.07.20 FRI	Dr.Manas Kumar Jena Assistant Professor, IIT Palakkad Synchrophasor Technology in Smart Grid		Dr. K. Vijayakumar AP, IIIT&D, Kancheepuram, Power conversion strategies in wind energy conversion system
25.07.20 SAT	Dr.Manoranjana Sahoo Assistant Professor, NIT Trichy Multi-phase induction motor drive for high power Electric vehicle		Dr.C.K.Babulal Professor, TCE Madurai Fuzzy Logic based Power Quality Evaluation
27.07.20 MON	Dr.ShelasSathyan Assistant Professor,NIT,Trichy Design of power electronic Converters-Gate Drivers and Magnetic components		Mr.P.Gnanagirija Electrical Expert, DNV GL, Chennai Basic Design Parameters of Power System Protection
28.07.20 TUE	Dr.V.Saravanan, Professor, TCE, Madurai Selection and Ratings of Protective Devices for Domestic & Commercial Electrical Installation		Dr.C.Sharmeela Associate Professor, AU Chennai Protection Requirements for Solar Photovoltaic Systems
29.07.20 WED	Dr.S.Kumaravel Associate Professor, NIT Calicut Power Electronic Applications in High Voltage Engineering		Dr.P.Maruthupandi Assistant Professor, GCT Coimbatore Control and Protection Schemes in Grid connected PV systems



SARANATHAN COLLEGE OF ENGINEERING

Venkateswara Nagar, Panjappur, Tiruchirappalli – 12



**DEPARTMENT OF ELECTRICAL AND ELECTRONICS
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Cordially invites you

for the Inaugural function of the

AICTE Sponsored

Six days online Short Term Training Programme (STTP)
on

**Novel Design & Control Strategies and Innovative
Technical Practices in LV/HV Modern Switchgear
(Phase II)**

July 23, 2020
09:30 am

Chief Guest

DR. HITESH DUTT MATHUR

Associate Professor, BITS Pilani

Dr.C.Krishnakumar
Coordinator, Prof & Head /EEE

Dr.D.Valavan
Principal

Shri. S. Ravindran
Secretary

INAUGURAL CEREMONY

The six days AICTE Sponsored Online Short-Term Training Programme on Novel Design & Control Strategies and Innovative Technical Practices in LV/HV Modern Switchgear (Phase - II) started on 22³rd July with an inauguration ceremony. Coordinator of the STTP, Dr. C. Krishnakumar, Professor & Head, Department of Electrical and Electronics Engineering welcomed all the participants with his welcome address. Dr. D. Valavan, Principal of Saranathan College of Engineering, added a special value to the STTP by delivering felicitation address. The Inauguration ceremony ended with vote of thanks given by Dr.K.Rajkumar, Assistant Professor, EEE, SCE.



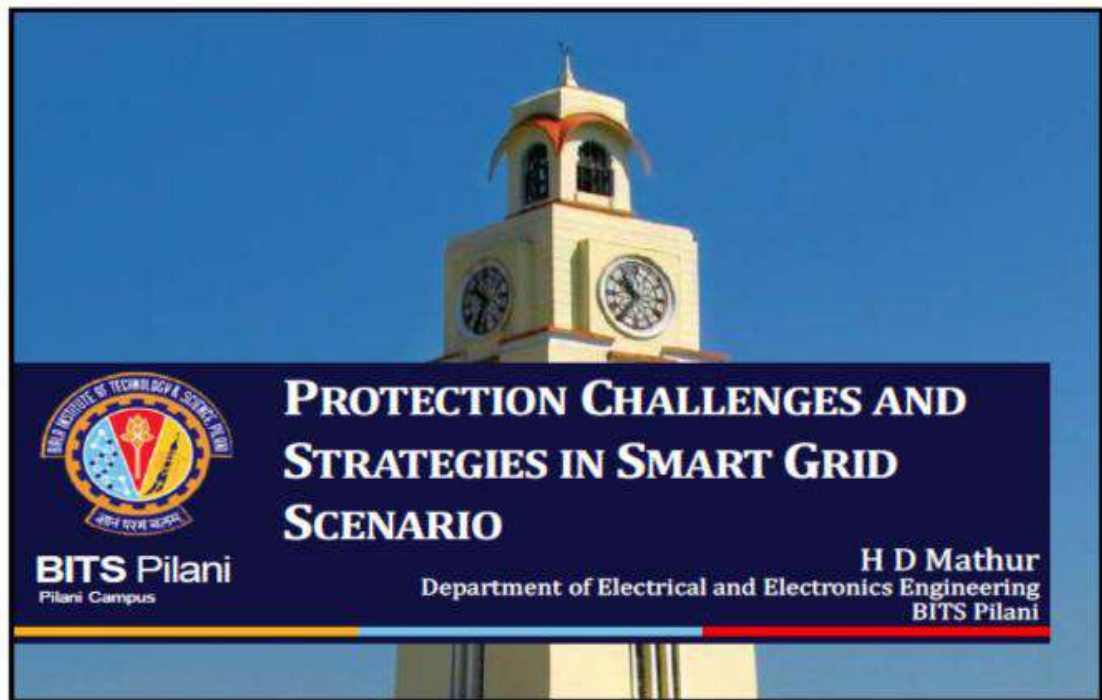
Resource Person

Dr.HiteshDutt Mathur

Associate Professor,

BITS Pilani.

Topic: Protection Challenges and Strategies in Smart Grid Scenario



DEREGULATION IN POWER SYSTEM

The Electricity Act, 2003 is an Act of the Parliament of India enacted to transform the power sector in India.

⇒ Some of the significant benefits of power industry deregulation include:

- Generation and distribution of electric power is **made free from monopoly structure**
- **Reduction of electricity price** due to competitive environment
- **Development of innovative technologies** in different sectors of power industry

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SMART GRID DEFINITION



What is smart grid?



...depends on the way we look at it!

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SMART GRID DEFINITION



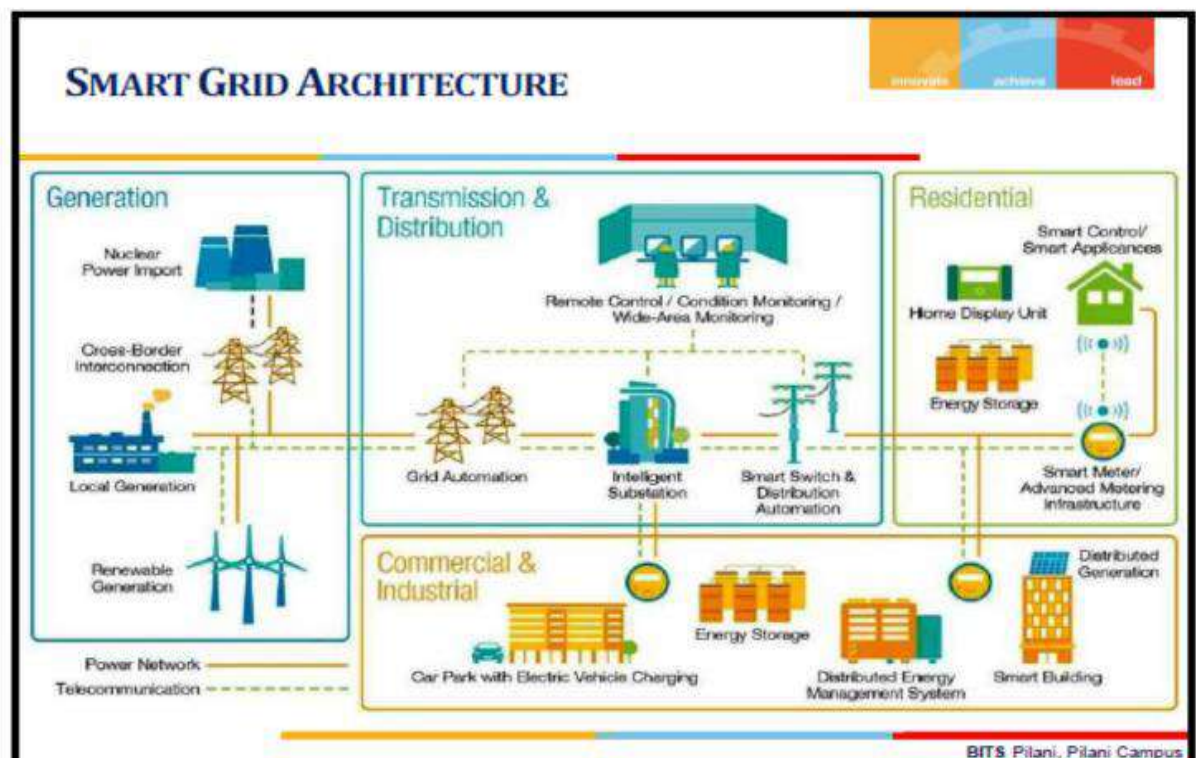
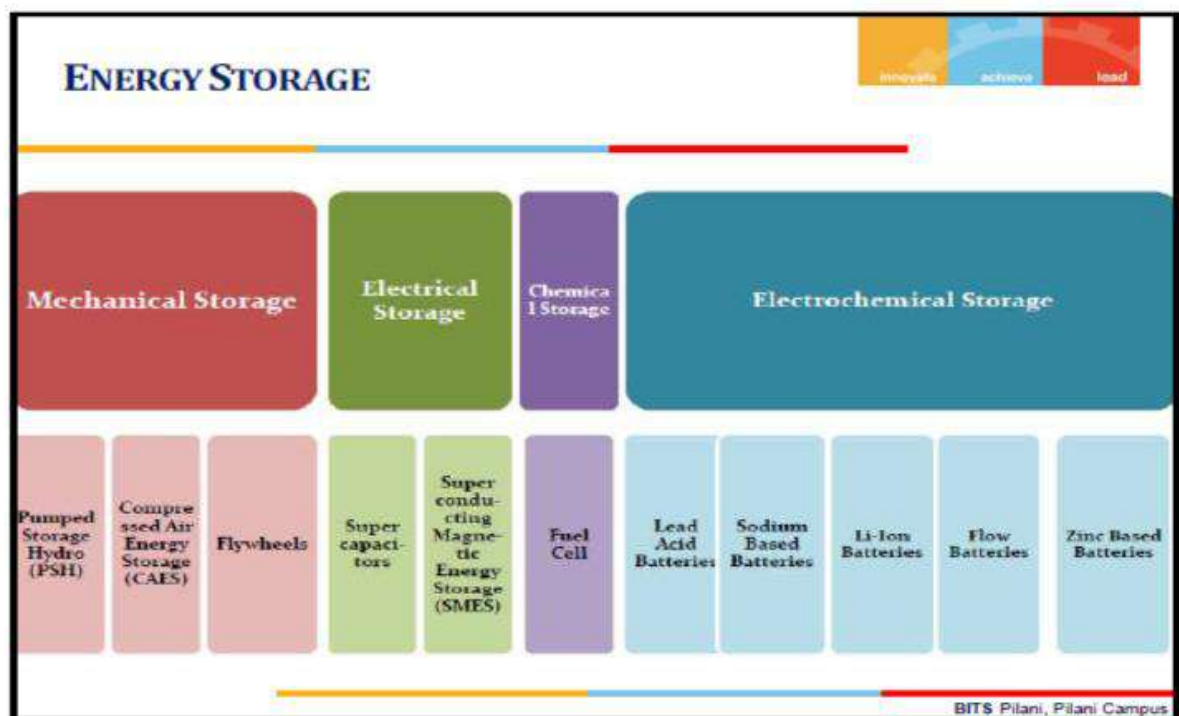
Definition by National Institute of Standards and Technology (NIST), USA:

A modernized grid that enables bidirectional flows of energy and uses two-way communication and control capabilities that will lead to an array of new functionalities and applications.

IEEE:

- ❑ Smart grid is a large 'System of Systems', where each functional domain consists of three layers: (i) the power and energy layer; (ii) the communication layer; and (iii) the IT/computer layer.
- ❑ Layers (ii) and (iii) above are the enabling infrastructure that makes the existing power and energy infrastructure 'smarter'.

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SMART GRID: FEW MAJOR CHALLENGES



- Reliable and Fast Communication, Big Data, Cyber Security.
- WAMS integration with EMS, SCADA/DMS implementation in the existing networks.
- Suitable Converter Topology and Controls for RES Integration.
- Optimal Siting, Sizing and Controls of Energy Storage Systems.
- Dealing with Intermittent Generation- Flexible Generation (High ramp rate), CHP and Thermal storage.
- Adaptive Protection in Active Distribution Network, Microgrid protection (DC more challenging)
- Regulatory Changes.
- Customers' Acceptance to RES Deployment and Demand Side Participation- Social survey

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MICROGRID STRUCTURE



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NATIONAL ENERGY STORAGE MISSION

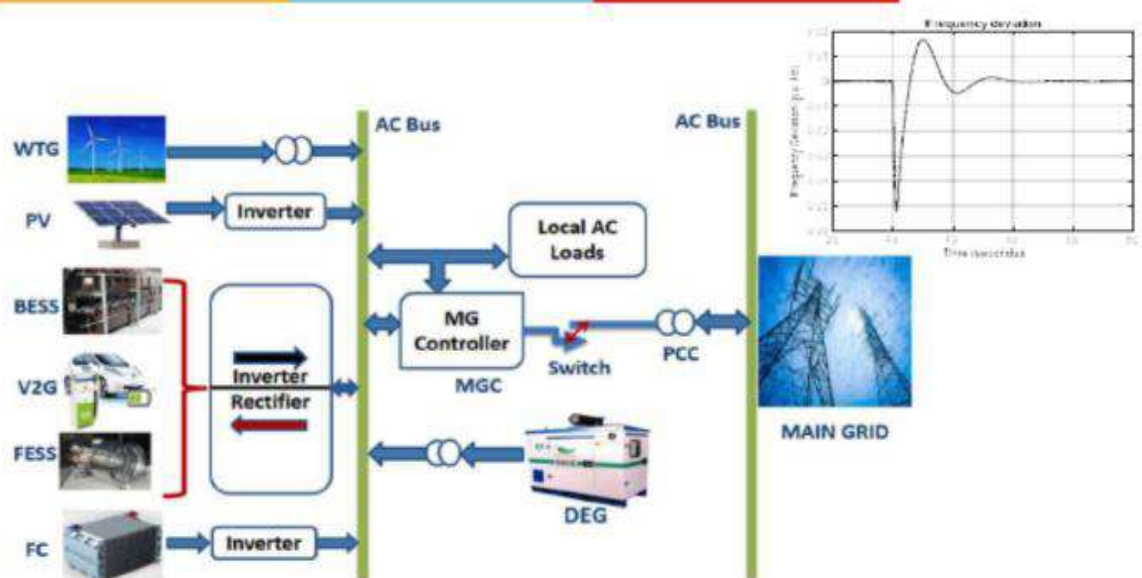


Government of India Ministry of New and Renewable Energy

1. Integrating renewable energy with distribution and transmission grids.
2. Setting Rural micro grids with diversified loads or stand-alone systems.
3. Developing Storage component of electric mobility plans.

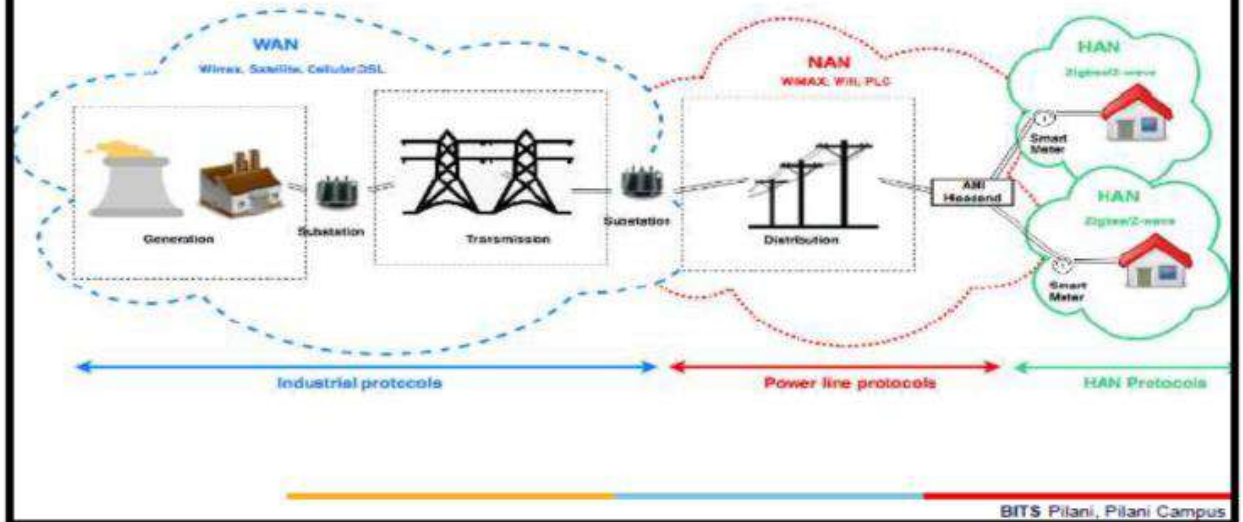
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EFFECT OF INTEGRATING EVS INTO THE GRID



BITS Pilani, Pilani Campus

CYBER SECURITY



SMART GRID FUNDING IN INDIA





Resource Person

Mr. A. Annamalai

Manager, BHEL

Trichy, TamilNadu

Topic: HVDC System: Direct solutions for Long distance Bulk Power

Transmission



BHEL 50 Years
"Celebrating 50 Years of Engineering Excellence (1964-2014)"

HVDC System:

- Direct Solutions to Long Distance Bulk Power Transmission

**A. Annamalai,
Manager
BHEL, Trichy**

High Voltage Direct Current



- ❖ The HVDC technology is used to transmit **bulk power** over **long distances** by overhead transmission lines or submarine cables.
- ❖ **HVDC** is the only solution to interconnect separate power systems (**Asynchronous connection**).
- ❖ Today a well-proven technology

3

HVDC- Economic Aspects



Comparison of Towers for **500 kV AC** Line a) and **500 kV DC** Line b), at same Transmission Capacity

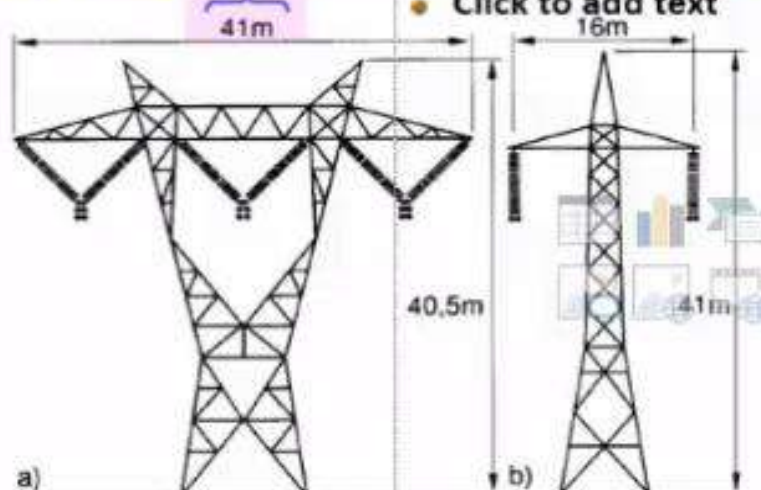
For Redundancy - 2 Lines:

x 2

41m

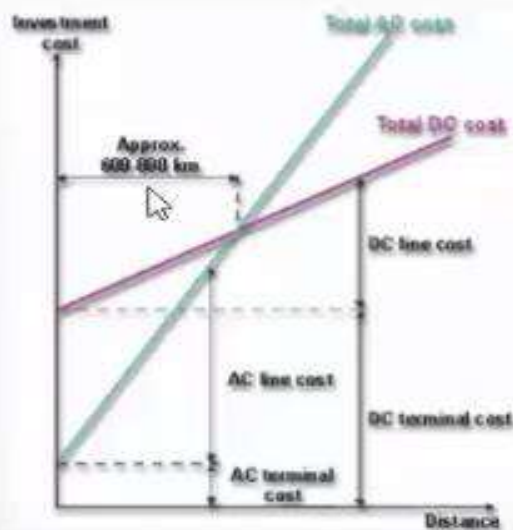
3,000 MW

Click to add text



For equivalent transmission capacity, a DC line has **lower construction costs** than an AC line.

HVDC- Technical Aspects



AC

- 3 Cables
- 0 Converters

DC

- 2 Cables
- 2 Converters

Cables - Crossover **50-60 Km**

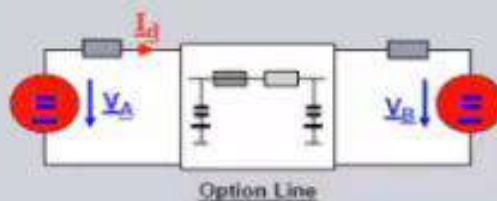
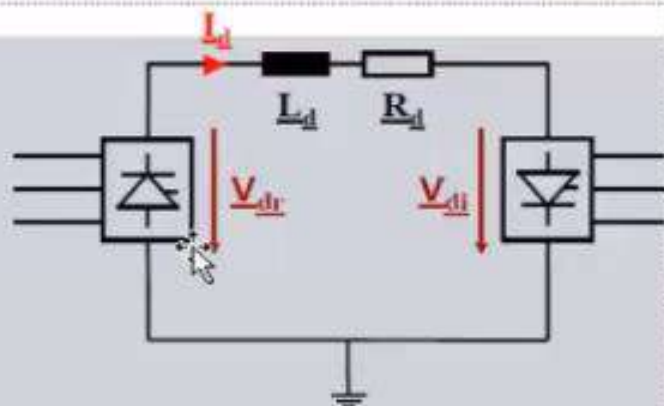
OH Lines - Crossover **600-700 Km**

HVDC – Working Principle



The Principle of HVDC:

$$I_d = \frac{V_{dr} - V_{di}}{R_d}$$



Equivalent for
Transformer, Converter
and Grid

Rectifier

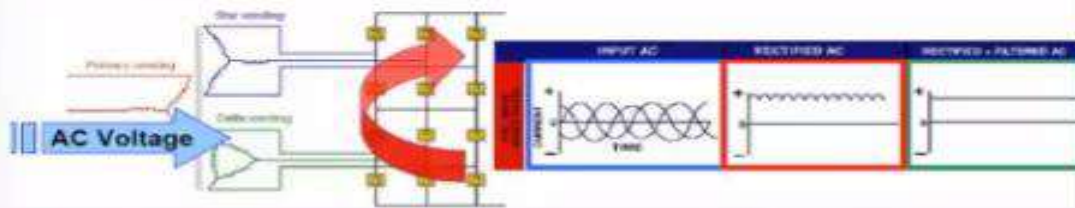
Inverter

High Voltage Direct Current

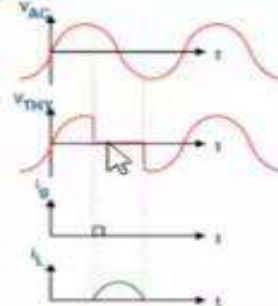
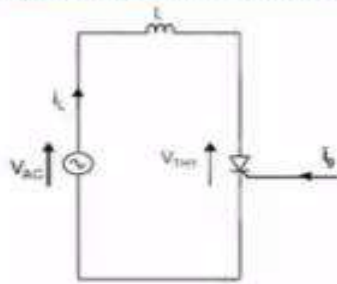
Basic Theory



12-pulse converter for HVDC



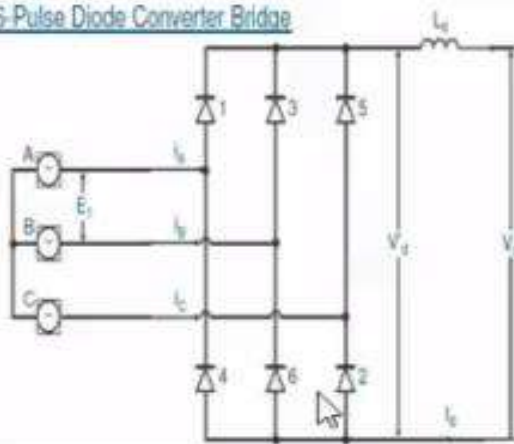
Gating and Commutation of a Thyristor



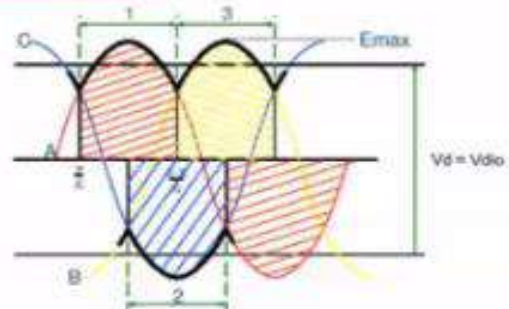
Basic 6 – Pulse Operation



6-Pulse Diode Converter Bridge



Ideal No-Load Condition

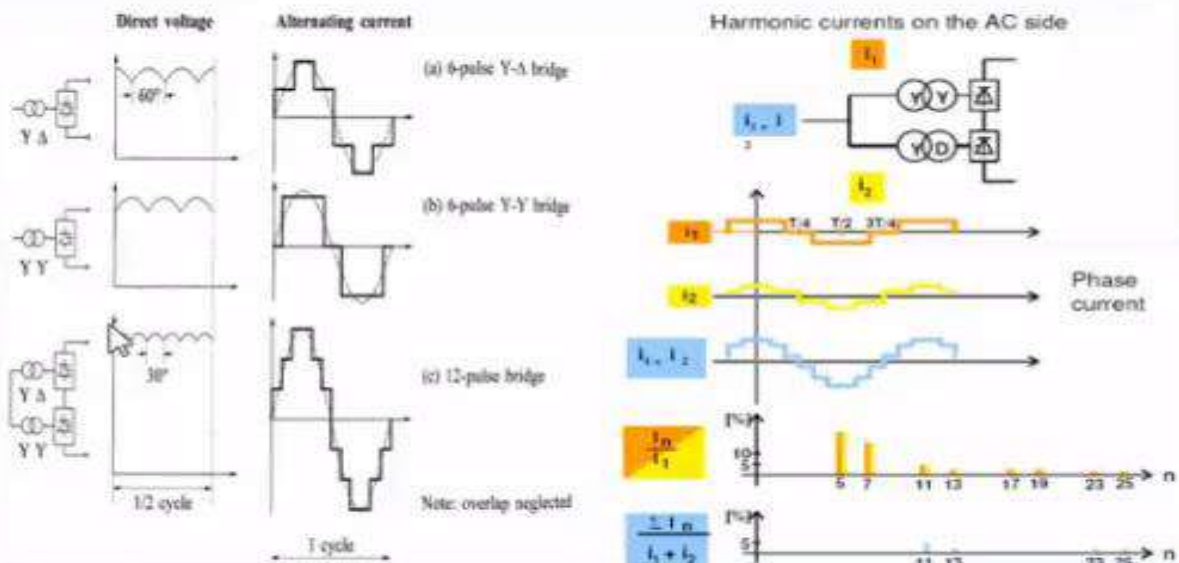


$$V_{d0} = \frac{1}{\pi} \int_{-\pi/6}^{+\pi/6} 6 \sqrt{2} E_L \cos \omega t \, d(\omega t)$$

$$V_{d0} = 3 \sqrt{2} E_L \left[\sin \omega t \right]_{-\pi/6}^{+\pi/6}$$

$$V_{d0} = 3 \frac{\sqrt{2}}{\pi} E_L (\text{RMS})$$

Harmonics



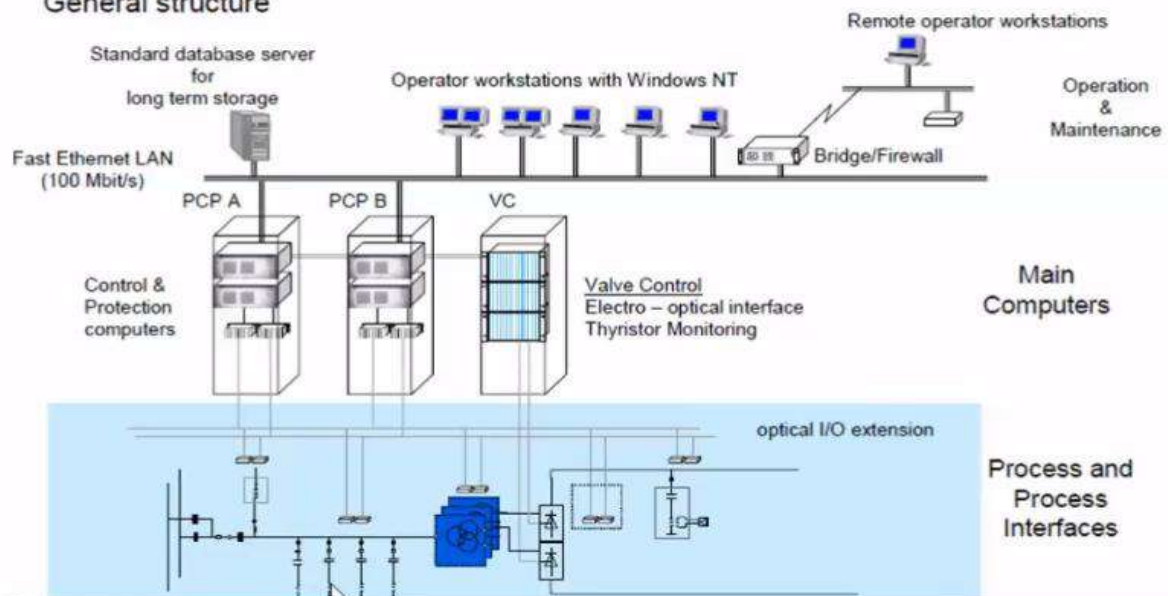
30

HVDC Controls

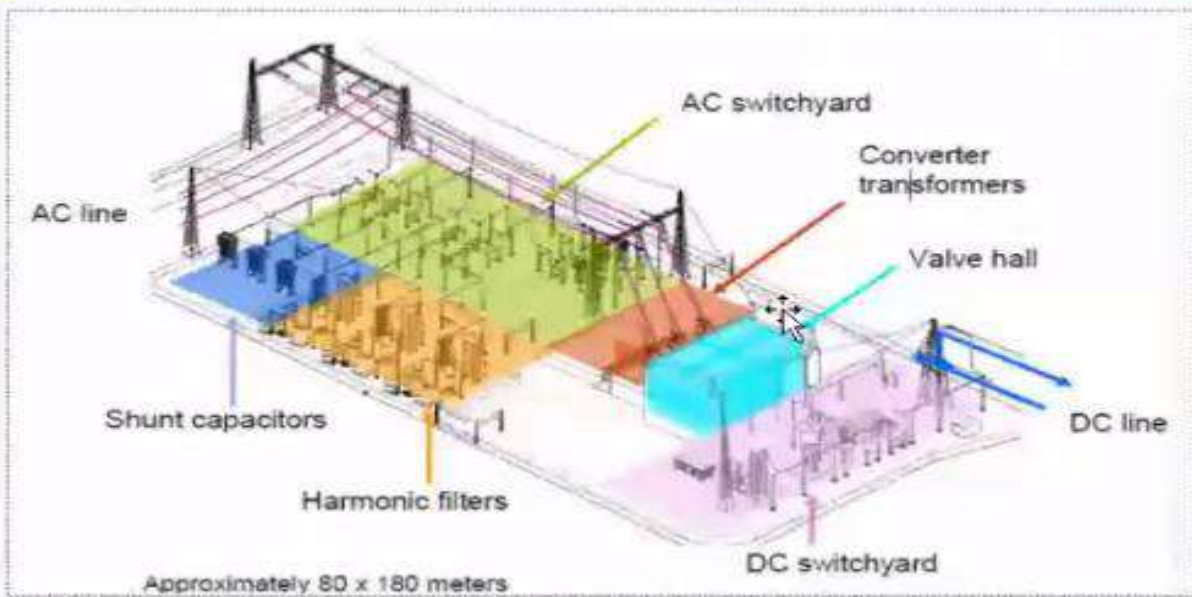


HVDC Control General structure

General structure

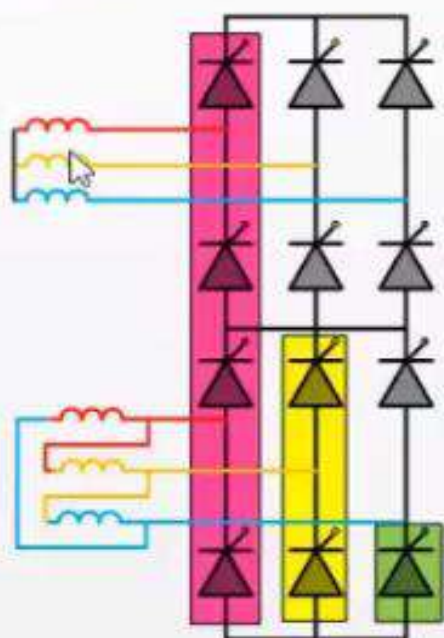


HVDC – Station Layout



55

HVDC – Valves Terminology



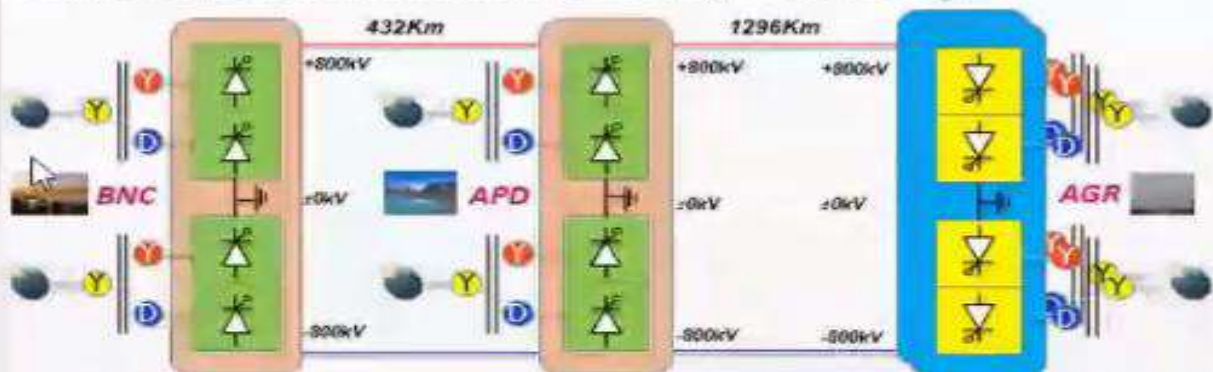
Twelve Pulse Converter circuit consists of :

- Single Valve : 12 No's
- Double Valve : 6 No's
- Quadri Valve : 3 No's

- Single Valve
- Twin/Double Valve
- Quadri/Quadruple Valve

56

NEA800 – World's first Multi-terminal UHVDC Transmission Link (INDIA)

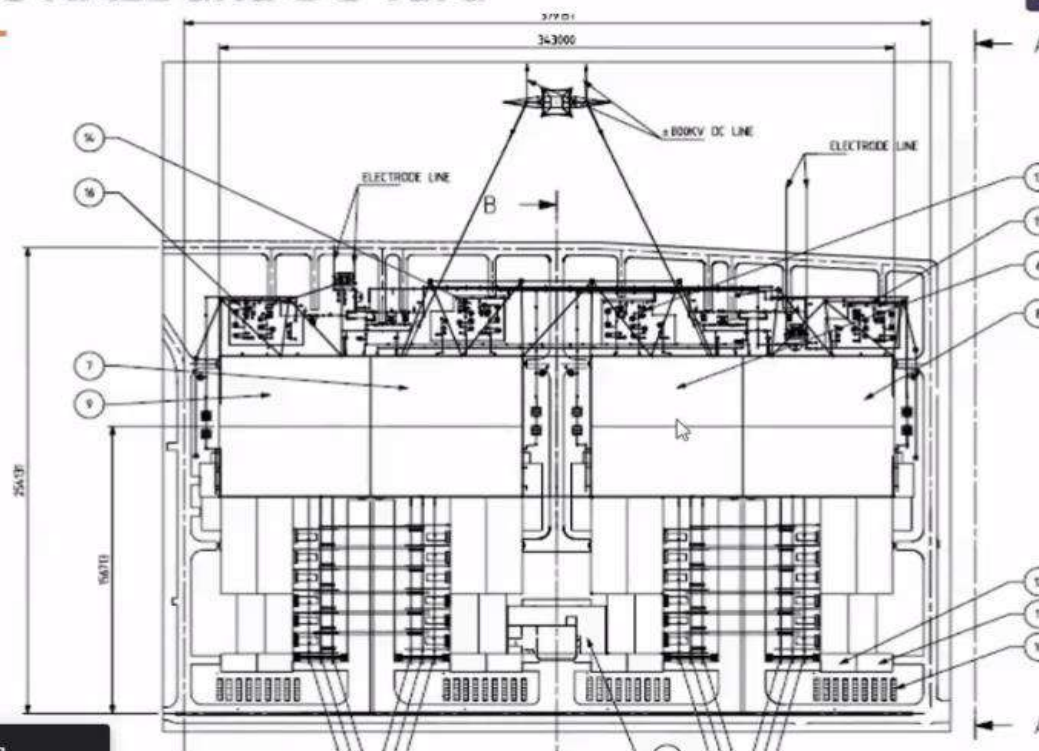


DESCRIPTION	RECTIFIER -1 (BNC)	RECTIFIER-2 (APD)	INVERTER - 1&2 (AGR)
No of Poles	2	2	4
Power(MW)	3000	3000	6000
Reason	Long distance, bulk power, Connecting remote generation		

61

DC HALL and DC Yard

and 50 more



meeting

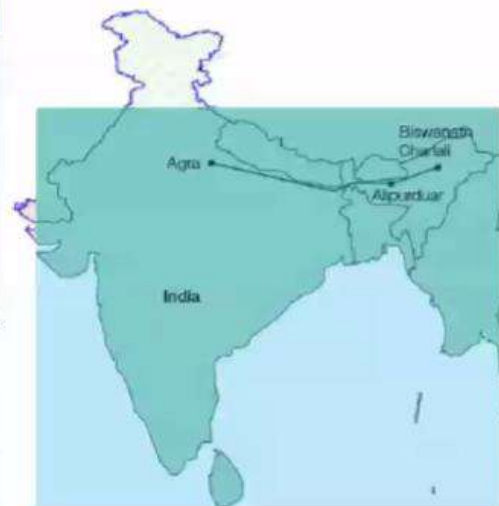
Chandrapur – Padghe HVDC Transmission

Description	Data
Joint Venture	ABB, Sweden
Commissioning Year	1999
Power Rating	1500 MW
AC Voltage Rating	400kV
DC Voltage Rating	$\pm 500\text{kV}$
Length of OH line	752 Km
Main reason	Long distance, Better stability and environmental concerns



NEA800 – World's first Multi-terminal UHVDC Transmission Link (INDIA)

Description	Data
Joint Venture	ABB, Sweden
Customer	POWERGRID
Commissioning year:	2017
Power rating:	6 000 MW (Multi-terminal)
No. of poles:	Converter, 4 Line, 2
AC voltage:	400 kV (all stations)
DC voltage:	$\pm 800\text{ kV}$
Length of overhead DC line:	1 765 km
Main reason for choosing HVDC:	Long distance, bulk power



DAY-2
24.07.2020
Friday

FN Session
10.00 AM to 12.00 PM

Resource Person

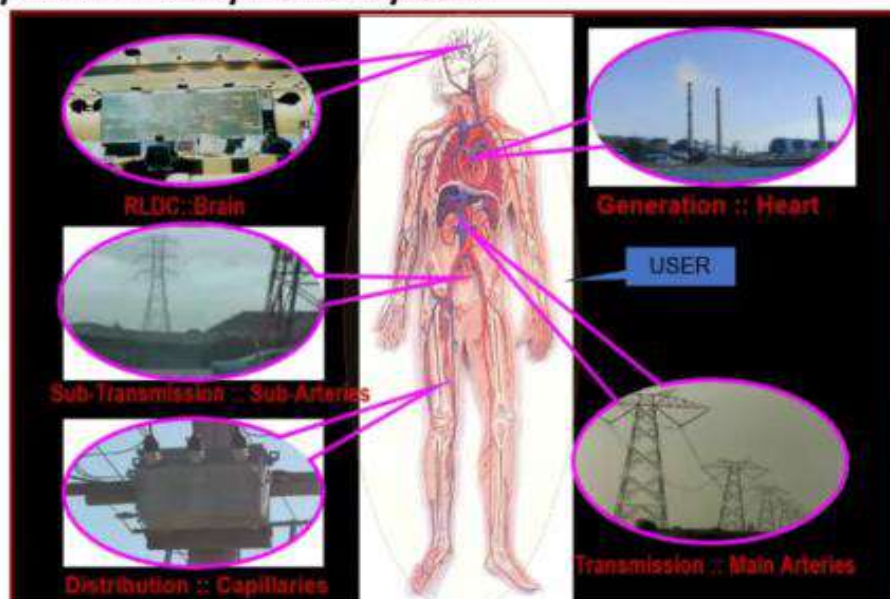
Dr.Manas Kumar Jena

Assistant Professor

IIT Palakkad, Kerala

Topic: Synchrophasor Technology in Smart Grid

Analogy: Human Body-Power System



Diagnosis: Everything is fine?

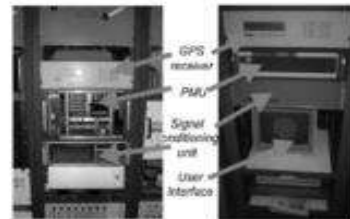
The Heart...

	Human Body	Power System
	Blood Pressure	Voltage
	Heart Beat	Frequency
The Pulse	72 Beats/Minutes	50 Cycles/Seconds
Cause	Stress/Anxiety	Load-Gen.-Mismatch
Risk	Heart Beat Deviation	Frequency Deviation

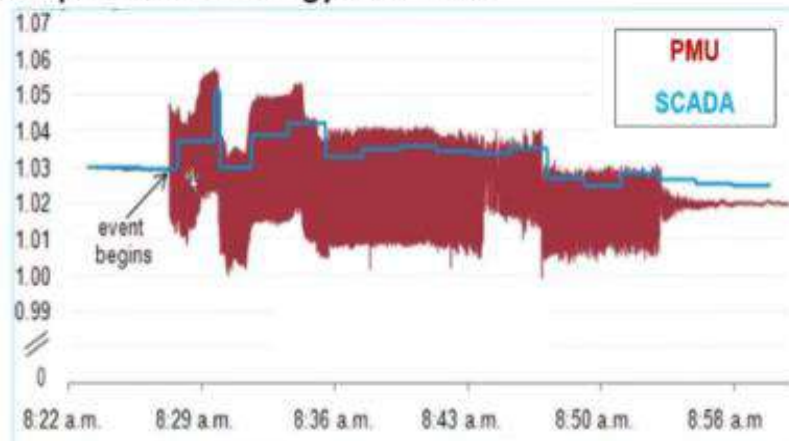


From Phasor to Synchrophasor

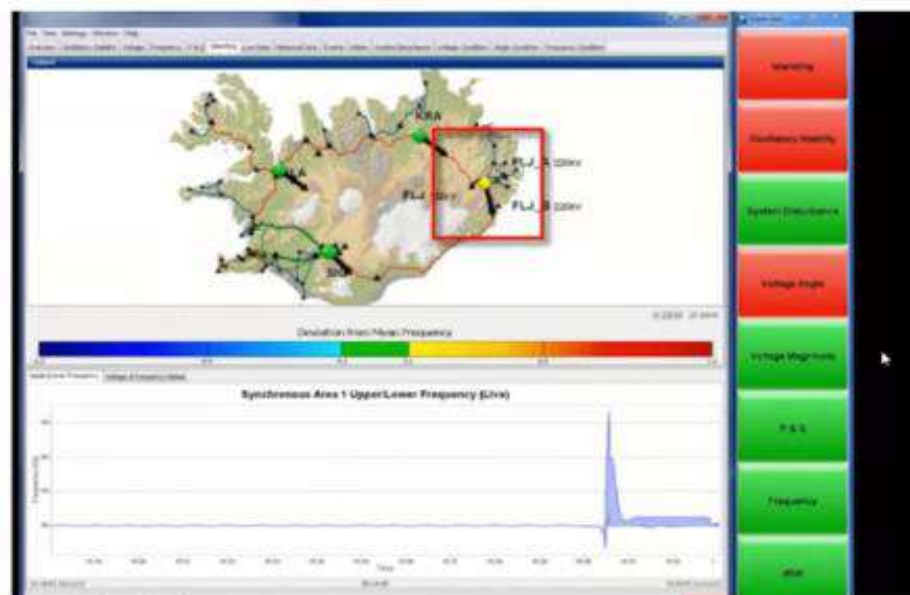
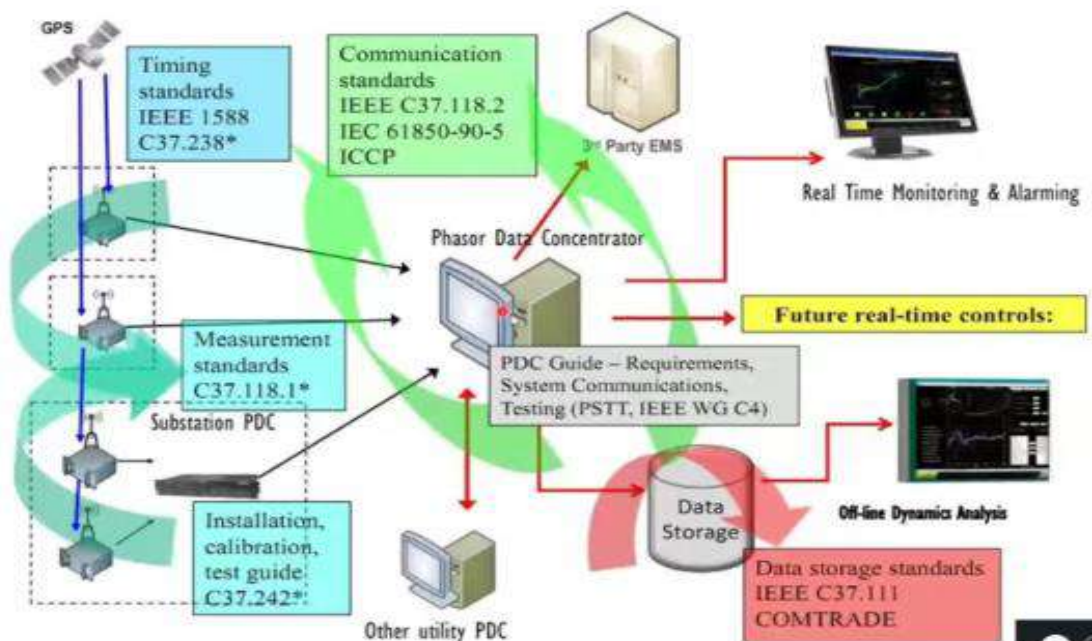
- Concept of phasor: 1893, in a paper by **Charles Proteus Steinmetz**.
- Invention of phasor measurement unit (PMU) in **1988** by **Prof. A.G Phadke and Prof. James S. Throp** at **Virginia Tech**.
- First commercially available PMU was manufactured by Macrodyne (model 1690) in the early 1990s.
- As of July 2014- **1300** PMUs deployed in **US**
- As of July 2012- **2000** PMUs deployed in **China**
- Proect India- More than 1000 PMUs **URTD SM**.
- ONS Brazil- More than **1000 PMUs**



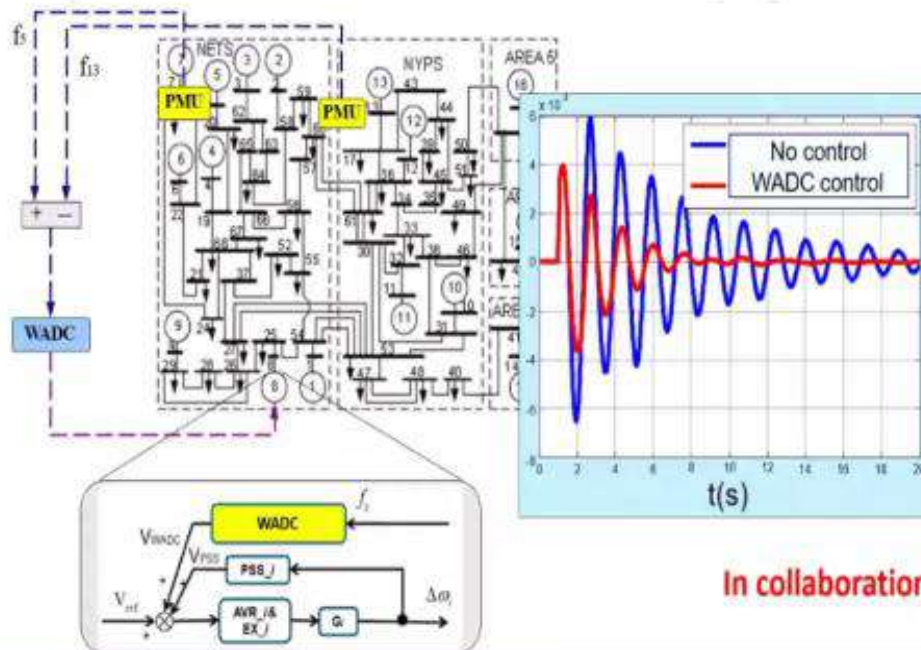
Synchrophasor Technology vs SCADA



- Synchrophasor data comprises current and voltage phasors, frequency and rate of change of frequency (ROCOF), whereas SCADA data is analog measurements of RMS voltages and currents, and real and reactive power.
- Synchrophasor data have high resolution, typically reported at 10 to 60 records per second, compared to 2 to 4 seconds per record in the case of SCADA data.
- Synchrophasor data have time synchronization and are time stamped using precise, standard specified times.

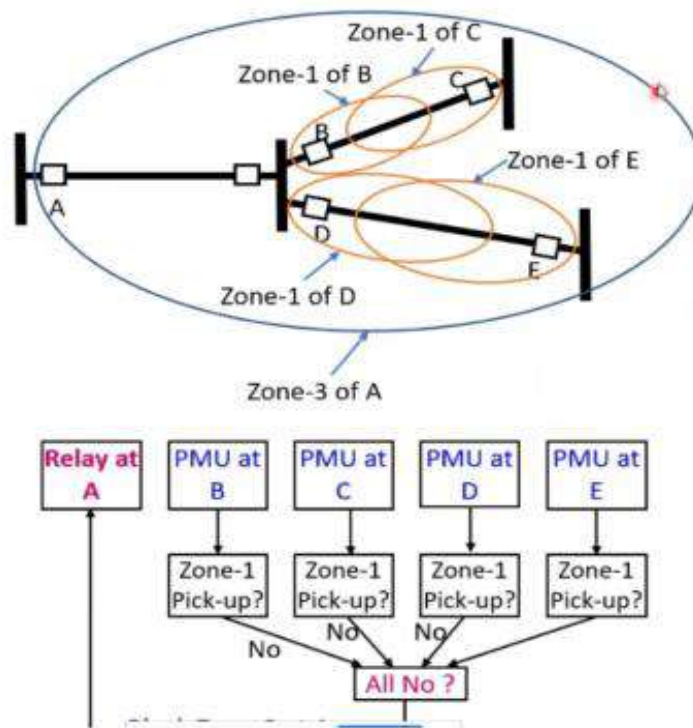


Ref: https://www.gegridsolutions.com/software_solutions/catalog/phasorpoint.htm

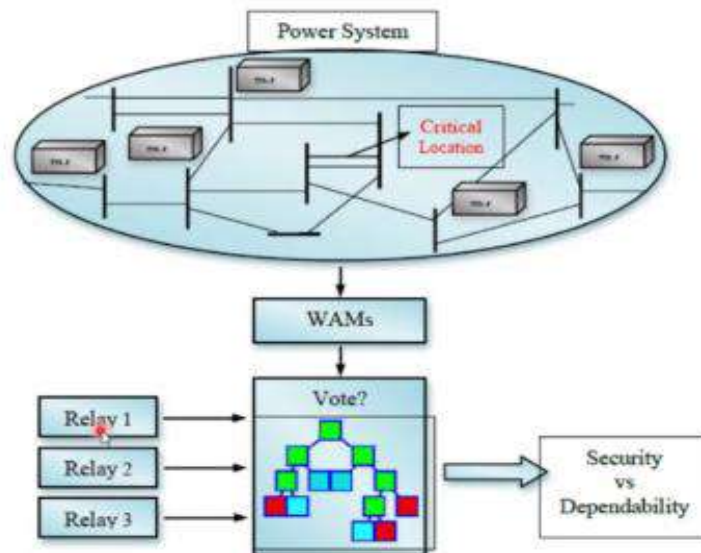


In collaboration with UTK

- Improved Damping of Target Inter-area/Local Oscillations Mode



Adaptive Dependability-Security



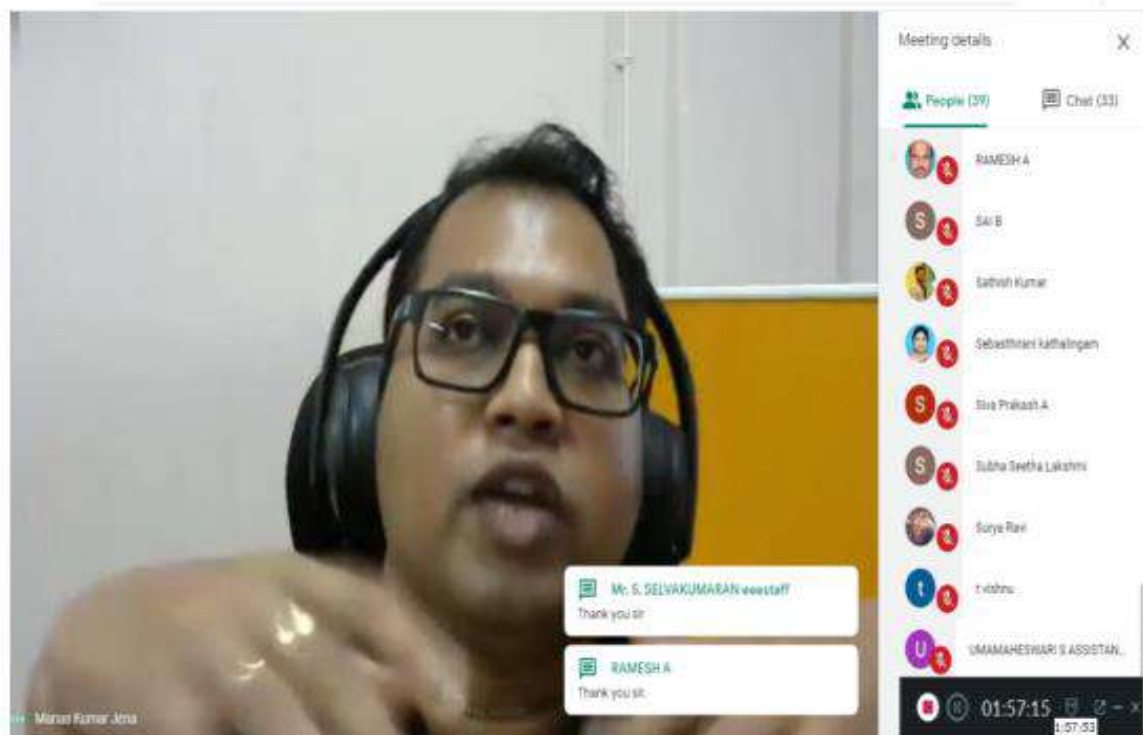
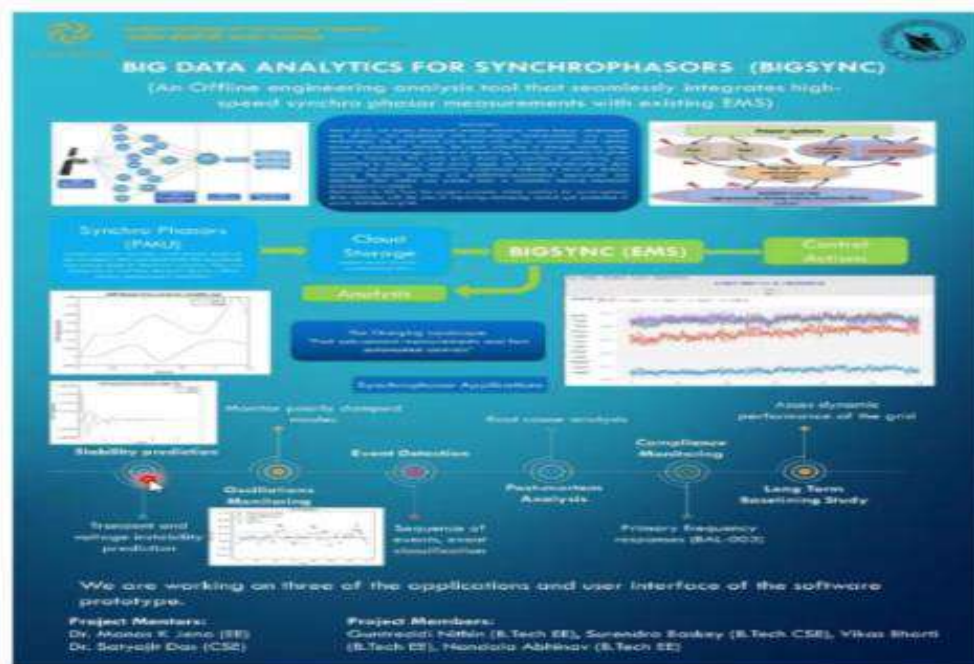
Research and Development Survey Results

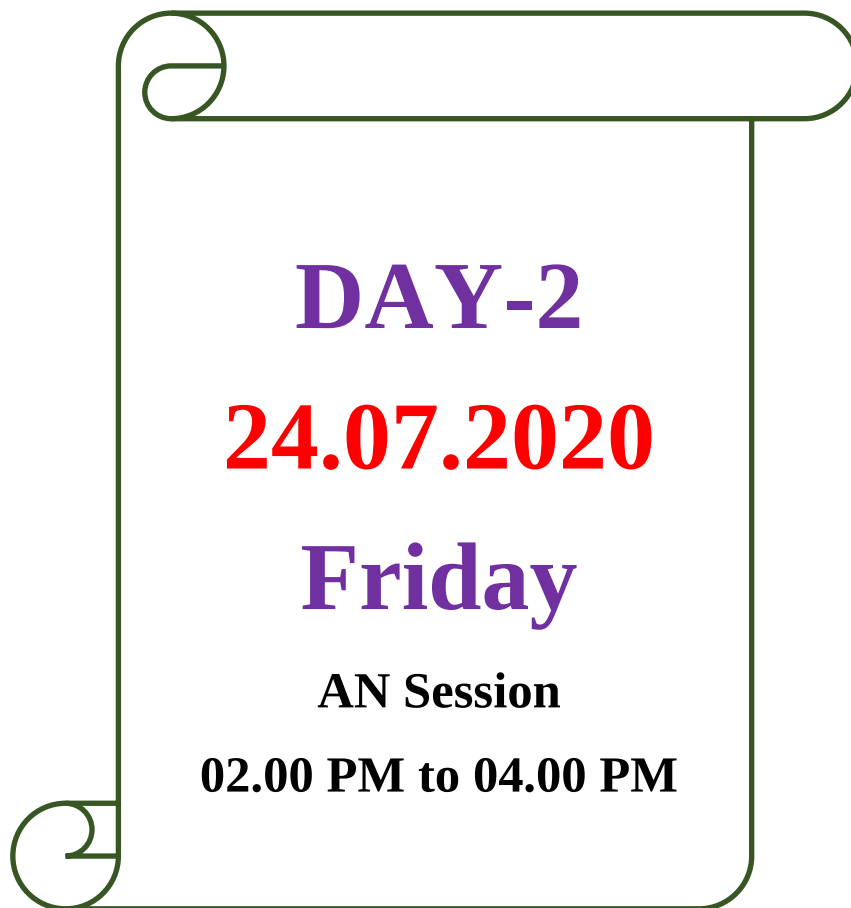
Examples of existing research being performed today include:

- Wide area protection
- Adaptive auto-reclosing
- Transmission line impedance evaluation
- Microgrid
- RAS
- Setting-less protection
- Signal security
- Time synchronization vulnerability

Respondents report that they are planning research on:

- Protection system communication protocols
- Safety net schemes
- Backup protection schemes
- Adaptive microgrid and distribution system protection





Resource Person

Dr. K. Vijayakumar

AP, IIIT&D

Kancheepuram, TamilNadu

Topic: Power Conversion Strategies in Wind Energy Conversion system



Power Electronic Controller for Wind Energy Conversion System

Dr. Vijayakumar Krishnasamy | M.Tech., Ph.D., PDF (NTU-Singapore) |

Assistant Professor, Department of Electrical Engineering |

Indian Institute of Information Technology Design and Manufacturing |

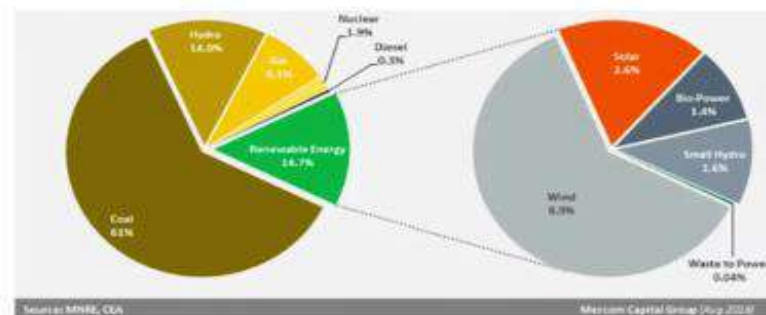
Mobile: (91) 9549659069 | Email: krishna4vijay@gmail.com |

LinkedIn: <https://in.linkedin.com/in/dr-vijayakumar-krishnasamy-06106838> |



Dr. Vijayakumar K/EE/IITDM
Kancheepuram

Renewable Energy - Introduction



- Wind power is clean and free source of energy for power production
- Reduce dependence on fossil fuels including imported oils
- Reduce emission of greenhouse gas and other pollutant
- One major concern is the noise – can be improved
- Intermittency and variability of the wind

Dr. Vijayakumar K/EE/IITDM Kancheepuram

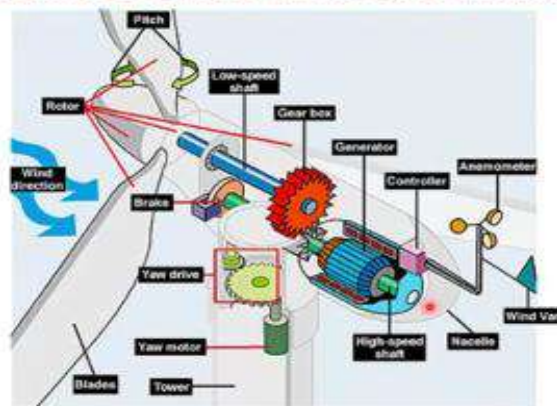
General Information on WECS in India

- Tariff : 4-6 Rs./unit
- Pay back period : 5.5 to 8 years
- Cost : 4.5 to 5 Crore/MW
- Companies : suzlon, Vestas, Regen, etc.,
- Avg. Height : 60 – 90 meters
- Tallest Hybrid Wind turbine: Suzlon Energy S97 - 120m is the tallest hybrid wind turbine in Kutch, Gujarat, India
- Capacity : 100 kW, 200 kW, 700 kW, 1 MW...,
- The Vestas V164 has a largest rated capacity of 8.0 MW

22/21

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Kancheepuram

Components of a horizontal-axis wind turbine



The ROTOR component : Its approx 20% of the wind turbine cost, includes the blade for converting wind energy to low speed rotational energy.

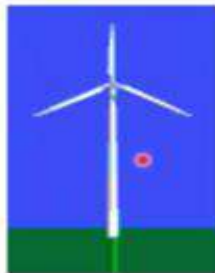
The GENERATOR component : Its approx 34% of the wind turbine cost, includes electrical generator ,the control electronics and a gearbox.

The STRUCTURAL component : Its approx 15% of the wind turbine cost, includes the tower and yaw mechanism.

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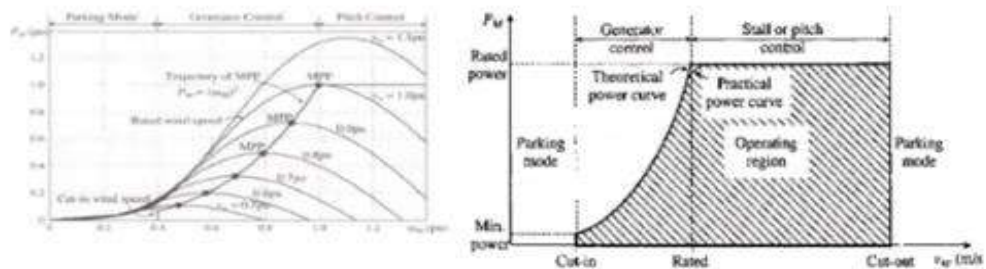
Wind Turbines: Number of Blades

- ❑ Most common design is the three-bladed turbine. The most important reason is the stability of the turbine. A rotor with an odd number of rotor blades (and at least three blades) can be considered to be similar to a disc when calculating the dynamic properties of the machine.
- ❑ A rotor with an even number of blades will give stability problems for a machine with a stiff structure. The reason is that at the very moment when the uppermost blade bends backwards, because it gets the maximum power from the wind, the lowermost blade passes into the wind shade in front of the tower.



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Kancheepuram

Turbine Mechanical Power versus Wind Speed Curve



- The wind turbine starts to capture power at the cut in wind speed. The power captured by the blades is a cubic function of wind speed until the wind speed reaches its rated value. To deliver captured power to the grid at different wind speeds, the wind generator should be properly controlled with variable speed operation.
- As the wind speed increases beyond the rated speed, aerodynamic power control of blades is required to keep the power at the rated value.

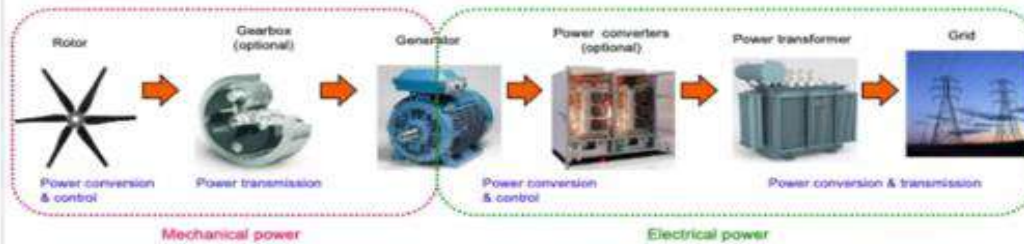
Dr. Vijayakumar K/EE/IITDM
Kancheepuram

Wind energy conversion system(WECS)

Grid Connected System

Stand-alone System
(or isolated system)

Main components of WECS



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Kancheepuram

Wind turbine concept

Fixed speed wind turbine

Variable speed wind turbine

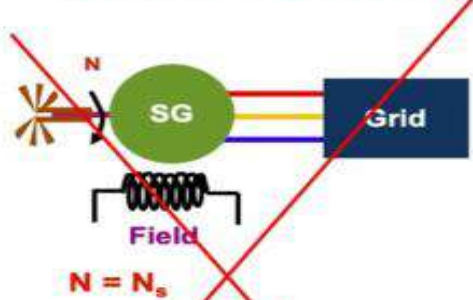
- Operates at constant speed
- Multiple -stage gear box (three-stage)
- High mechanical stress during gusty wind
- Limits the energy output of the turbine
- SCIGs are employed

- Operates at variable speed
- Single or two-stage gear box
- Possible to incorporate the MPPT
- Increase the energy output of the turbine
- PMSG, DFIG and WRIG are employed

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Kancheepuram

1:13:24

Synchronous generator



- > Leading and lagging PF operation
- > Synchronization needed
- > Separate dc supply required

Squirrel-cage induction generator



- > Rugged construction
- > Synchronization not required
- > Single-fed machine
- > Lagging PF operation
- > Capacitors are used for reactive power compensation

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Kancheepuram

1:22:1

Variable speed generators

Permanent magnet synchronous generator (PMSG)



- > Full rated power electronic converters
- > Independent control of active and reactive power
- > Synchronization problem and complexity in control

Squirrel-cage induction generator (SCIG)



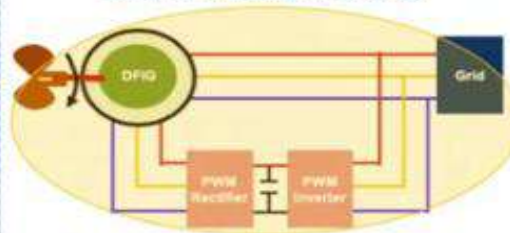
- > Wide variable frequency range for optimal operation
- > Reactive power compensated by PWM rectifier
- > Synchronization problem and complexity in control

Wound rotor induction generator (WRIG)



- > Slip ring induction machine is employed
- > Simple system due to control of single power electronic switch
- > No power electronic converters at grid side

Doubly-fed induction generator (DFIG)



- > Slip ring induction generator is employed
- > Operating at both sub-synchronous and super-synchronous speeds
- > Reduced size of converters in rotor side

Dr. Vijayakumar K./EE/BITOM
Kancheepuram



Resource Person

Dr.Manoranjan Sahoo

Assistant Professor, NIT Trichy

Tamil Nadu

Topic:Multi-phase induction motor drive for high power Electric vehicle



Need of Eco-Friendly System

Need of Eco-friendly Systems

- Global warming due to the emissions of hydro carbons
- Fast enervation of fossil fuels
- High fuel price



Key Challenges in EV Application

- The torque and speed should be comparable to todays IC Engine Driven vehicle
- How long with single charge
- Time required to charge the Battery
- Braking





Required Drive Characteristics for Electric Traction Applications

- Enhanced torque-speed range with high efficiency
- High power handling capability
- High torque for starting and hill climbing and high power for high-speed cruising
- High reliability and robustness
- Acceptable cost
- Low acoustic noise and low torque ripple
- Volume of the machine



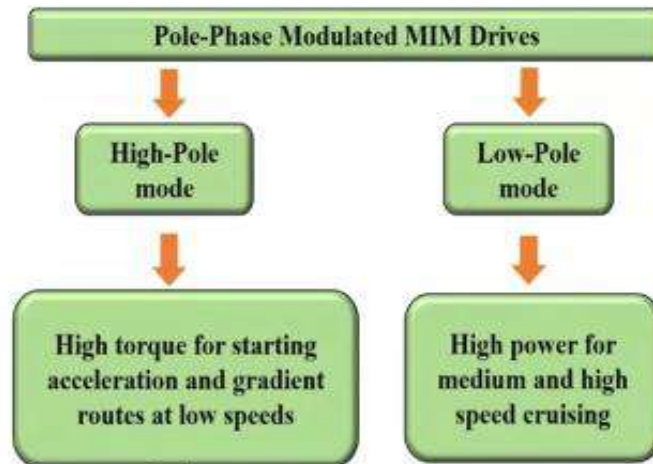
Typical IC Engine with Gear BoX





Introduction to Pole-Phase Modulation

- Pole-Phase Modulation (PPM) is an effective way for getting different speed ratios by varying the number of poles and phases in a constant ratio, without changing the stator winding connections.



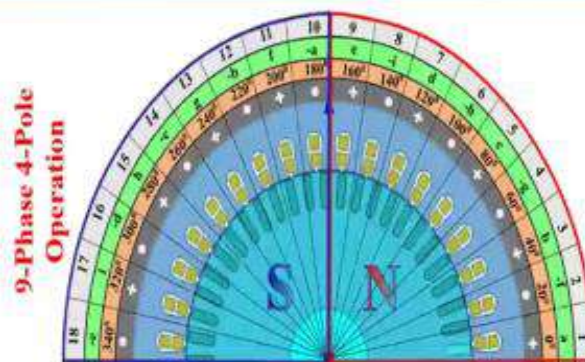
$$\therefore T \propto \frac{P}{2}$$

$$\text{Power} = T \times \omega_s$$

34-43



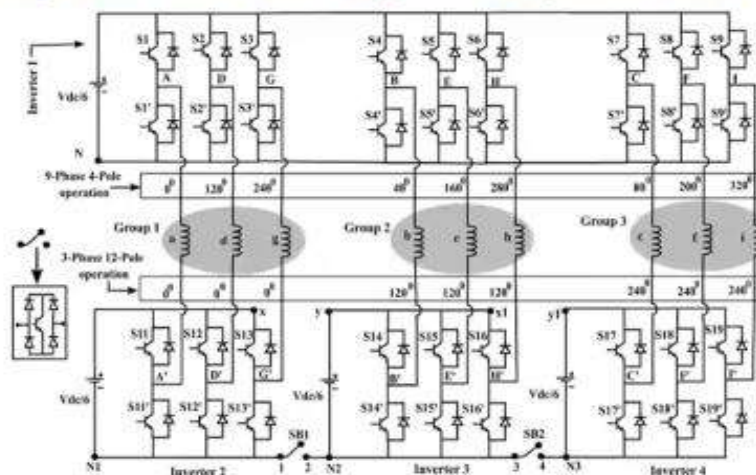
MLI Configurations for 9-phase PPMIM drive With Four DC Sources



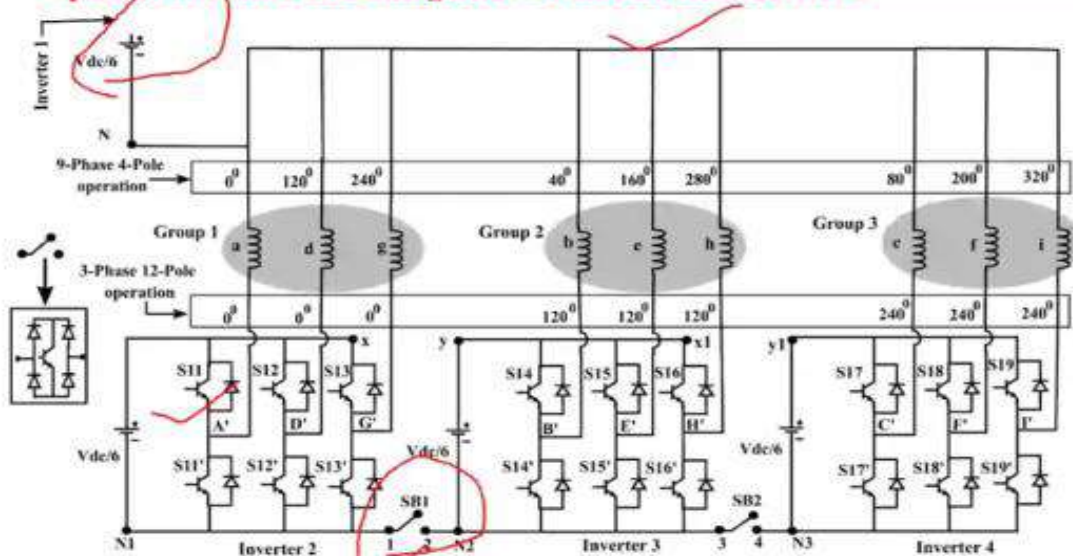


MLI Configurations for 9-phase PPMIM drive With Four DC Sources

Dual inverter Based fault tolerant 3-level inverter configuration with symmetrical sources



Operation of the MLI configuration under fault condition

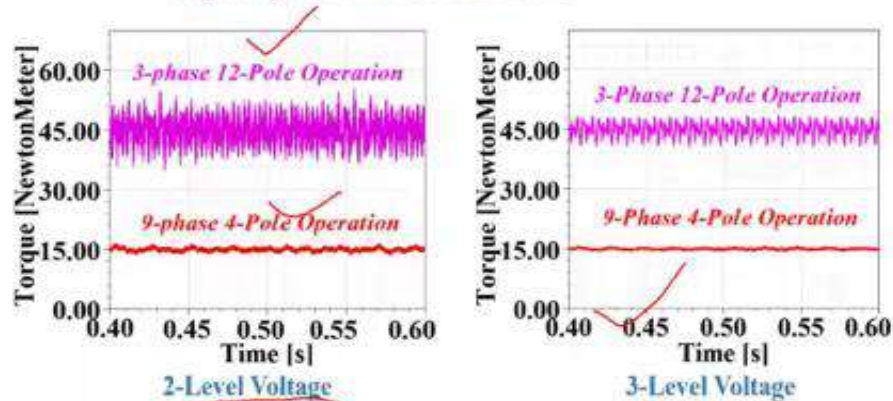


Open circuit (or Short circuit) switch faults or Source fault of Inverter 1



MLI Configurations for 9-phase PPMIM drive With Four DC Sources

Torque response of the PPMIM drive



- ❖ In high-pole mode torque ripple percentage is 38.5%
- ❖ In low-pole mode torque ripple percentage is 16%
- ❖ In high-pole mode torque ripple percentage is 16.5%
- ❖ In low-pole mode torque ripple percentage is 7.3%



Summary

- ❖ The MLI configurations are based on dual inverter principle with four dc sources in a ratio of 1:1
- ❖ These configurations are able to generate 3 level and 4 level voltages
- ❖ The isolated dc sources eliminate the zero-sequence voltages in the phase windings.
- ❖ Requires less magnitude of dc link voltage
 - ❖ reduced ratings of the switches as compared to conventional NPC and flying capacitor MLIs.
- ❖ The performance in terms of torque ripple and harmonics in the phase voltage has improved by using of carrier phase-shifted SVPWM.
- ❖ The DC link voltage utilization (DLVU) is improved by 15.4%
- ❖ Under fault condition the MLI configurations operates as a 9-phase two-level inverter
- ❖ The multilevel configuration fed MIM drive maintains the rated load torque requirement in both fault and normal conditions



Resource Person

Dr.C.K.Babulal

Professor, Thygarajar College of Engineering

Madurai, TamilNadu

Topic: Fuzzy Logic Based Power Quality Evaluation

Fuzzy Logic based Power Quality Evaluation

Saranathan College of Engineering
Thiruchirappalli, July 25, 2020

DR.C.K.BABULAL

PROFESSOR,
DEPARTMENT OF EEE,
THIAGARAJAR COLLEGE OF ENGINEERING,
MADURAI – 625 015.
ckbeee@tce.edu

Inventors

- Lotfi Zadeh

- [Citations](#): 2,44,038

- [h-index](#): 113

- Mamdani

- Sugeno



What is Fuzzy Logic?



- Fuzzy logic is a **convenient** way to map an input space to an output space.
- Fuzzy logic is a logical system, which is an extension of two-valued logic.
- Deals with real world vagueness
- Which relates objects of un-sharp boundaries in which membership is a matter of degree.

Why Use Fuzzy Logic?



- Fuzzy logic is conceptually easy to understand
- The mathematical concepts behind fuzzy reasoning are very simple.
- Fuzzy logic is flexible.
- Fuzzy logic is tolerant of imprecise data.

Classical sets-Review

- A classical set is a collection of objects of any kind
- Set
- Element
- Membership
- Universe of discourse

DEFINITION OF THE CRISP SET

1. List method: List the members of the set

UNIVERSE

1, 2, 3, 4, 5, 6, . . . , 1000, . . .



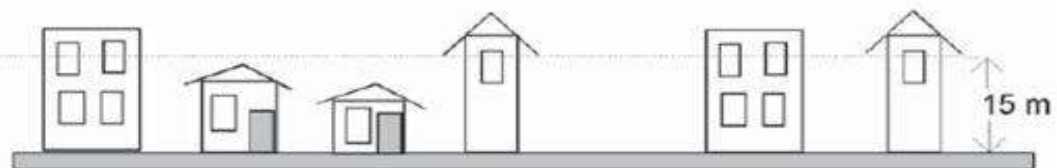
SET

3, 4, 5, 6



2. Rule method: Take only the members which satisfy the rule

Rule: Take only the houses higher than 15 m

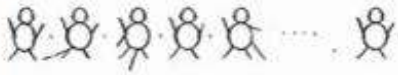


DEFINITION OF THE FUZZY SET

1. List method: List the members of the set

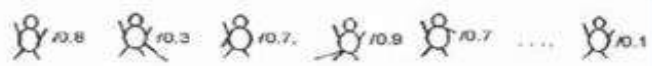
UNIVERSE

1, 2, 3, 4, 5, 6, ..., 1000, ...



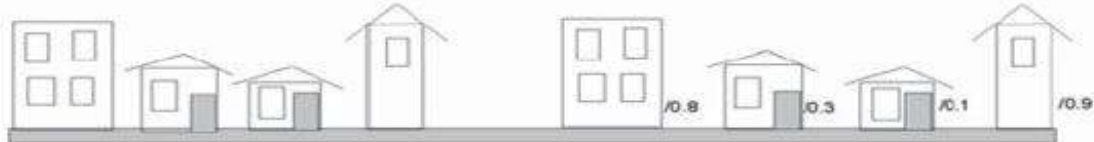
FUZZY SET

1/0.1, 2/0.2, 3/0.9, 4/0.95, 5/0.9, 6/0.85, 7/0.5, ...

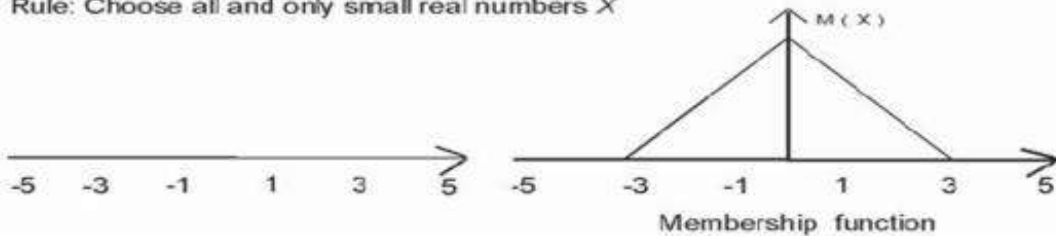


2. Rule method: Take only the members which satisfy to the rule

Rule: Take only the high houses



Rule: Choose all and only small real numbers X



Properties of crisp set operations

Table 2.1 Properties of crisp set operations

Involution	$(\bar{A})' = A$
Commutativity	$A \cup B = B \cup A$ $A \cap B = B \cap A$
Associativity	$(A \cap B) \cap C = A \cap (B \cap C)$ $(A \cup B) \cup C = A \cup (B \cup C)$
Distributivity	$A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$ $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$
Idempotence	$A \cup A = A$ $A \cap A = A$
Absorption	$A \cap (A \cup B) = A$ $A \cup (A \cap B) = A$

Absorption of complement

$$A \cup (\bar{A} \cap B) = A \cup B$$

$$A \cap (\bar{A} \cup B) = A \cap B$$

Absorption by U and $\emptyset$

$$A \cup U = U$$

$$A \cap \emptyset = \emptyset$$

Identity

$$A \cup \emptyset = A$$

$$A \cap U = A$$

Law of contradiction

$$A \cap \bar{A} = \emptyset$$

Law of excluded middle

$$A \cup \bar{A} = U$$

De Morgan's laws

$$\overline{A \cap B} = \bar{A} \cup \bar{B}$$

$$\overline{A \cup B} = \bar{A} \cap \bar{B}$$

Operations on fuzzy logic

AND

OR

NOT

Properties of Fuzzy Logic

Property	Name
$A \cup B = B \cup A$	<i>Commutative</i>
$A \cap B = B \cap A$	<i>Commutative</i>
$(A \cup B) \cup C = A \cup (B \cup C)$	<i>Associative</i>
$(A \cap B) \cap C = A \cap (B \cap C)$	<i>Associative</i>
$A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$	<i>Distributive</i>
$A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$	<i>Distributive</i>
$\overline{A \cap B} = \overline{A} \cup \overline{B}$	<i>DeMorgan</i>
$\overline{A \cup B} = \overline{A} \cap \overline{B}$	<i>DeMorgan</i>
$(A \cap B) \cup A = A$	<i>Absorption</i>
$(A \cup B) \cap A = A$	<i>Absorption</i>
$A \cup A = A$	<i>Idempotency</i>
$A \cap A = A$	<i>Idempotency</i>
$A \cup \overline{A} \neq 1$	<i>Exclusion not satisfied</i>
$A \cap \overline{A} \neq 0$	<i>Exclusion not satisfied</i>

Table 1: Properties of the primitive operations

37

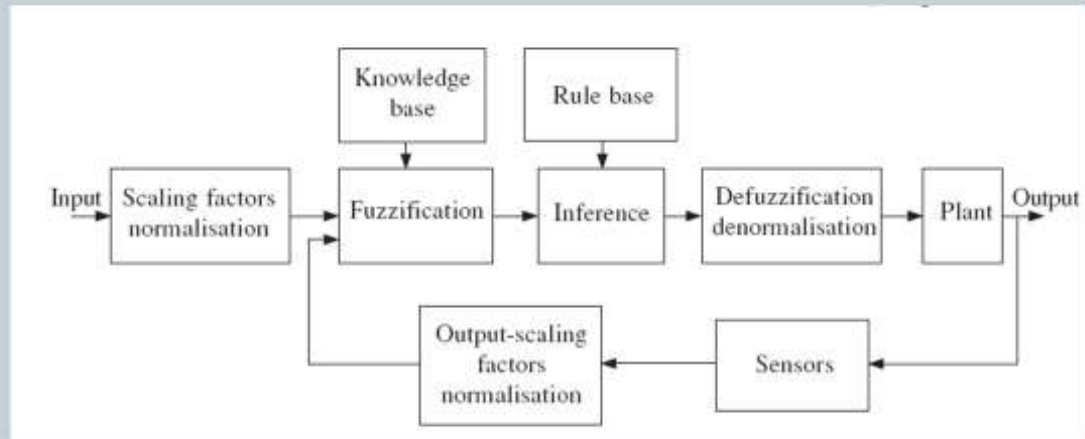
Fuzzy logic controller

- **Types:**

1. **Mamdani Fuzzy Controller**

2. **Takagi-Sugeno Controller**

Block Diagram of FLC



Modules

- Fuzzification module
- Knowledge base
- Rule base
- Inference engine
- Defuzzification module

Sugeno Model

- Output is constant or linear
- Example XOR function

- **Input**

- X (Near 0 / Near 1) – [0 1]
 - Y (Near 0 / Near 1) – [0 1]

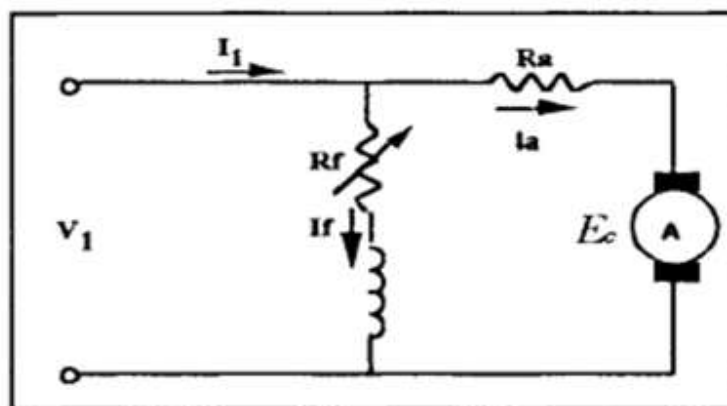
- **Output**

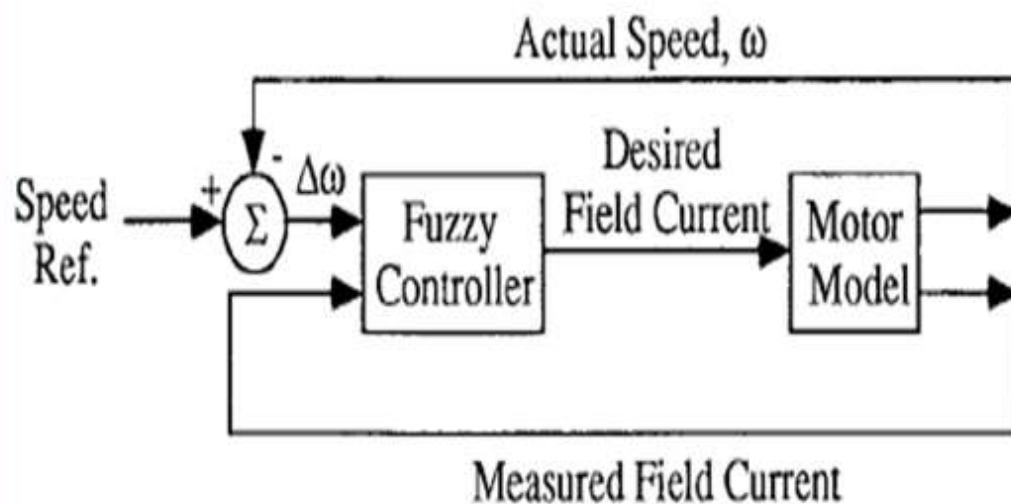
- Class [0 1 1 0]

X	Y	Class
0	0	0
0	1	1
1	0	1
1	1	0

Fuzzy-Logic-Based Speed Control of Shunt DC Motor

- **Armature voltage control**
- **Field current control**





Fuzzy logic based Power Quality Evaluation

- Power Quality
- Reliability was the concern for the consumers many years.
- Now they want reliable as well as quality power.
- Industries like:
 - Hospitals (Life support, operation theatre, data base)
 - Processing plants (Semiconductor, rayon and fabric, food industries)
- They want uninterruptable and clean power supply.

Causes of PQ problem

- There are varieties of PQ problems like Transient, sag, swell, Interruptions, long duration voltage variation, Waveform distortion – Harmonics etc.,
- Waveform distortion? – Non-Sinusoidal
- Increased use of -
- **Power electronic devices,**
- **Adjustable speed drives, and other nonlinear loads,** cause the voltage and current waveforms to become non-sinusoidal and highly distorted.

Conclusion

- A fuzzy logic based representative quality power factor is explained using
- Displacement power factor
- Transmission efficiency power factor and
- Oscillation power factor.
- Cost-effective analysis for applying the **power factor correction devices** and **power quality mitigation techniques.**
- **Billing purposes**



Resource Person

Dr. Shelas Sathyan

Assistant Professor, NIT

Trichy, Tamil Nadu

Topic: Design of Power Electronic Converters-Gate Drivers and Magnetic

Components

Design of Power Converters- Gate Drives, Magnetic Components

By

Shelas Sathyan, PhD.

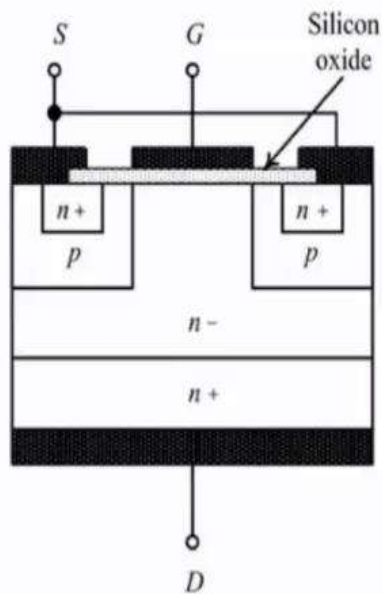
Assistant Professor

Department of Electrical & Electronics Engineering
National Institute of Technology Tiruchirappalli

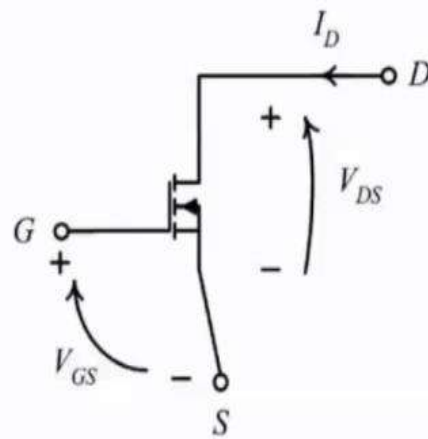


1

Power Metal Oxide Semiconductor Field-Effect Transistor (MOSFET)



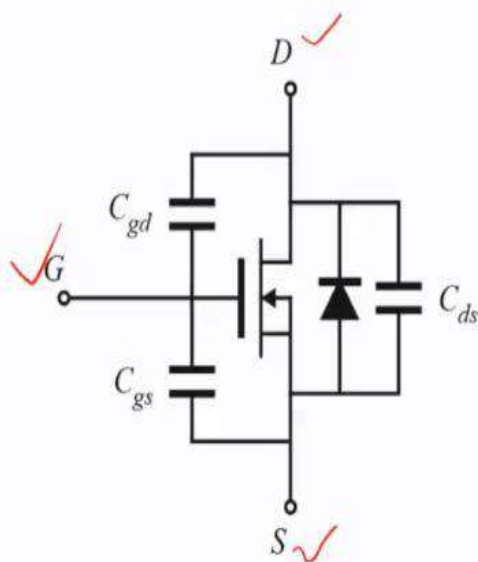
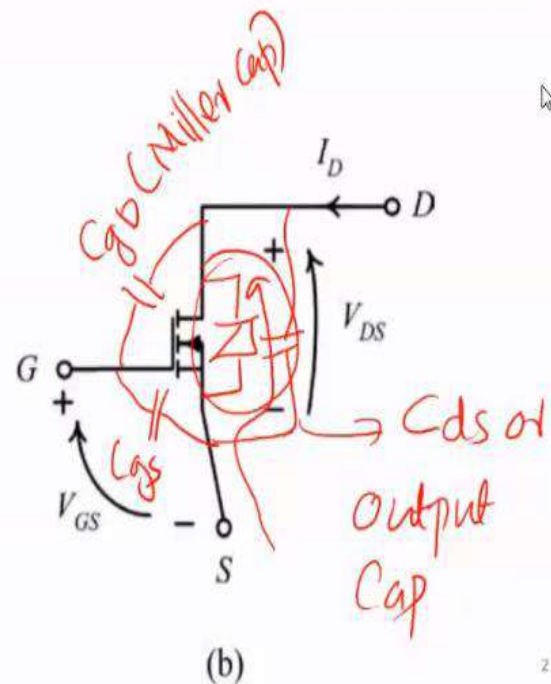
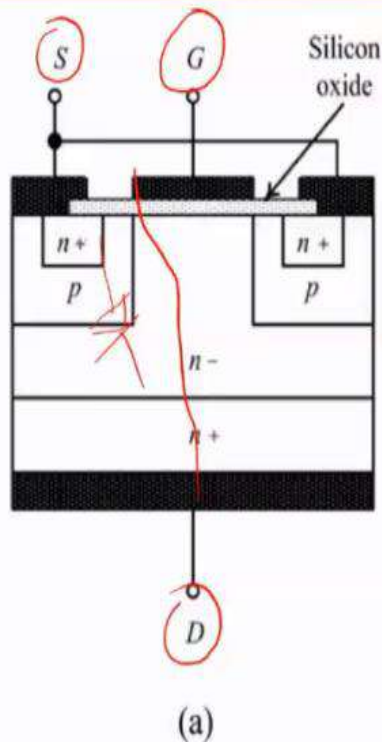
(a)



(b)

2

Power Metal Oxide Semiconductor Field-Effect Transistor (MOSFET)



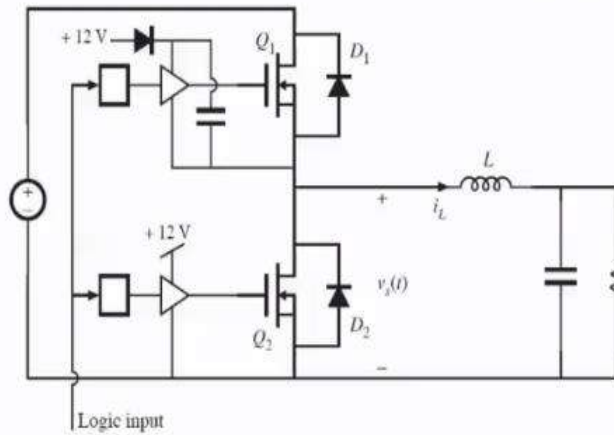
- C_{gs} : large, essentially constant
- C_{gd} : small, highly nonlinear
- C_{ds} : intermediate in value, highly nonlinear
- switching times determined by rate at which gate driver charges/ discharges C_{gs} and C_{gd}

$$C_{ds}(v_{ds}) = \frac{C_0}{\sqrt{1 + \frac{v_{ds}}{V_0}}}$$

$$C_{ds}(v_{ds}) \approx C_0 \sqrt{\frac{V_0}{v_{ds}}} = \frac{C_0'}{\sqrt{v_{ds}}}$$

Half-bridge gate driver

*Bootstrap
gate driver*



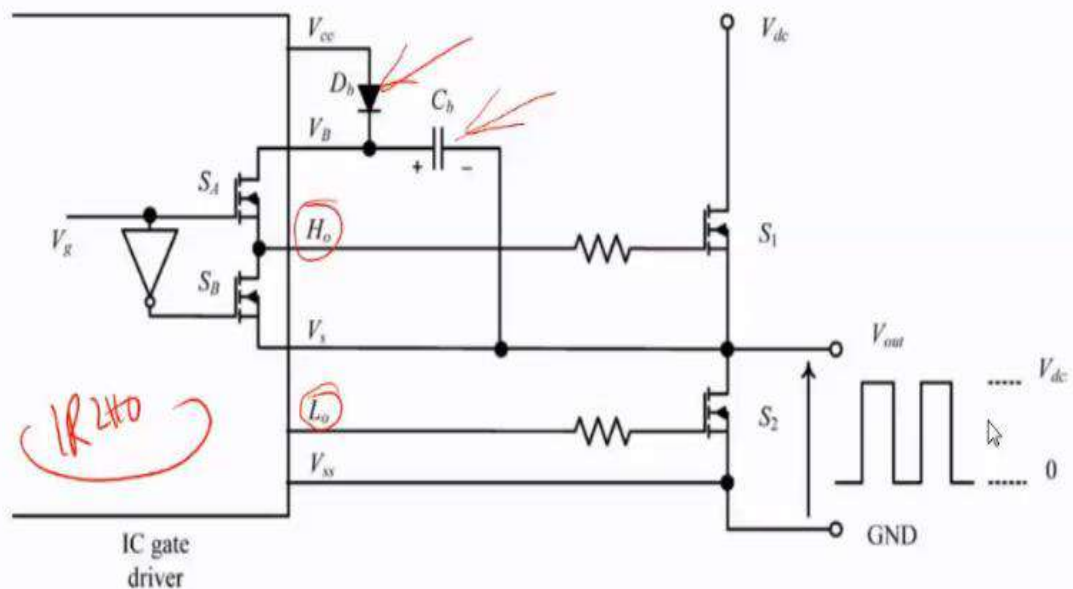
Half-bridge gate driver:

- Gate of Q_2 is driven by low-side driver
- Gate of Q_1 is driven by high-side driver
- High-side driver is powered by bootstrap power supply circuit
- High voltage integrated circuit

Logic input:

- Commands ON/OFF state of MOSFETs
- When Q_1 is on, Q_2 must be off, and vice-versa
- High-side control signal must be level-shifted
- Non-overlapping control: insert dead times

BOOTSTRAP



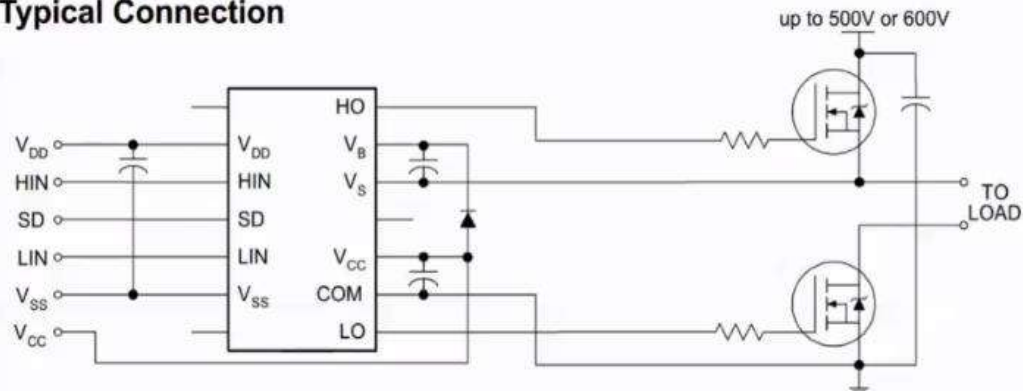
Packages



Lead Definitions

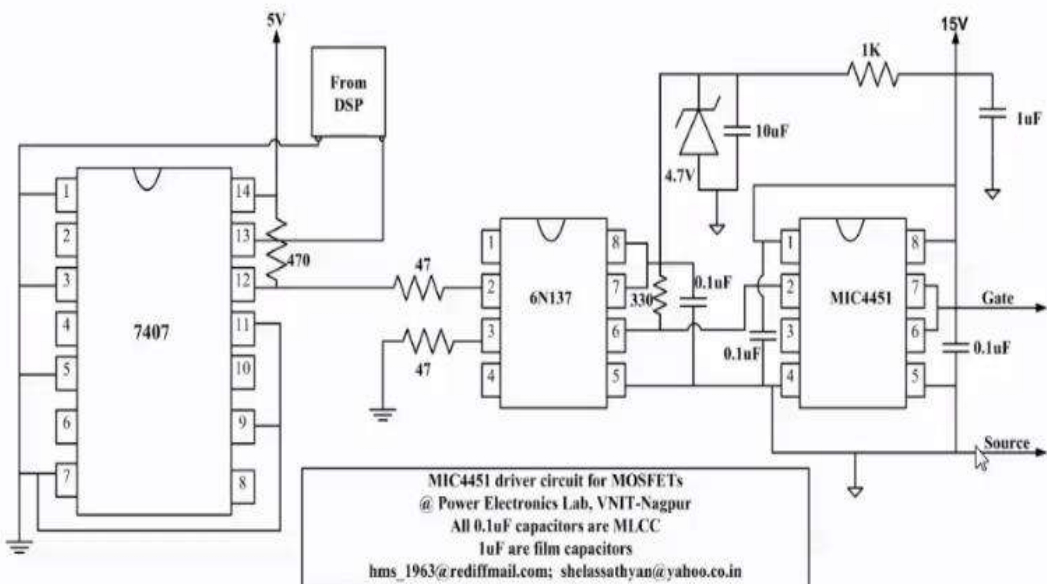
Symbol	Description
V _{DD}	Logic supply
HIN	Logic input for high side gate driver output (HO), in phase
SD	Logic input for shutdown
LIN	Logic input for low side gate driver output (LO), in phase
V _{SS}	Logic ground
V _B	High side floating supply
HO	High side gate drive output
V _S	High side floating supply return
V _{CC}	Low side supply
LO	Low side gate drive output
COM	Low side return

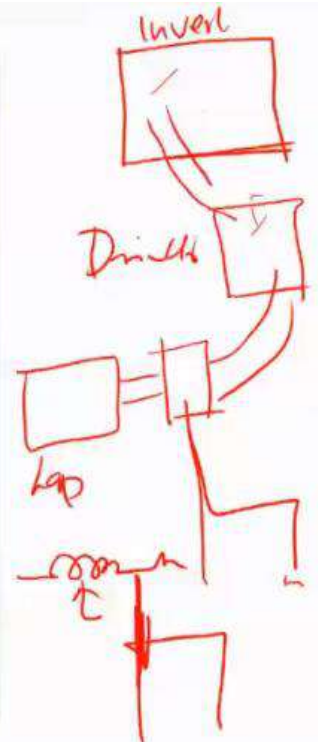
Typical Connection



(Refer to Lead Assignments for correct pin configuration). This/These diagram(s) show electrical connections only. Please refer to our Application Notes and DesignTips for proper circuit board layout.

Refer to the connection





Magnetic Materials for Power Electronics



Dr. SHELAS SATHYAN
 Assistant Professor
 Electrical & Electronics Engineering Department
 NIT Tiruchirappalli

Ferromagnetic materials

Hard magnetic

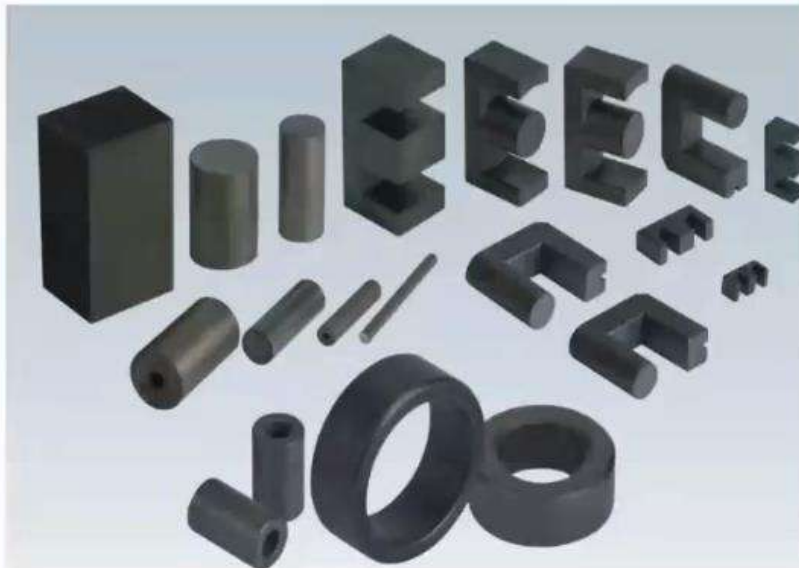
- Wide hysteresis loop
- Coercive force (H_c) is higher
- Difficult to magnetize and demagnetize
- Used for permanent magnets in brushless and synchronous motors
- Examples: Iron (Fe), Cobalt (Co), Nickel (Ni), Gadolinium (Gd) etc.

Soft magnetic

- Narrow hysteresis loop
- Low coercive force (H_c)
- Easy to magnetize and demagnetize
- Used in power electronics
- Examples: Ferrites, Steel (SiFe), amorphous alloys, Powder iron, Nano crystalline materials, Fe-Ni and Fe-Co alloys

5

Ferrite Cores



6

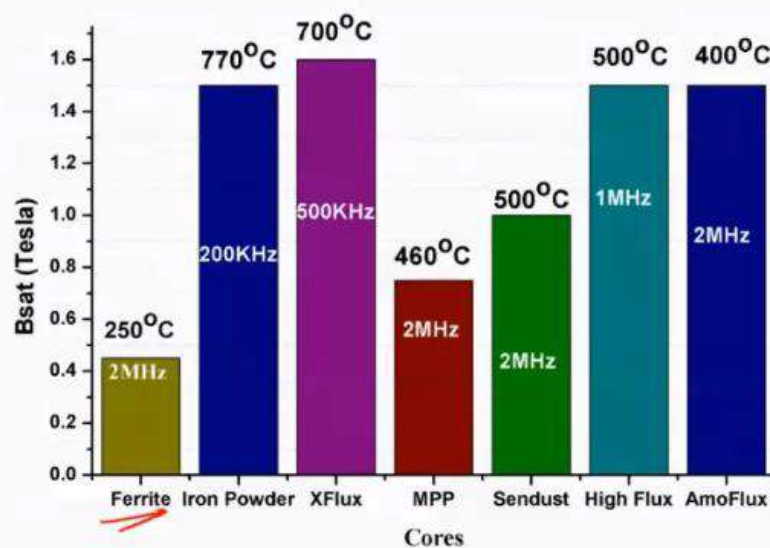
Powder Core



meeting

11

Comparison of B_{sat} , Max.operating frequency and Curi temperature of ferrite and powder core



15

Performance comparison of Ferrite and Powder cores

Material	Core Loss	DC Bias	Relative Cost	Saturation Flux Density (Tesla)	Curie Temperature	Operating frequency	Temperature stability
AmoFlux	Low	Better	Medium	1.5	400° C	2 MHz	Betetr
High Flux	Moderate	Best	Medium	1.5	500° C	1 MHz	Better
Sendust	Low	Good	Low	1.0	500° C	2 MHz	Good
MPP	Very Low	Better	High	0.75	460° C	2 MHz	Best
XFlux	High	Best	Low	1.6	700° C	500 kHz	Good
Iron Powder	Highest	Good	Lowest	1.2 - 1.5	770° C	200 kHz	Poor
Ferrite	Lowest	Poor	Lowest	0.45	100 - 250° C	2MHz	Poor

20

Nano crystalline Cores

- Made up crystals with a typical size of 7–20 nm that are iron (Fe) based . In addition there are traces of Si, B, Cu, molybdenum (Mo) and niobium (Nb)
- They combine the high saturation magnetic flux density of silicon steels with the low loss of ferrites at high frequencies.
- saturation flux density is about 1.2T- 1.5 T.
- The nanocrystalline cores are used up to 150 kHz.
- High relative permeability μ_r
- applications in current transformers, pulse transformers and common-mode EMI filters

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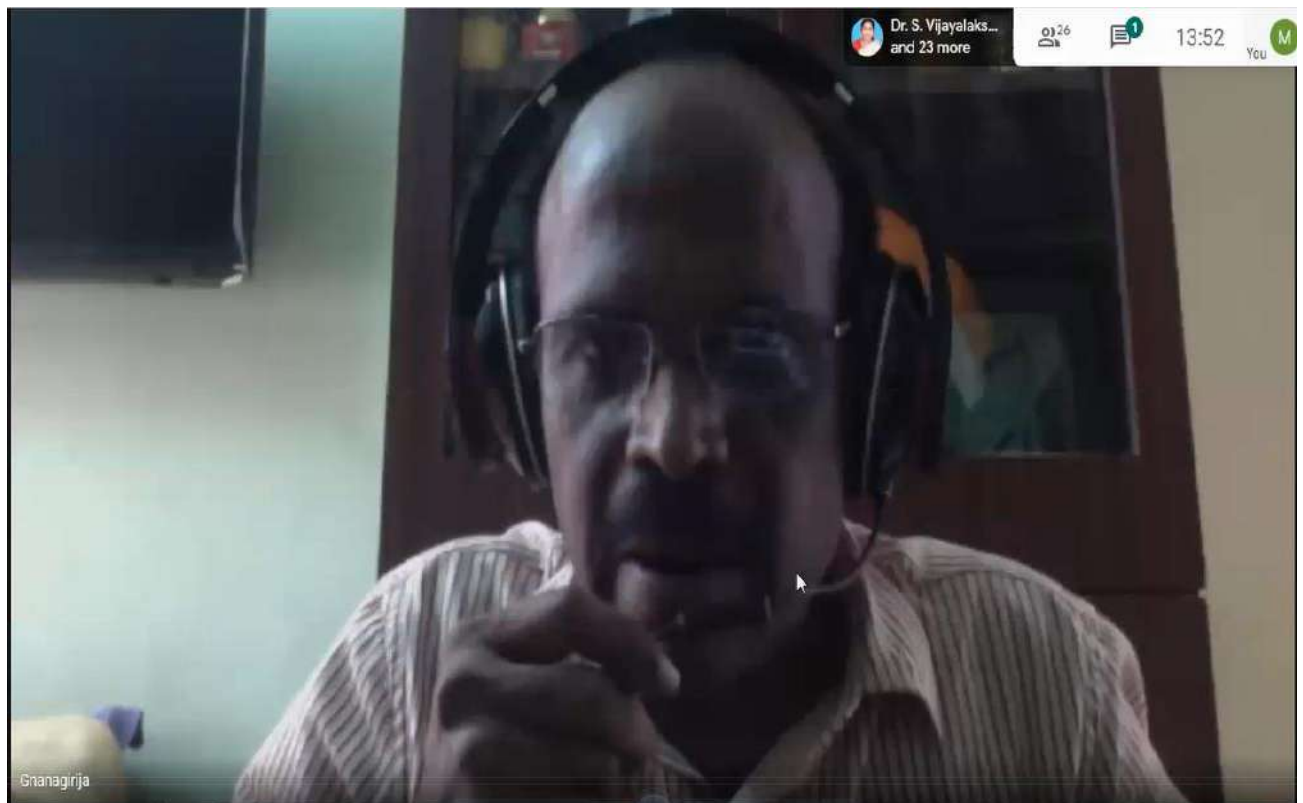
Resource Person

Mr.P.Gangagirija

Electrical Expert

DNV GL, Chennai

Topic: Basic Design Parameters of Power System Production



Basic Design Parameters

What is a Switchboard ?

A combination of

- one or more switching device (s) together with
 - associated control, measuring, signaling, protection etc.
- completely assembled, under the responsibility of the manufacturer with
 - all the internal - Electrical and Mechanical connections and
 - structural parts complying to applicable Standards.

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Basic Design Parameters

Standards

- Standards are **PRE ESTABLISHED RULES** and **REGULATIONS** which tell us about the basic norms to be followed in the assembly of the switchboards.
- Without considering the standards the assembly can be simply a potential bomb. 💣
- Those Days we have different standards like
 - BS
 - French Standards
 - German Standards
 - American Standards
 - Japanese Standards
- Nowadays more or less all the countries follow **IEC** 🇮🇪
 - Manufacturer' s Standards etc

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Basic Design Parameters

Electrical Characteristics

Under Normal Conditions

- The following are the basic parameters
 - Rated operating Voltage
 - Frequency
 - Rated current
 - Making Current / Breaking Current
 - Rated short circuit current
 - Rated short time withstand current
 - Rated peak withstand current
 - Earthing system

ting

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Basic Design Parameters

Technical Characteristics

- It is the sum of the basic general features and the associated environmental conditions supposed to be adopted.
- ***Although the physical environmental conditions and the standards apply to all types of switchboards, it is the operational constraints which determine which type of the switch board would be best suited to the application.***
- ***Specification to match the needs of the application***

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Basic Design Parameters

ASOKKUMAR M.E
and 43 more

46

Other Characteristics

- Apart from the Electrical and the Technical requirement, this part of the specification is also very important.
 - The physical design of the switchboard
 - Color of the switchboard
 - Labeling
 - Indication lamps
 - Control devices
 - Locking and Interlocking arrangements etc.
- **Neglecting this part of the specification leads to some unpleasant surprises.**

Professor /eeestaff has left the meeting

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Basic Design Parameters

K Karthick Ramali...
and 43 more

46

Ambient Temperature and Altitude

98.4 F or 37 °C

- Unless otherwise stated the Design Ambient is
 - 5 Deg C to + 40 Deg C as per IEC 62271 - 1
- Unless otherwise stated the Design Altitude as per IEC 60439 - 1
 - LV Switchgear 2000 m
 - HV Switchgear 1000 m

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Basic Design Parameters

payani munasw...
and 41 more

44

Ambient Temperature

- The ambient temperature is very important environmental factor need to be specified realistically.
- Ambient temperature has a direct impact on the performance of ALL the equipment and the de-rating to be done for higher ambient temperature ratings.
- Usually the equipment is installed in a controlled environment which help us to specify optimized value of the ambient temperature.

Asking for higher ambient temperature is to pay more

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Basic Design Parameters

Arvin Tony
and 42 more

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Forms of separations

- As per IEC 60439-1 we have the following forms of segregation
 - Form 1
 - Form 2a & 2b
 - Form 3a & 3b
 - Form 4a & 4b

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Protection Fundamental

- **Electro-Magnetic**
 - Magnetic
 - Disc
 - Armature
- **Bi-Metallic**
 - Static
 - Numeric

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Broad Classification of Protection

- **Generator**
 - Differential
 - Under Frequency
 - Over Frequency
 - Under Current
- **Transmission**
 - Distance
 - Over Head Lines
 - Underground Cables
- **Distribution**
 - Over Current
 - Earth Fault
 - Short Circuit Current
 - Under Voltage
 - Over Voltage

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Basic Design Parameters

IP Class

p prakash
and 45 more

48

- IP class ensures the protection of the enclosures against external influences like solid bodies and liquids.
- Realistic IP level contribute mainly in the optimization of the equipment.
- It is the environment for the equipment that is to be kept in consideration while specifying the IP.
- A controlled, neat and clean environment never demand for a higher IP, where an uncontrolled and polluted environment cannot compromise with lower IP
- The right IP level mainly contributes to the smooth functioning and life expectancy of the equipment.

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Basic Design Parameters

IP Levels 1st Digit Protection Against Solid Bodies

Jagadeesh Babu
and 45 more

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- No protection
- Protection against solid bodies greater than 50mm.
- Protection against solid bodies greater than 12mm.
- Against bodies greater than 2.5mm
- Against bodies greater than 1mm.
- Protection against dust
- Total protection against dust.

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I P Levels 2nd Digit - Protection against Liquid

- No protection
- Protection against vertical drops
- Protection against drops of water falling upto 15 deg. from vertical
- Protection against drops of water falling upto 60 deg. from vertical
- Protection against water projected from all direction
- Protection against hosing with water projected from all direction
- Protection against swamping (flooding) with water
- Protection against Immersion

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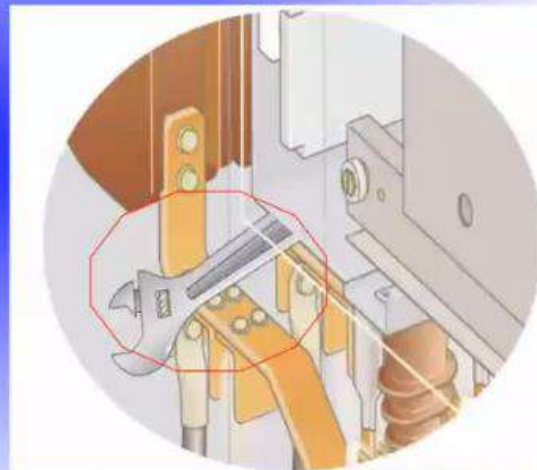
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Internal Arc

Origine

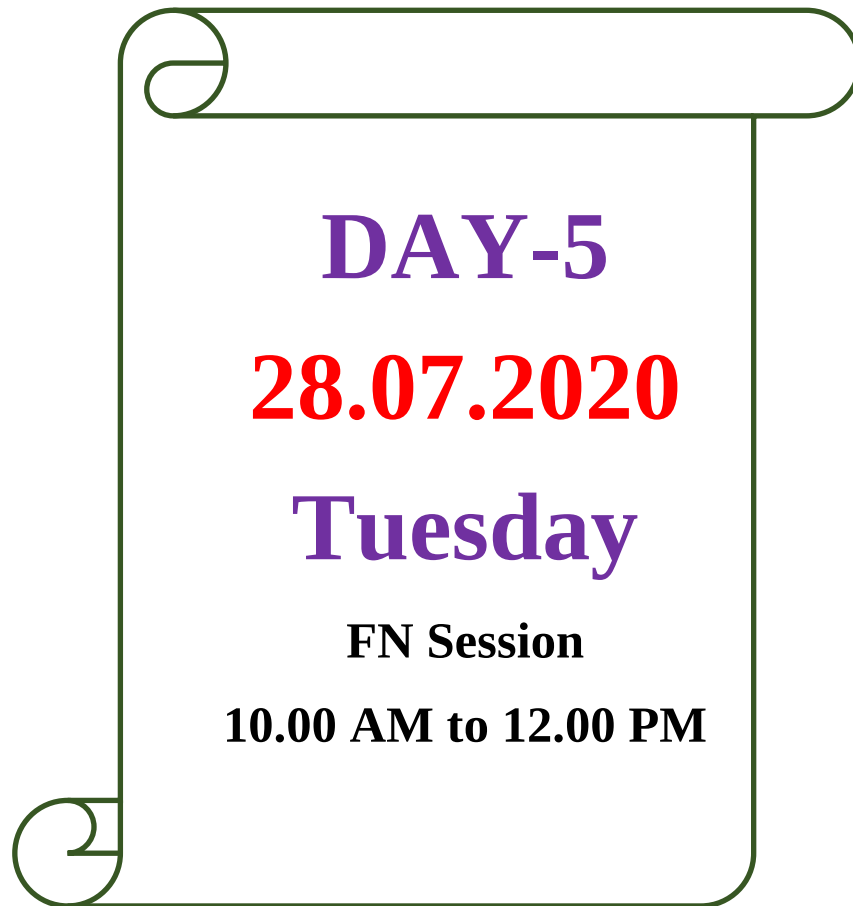
- Tools forgotten after maintenance
- Very corrosive atmosphere
- Forced (defeating) inter-locks
- Faulty component



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Resource Person

Dr.V.Saravanan

Professor, Thygarajar College of Engineering

Madurai, TamilNadu

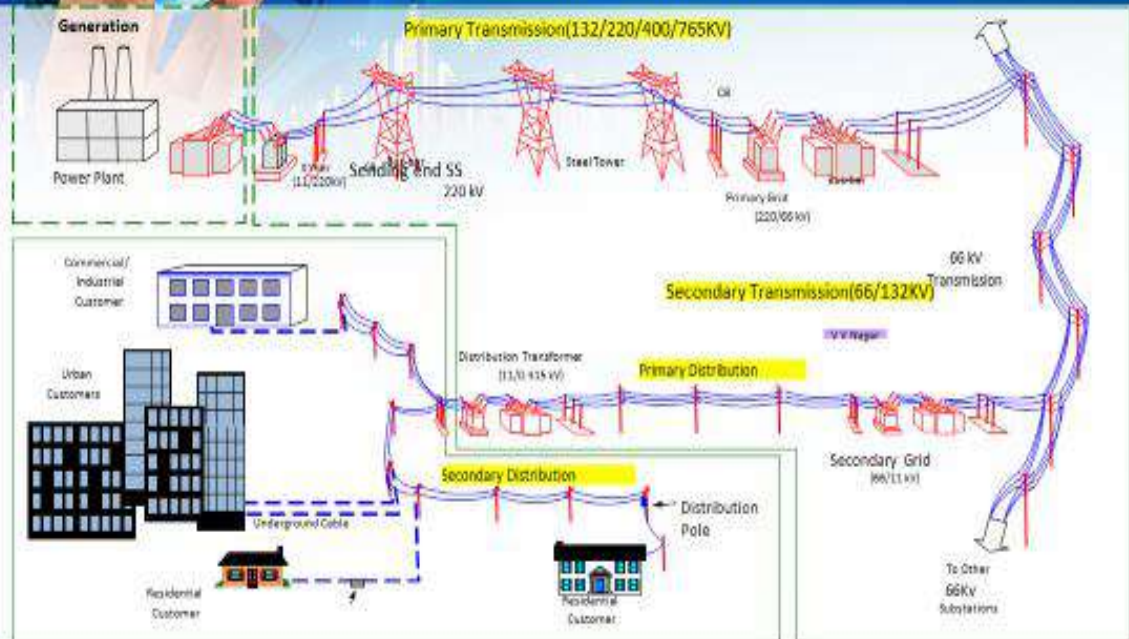
Topic: Selection and Ratings of Protective Devices for Domestic &
Commercial Electrical Installation

Selection and Ratings of Protective Devices for Domestic & Commercial Electrical Installation

Dr.V.Saravanan,
Professor / Energy Consultant - EEE Dept.
Thiagarajar College of Engineering, Madurai



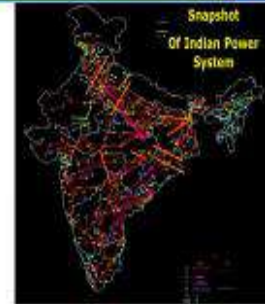
STRUCTURE OF POWER SYSTEM





Modern Power System

- Consists of
 - 1000's of Generators
 - Million Kms of T&D Lines
 - Millions of Transformers
 - Billions of Customers / Loads
- Power Quality & Reliability depends on Coordinated Performance of the above



Major Electrical Hazards

Electric shock: a sudden physiological stimulation when human body is a part of an enclosed current loop.



Arc: the light and heat released from an electrical breakdown that is due to electrical current ionizing gases in the air.

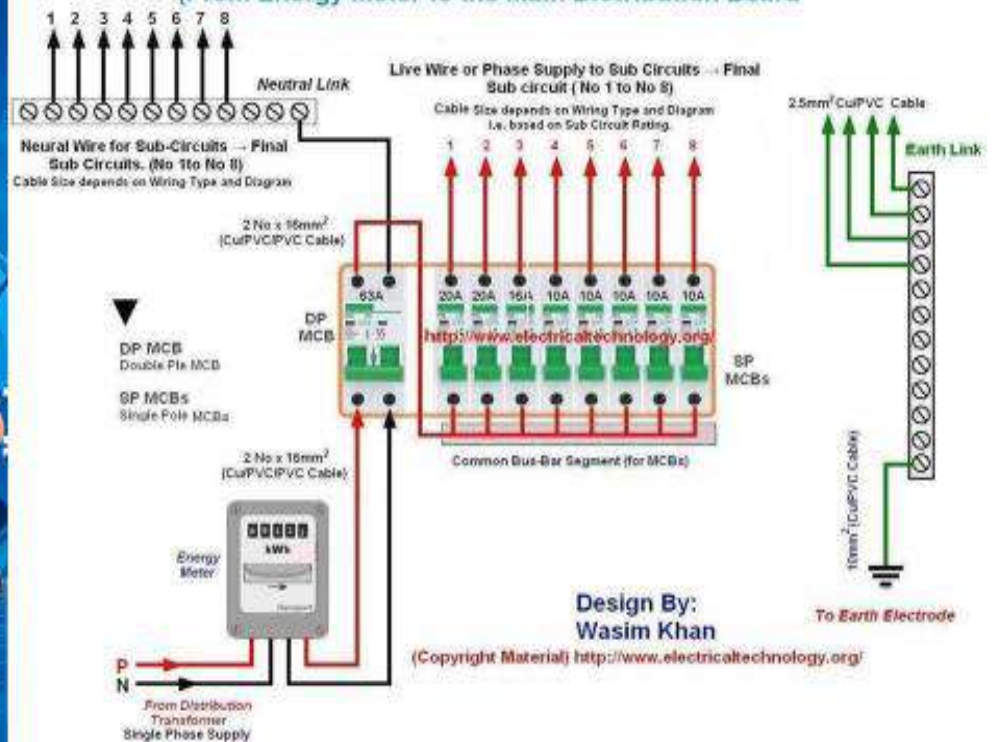


Blast: an explosive or rapid expansion of air with tremendous pressure and temperature, which is caused by arcs sometimes.





Wiring of the Distribution Board (Single Phase) Consumer Unit (From Energy Meter to the Main Distribution Board)



Need for Protective Devices

- Human Safety
- To avoid Electric Fire / Fire initiated by Electric Faults
- Equipment Protection
 - LED Lights, BLDC Fan, Inverter based A/C / Refrigerator / Washing Machine, LED TV
- Demand Control



Types of Faults

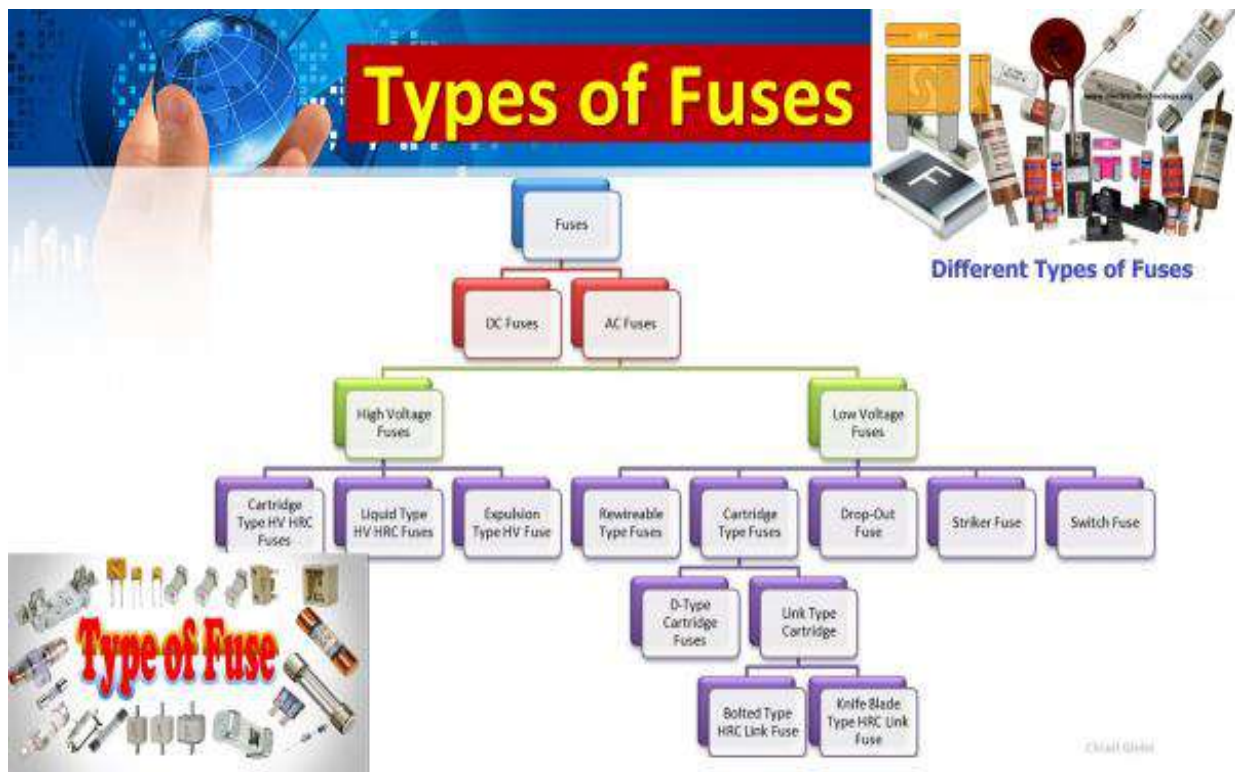
- Insulation failure in Electrical Equipment
- Line to Ground Faults
- Electric Shock
- Voltage Surges



Types of Protective Devices

- Fuses
- Earthing
- MCB's
- ELCB
- Surge Protective Devices





Advantages of Fuse

- Speed of operation is very high
- Maintenance cost is practically zero
- They are capable of clearing high as well as low faults current
- They provide reliable operation

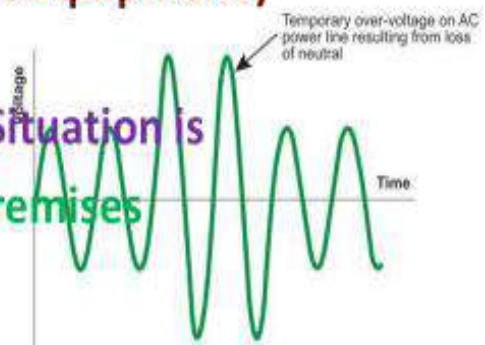
Earthing

- Earthing is the general term used
 - Connecting the Non Current Carrying Metallic parts of Electrical Equipment to ground
 - By Efficient Manner
- Water Line Pipes also earthed
- Patient test table of EEG, ECG, CT Scan, MRI Scan Etc. also earthed



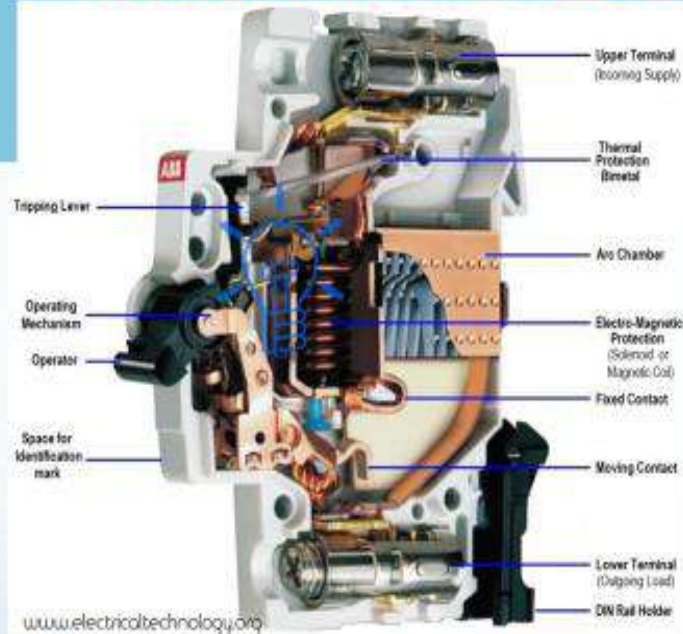
Neutral Grounding

- In Three Phase Power Supply System – In case of Neutral Failure
 - Phase to Neutral Voltages will raise high
- Results in Failure of Single Phase Equipment / Appliances
- Methods to Protect from Such Situation is
 - Neutral Grounding at your Premises



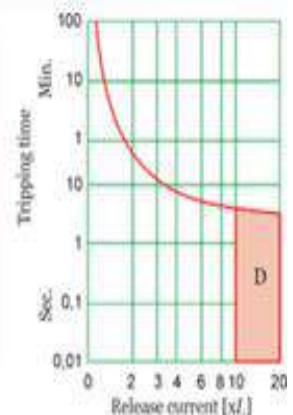
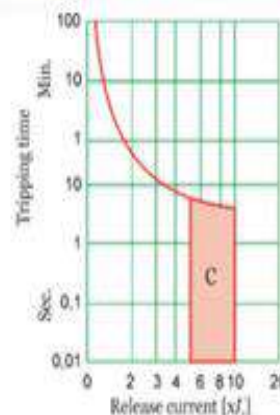
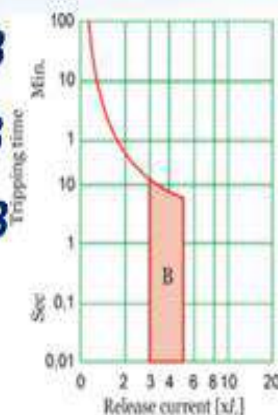


Construction of MCB



Types of Miniature Circuit Breakers

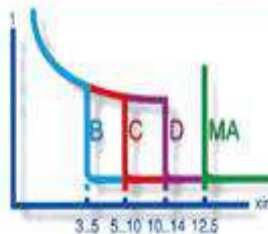
- MCBs are classified into three major types according to their instantaneous tripping currents. They are
- **Type B MCB**
- **Type C MCB**
- **Type D MCB**



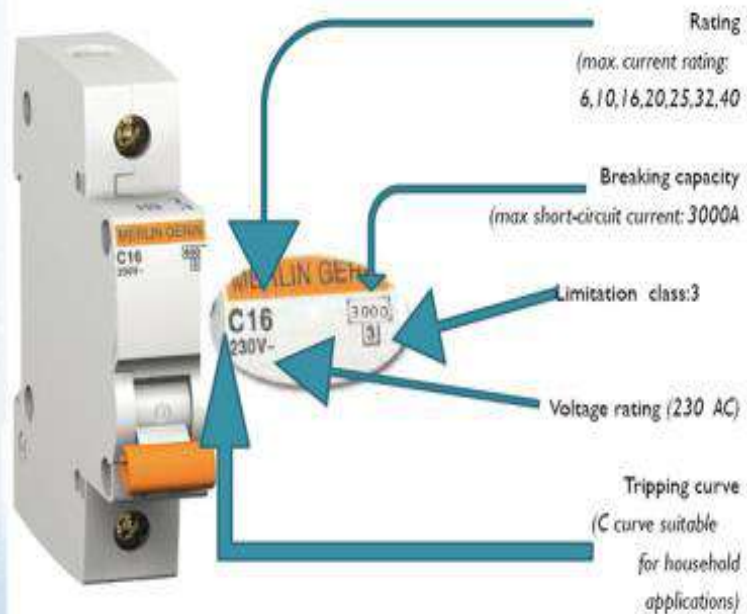
MCB's Inrush Current Rating

MCB Type	Minimum Trip Current	Maximum Trip Current
B Type	$3 I_r$	$5 I_r$
C Type	$5 I_r$	$10 I_r$
D Type	$10 I_r$	$20 I_r$

I_r - Inrush Current



MCB Name Plate Specifications



Physiological Effects of Electricity in Human Body

- **More than 3 mA**
 - Painful shock
- **More than 10 mA**
 - Muscle contraction "no-let-go" danger
- **More than 30 mA**
 - Lung paralysis- usually temporary
- **More than 50 mA**
 - Possible ventricular fib. (heart dysfunction, usually fatal)
- **100 ma to 4 amps**
 - Certain ventricular fibrillation, fatal
- **Over 4 amps**
 - Heart paralysis; severe burns. Usually caused by >600 volts

Just a Little Current Can Kill



* A milliamp is 1/1000th of an ampere, a measure of electrical current.

** A GFCI is a ground fault circuit interrupter, a device that protects against serious shock.

Earth Leakage Circuit Breakers (ELCB/RCCB/GFCI)

- The main purpose of Earth leakage protectors is to prevent injury to humans and animals due to electric shock.



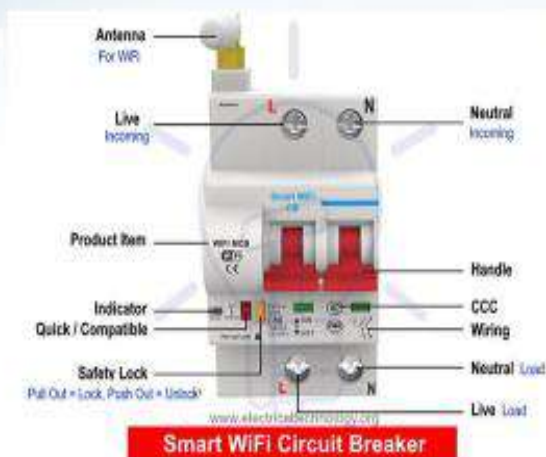
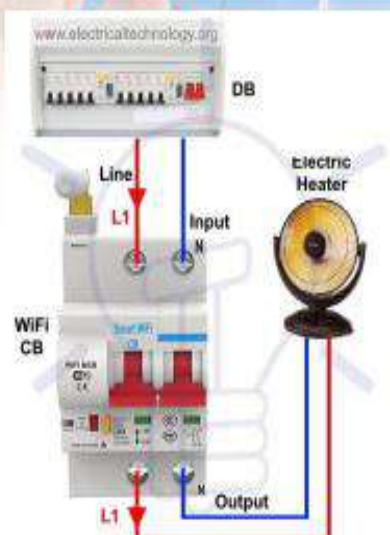
- Legrand
- Havells
- ABB (ASEA Brown Boveri)
- Granger
- Siemens AG
- Schneider Electric
- Vguard

WiFi Circuit Breaker

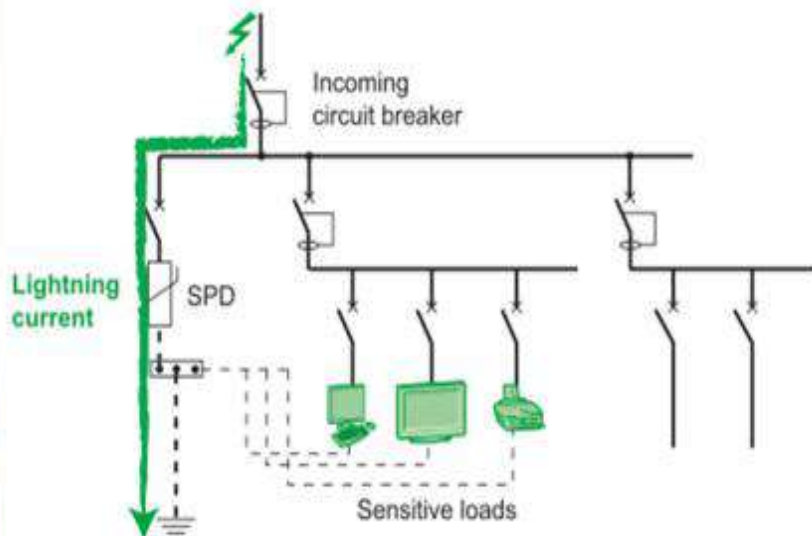
- WiFi circuit breakers are same like normal and ordinary CBs with
 - An antenna for WiFi signals
 - a special mechanical switch mechanism for automatic ON/OFF operation



WiFi Circuit Breaker

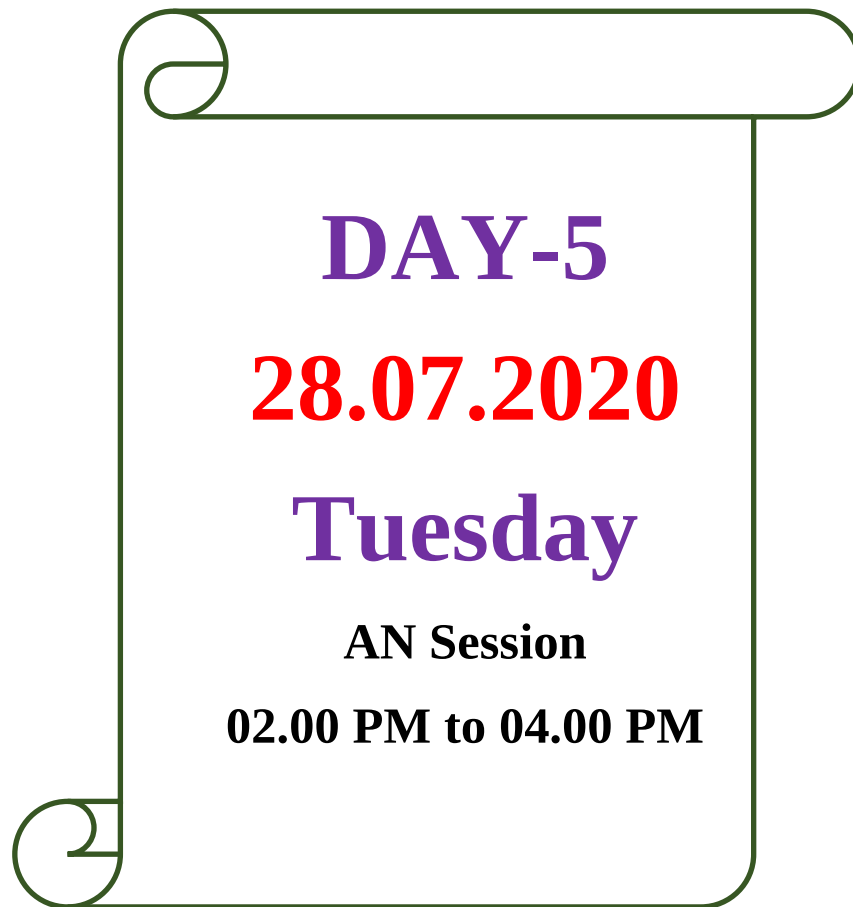


Surge Protective Devices



To Summarize

- Choose a Right Protective Device
- Select Rating as per the Load
- Monitor the Performance of Protective Devices
- Minimize Peak Demand
- Be Safe and Create Safe Working Environment



Resource Person

Dr.C.Sharmeela

Associate Professor, Anna University

Chennai, Tamil Nadu

Topic: Protection Requirements for Solar Photovoltaic Systems

COMPONENTS OF SOLAR PV SYSTEMS



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Assistant Professor in EEE,
Anna University, Chennai – 25.
E-Mail: sharmeela20@yahoo.com

CELL: 9841363144

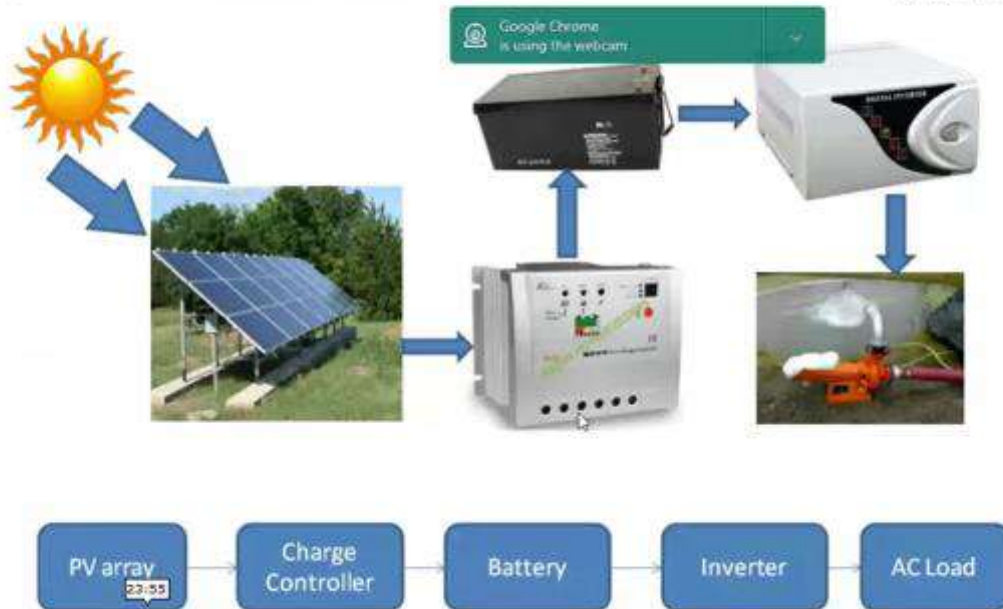
CONTENTS



- Solar PV system components – Overview
- DC-DC converters in Solar PV systems
- Inverters for Solar PV
- Energy Storage Devices in Solar PV systems
- Current Trends in Solar PV market
- Concluding remarks

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AC Systems with Storage



MPPT CHARGE CONTROLLER



- MPPT Charge controller is usually a non isolated DC-DC converter with a special algorithm based PWM driver unit.
- MPPT can be implemented in DC-DC controller or in the inverter. In general a solar power conditioning unit has DC-DC converter, battery charge controller and inverter.



Categories of Inverters



Google Chrome
is using the webcam

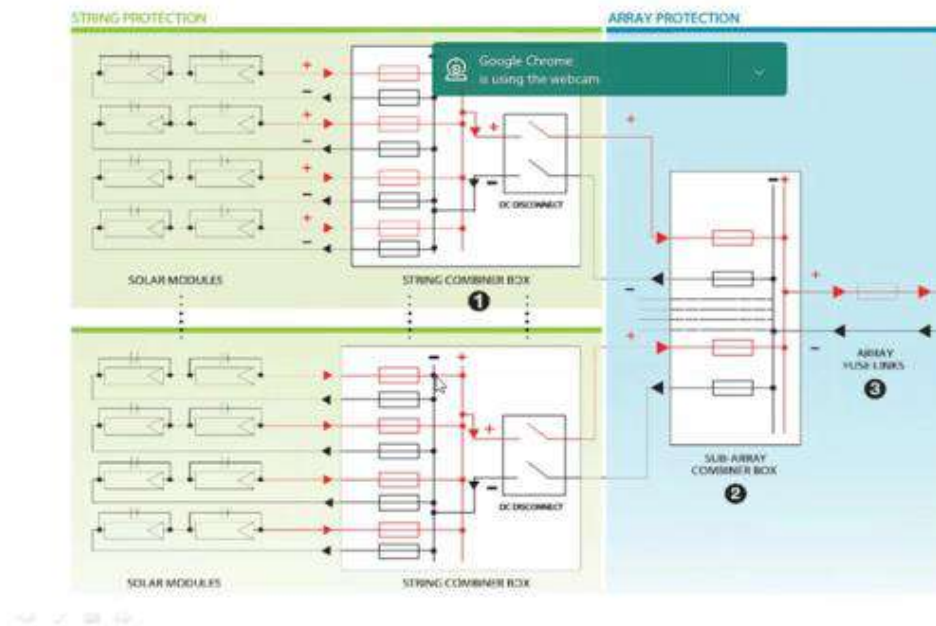
Central Inverter	String Inverter	Module Inverter	Multi String
• High Power • 100kW-500kW	• Medium Power • 3kW-20kW	• Low Power • 50-500W	• Various DC-DC Converters • High Power Common Inverter

Silicon Carbide in Power electronics

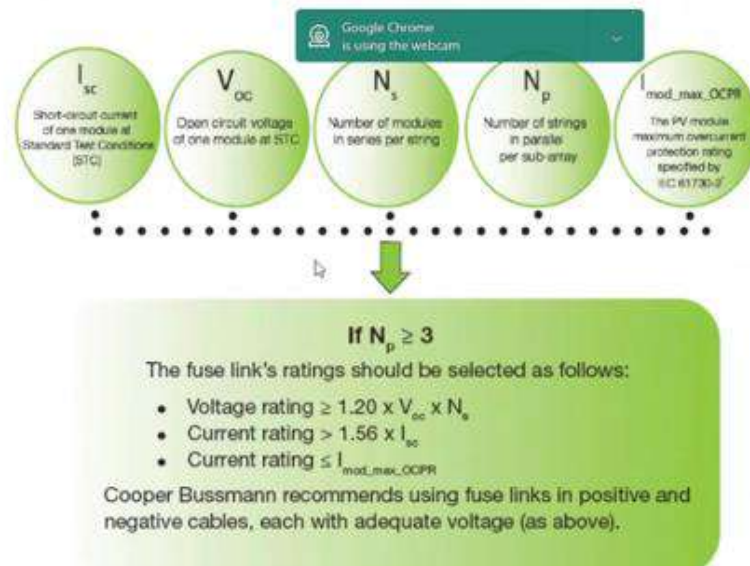


- Silicon has long been a semiconductor of choice for such power electronics. But soon this ubiquitous substance will have to share the spotlight.
- Devices made from silicon carbide (SiC)—a faster, tougher, and more efficient alternative to straight silicon—are beginning to take off.
- SiC power devices will also become vital in solar and wind energy creation, by reducing the energy lost as electricity is converted to a form that can be used on the power grid.

DC Side Protections



String protection



Array protection

If $N_{sub} < 3$ and the cable is rated at $1.56 \times I_{sc} \times N_p$

For arrays with only one or two sub-arrays and sub-array cables adequately sized, fusing may only be required if local installation regulations or codes require them.

However Cooper Bussmann recommends fuse link protection in all PV systems as unpredicted fault currents may occur in the event of inverter failure.

Or

If $N_p < 3$ and the cable is not rated at $1.56 \times I_{sc} \times N_p$

Select fuse link to protect cable:

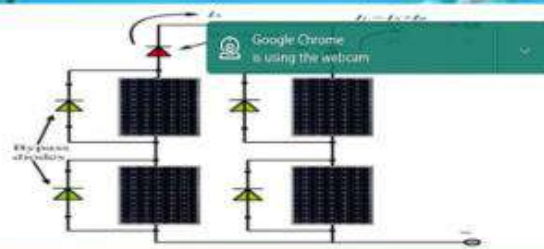
- Fuse link current rating $\leq I_{sc}$ = sub-array cable rating
- Voltage rating $\geq 1.20 \times V_{oc} \times N_s$

Protection against over current DC Side

Circuit breakers or fuses

Circuit breakers or fuses can be used to provide overcurrent protection. Fuses, usually on the fuse holder or directly connected to bars or cables, do not provide a load-break switch function. So when fuses are used, load-break switches should also be used to disconnect fuses from the inverter in order to allow cartridge replacement. So an array box with fuses on fuse holders as string protection, for example, should also incorporate a main switch. Circuit breakers offer finetuned adjustment and greater accuracy than fuses in order to allow the use of cables, especially for sub-array cables, that are smaller than fuses.

BLOCKING DIODES AND BYPASS DIODES



- ❖ The PV modules shall be equipped with bypass diode to minimize power drop caused by shade.
- ❖ Blocking diodes are specified in a PV array to prevent reverse currents
- ❖ Voltage rating should be at least two times higher than the $V_{OC|max}$ of the PV module or the PV string.
- ❖ Their current rating capacity should be at least 1.4 times higher than I_{SC} of a single PV module under STC conditions or the parallel strings.
- ❖ blocking diodes should be placed in boxes with adequate degree of protection and they should be only accessible by trained service personnel.

1:11:03

C C Sharmeela is presenting

AICTE STTP - Phase II X

P People (50)

C Chat

Israel babu 4:17 PM
Please send ppt

Ezhil Janaksha 4:23 PM
Very informative session madam Please share PPT

mani manickam 4:23 PM
Nice session

Dr. S. K. NANDHA KUMAR 4:23 PM
Informative session. Share the ppt if possible...

Mr. S. SELVAKUMARAN eeestaff 4:24 PM
Excellent session. Thank you.

Sasi Kannan 4:24 PM
Very informative session and nice presentation mam

Send a message to everyone

AICTE STTP - Phase II ^

X
M
C

Turn on captions
C Sharmeela is presenting

PROTECTION IN LARGE SCALE PVS

- The main fault types and distribution are as follows:
 - Phase Faults
 - Ground Faults
 - Abnormal voltage
 - Unbalanced Currents
 - Abnormal Frequencies
 - Breaker Failures
 - System Faults
- The protection system falls under two categories as below:
 - Primary Protection and Secondary Protection.
- The primary protection trips the appropriate breakers to clear faults in the protected zone only. The primary protection is typically the fastest protective function for detecting the designated fault type.
- The backup protection operates independently of the primary protective function only if the primary protection fails or is temporarily out of service. It may be slower to operate than the primary protection so that the primary protection has the first chance to operate.



Resource Person

Dr.S.Kumaravel

Associate Professor, NIT

Calicut

Topic: Power Electronic Applications in High Voltage Engineering

Power Electronic Applications in High Voltage Engineering



29.07.2020

Organized by

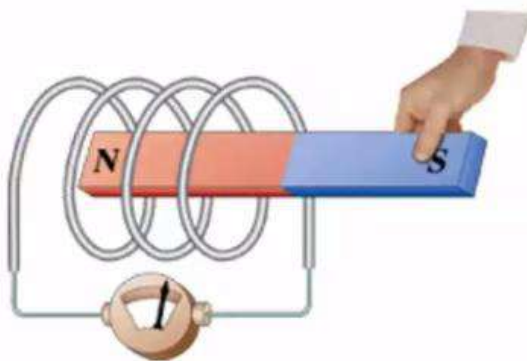
Department of Electrical & Electronics Engineering, Saranathan College of Engineering, Trichy

Presented by

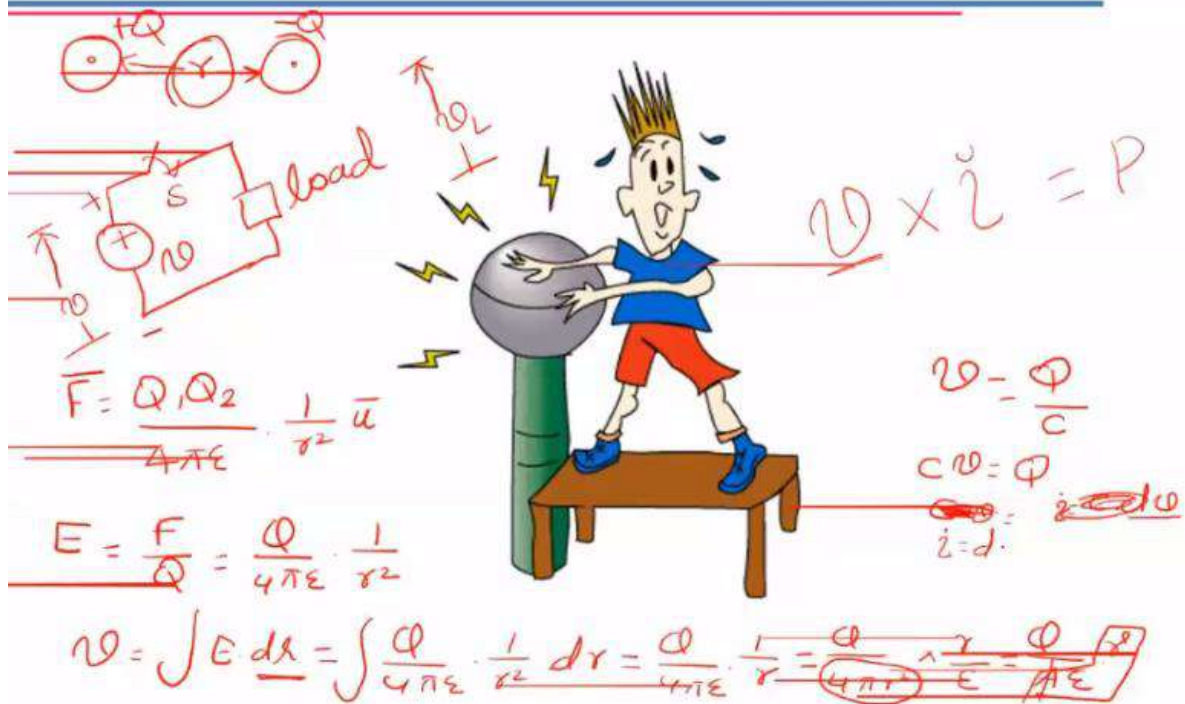
Dr. KUMARAVEL SUNDARAMOORTHY

Department of Electrical Engineering
National Institute of Technology Calicut, Kerala

Fourth Basic Need of Human

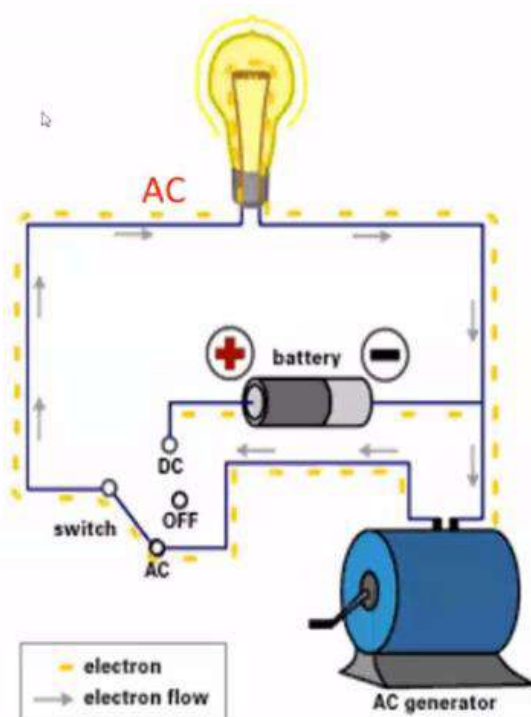
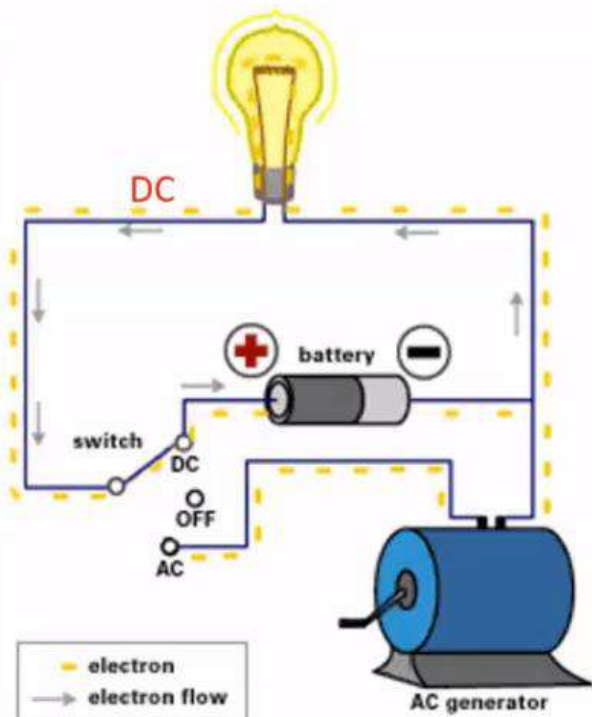


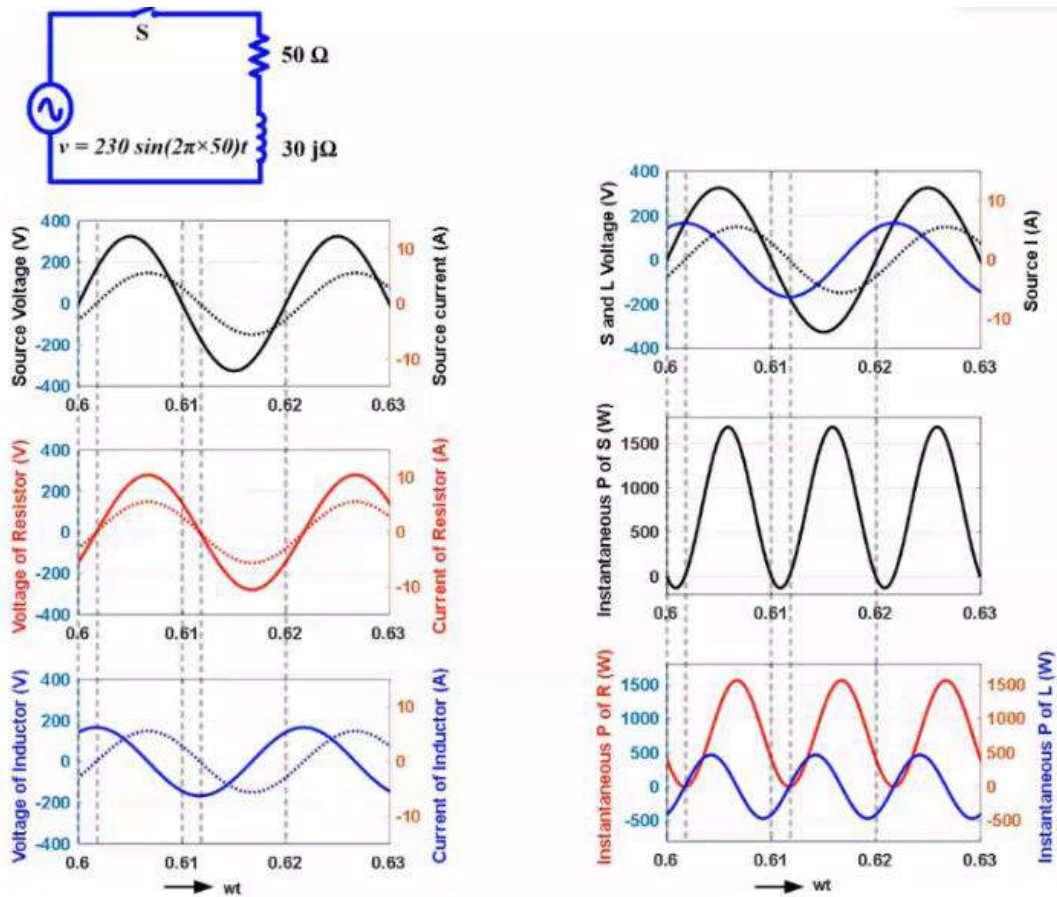
What is Electrical Energy?



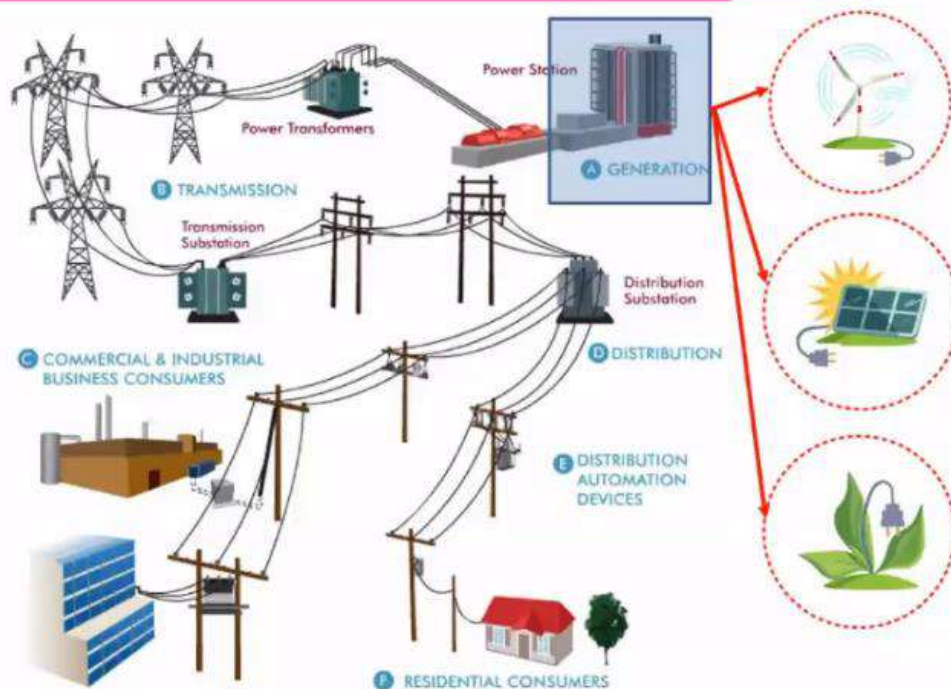
DC= "Direct Current"

AC= "Alternating Current"

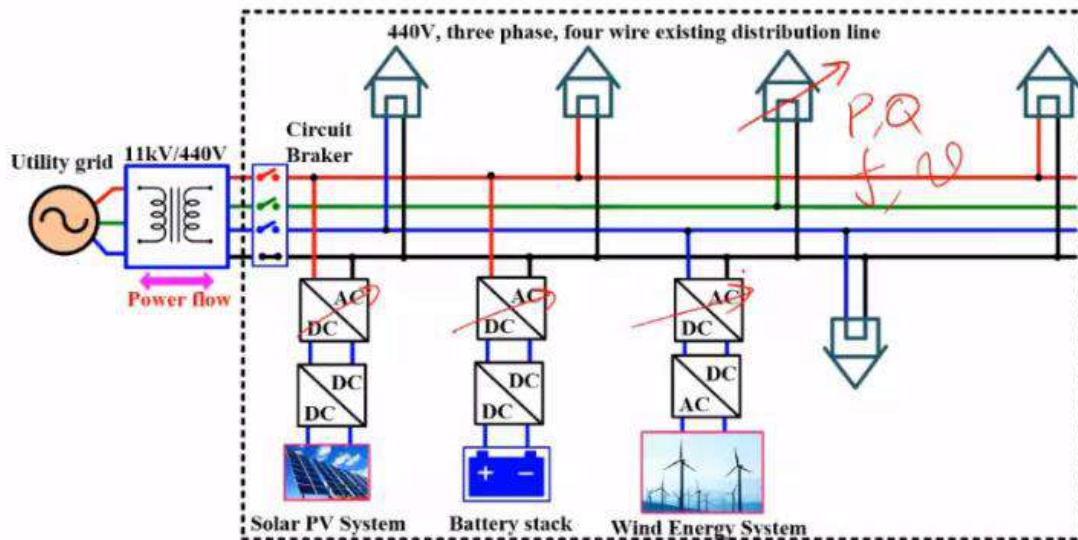




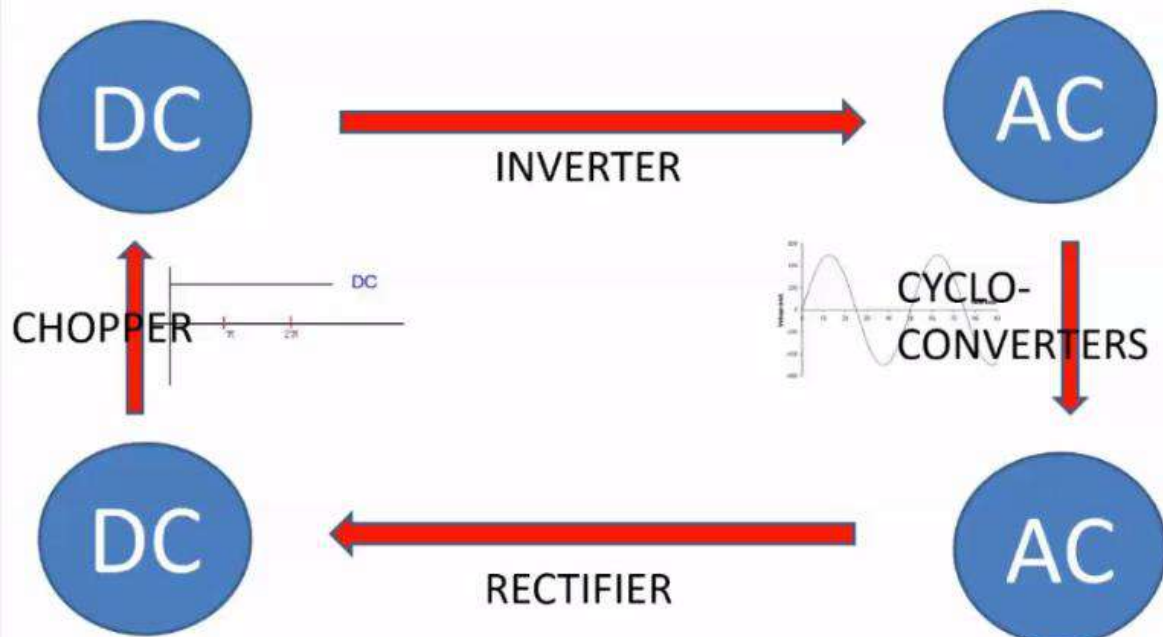
Structure of Present Power System



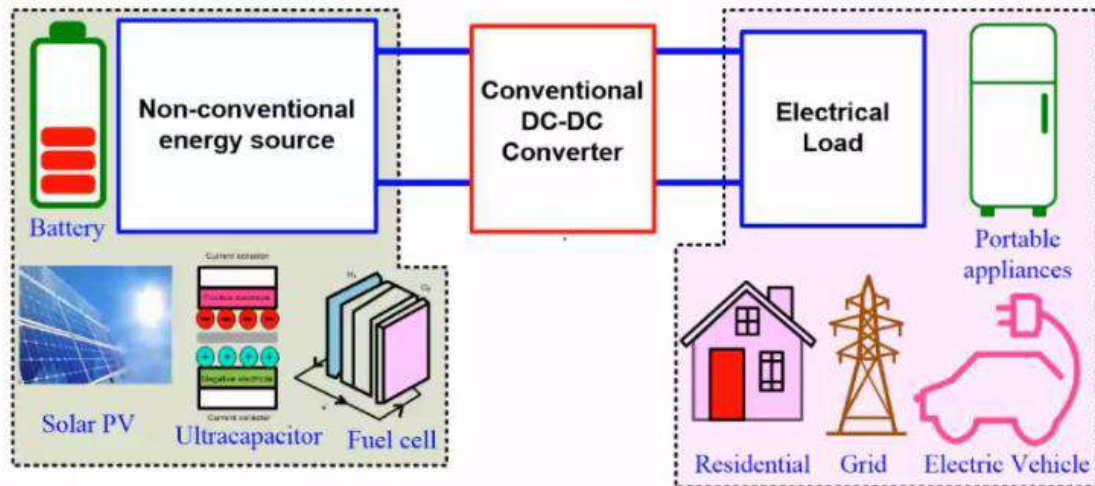
Structure of Microgrid



Power Converter for Renewable Energy

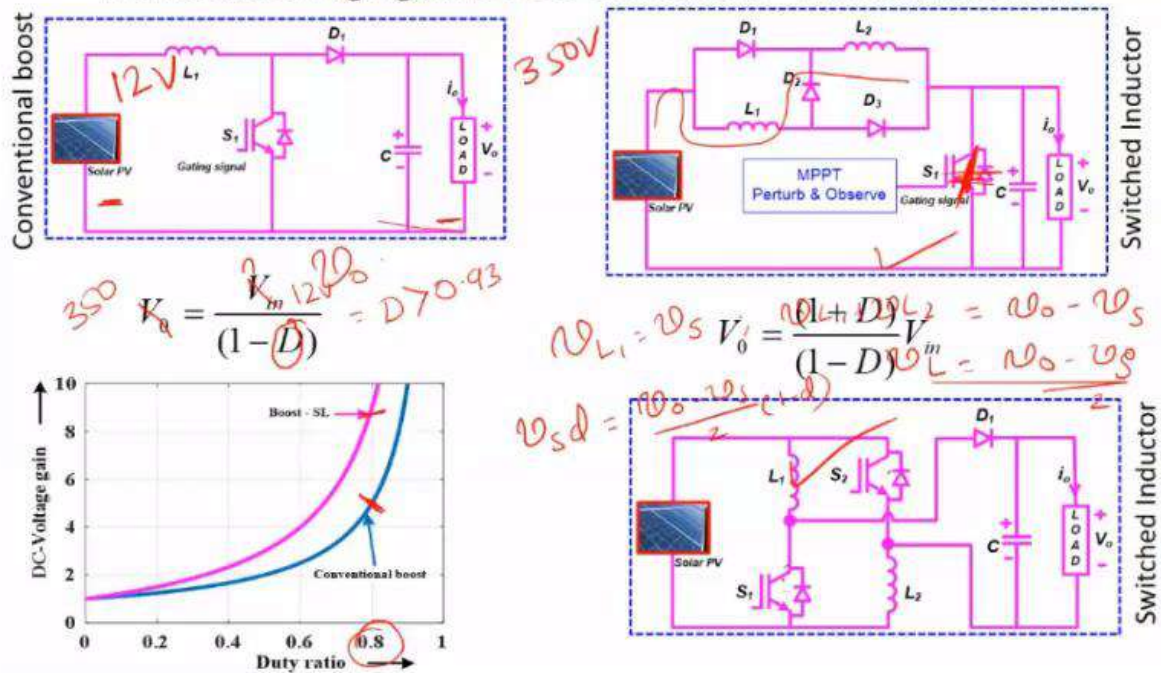


DC-DC Converter

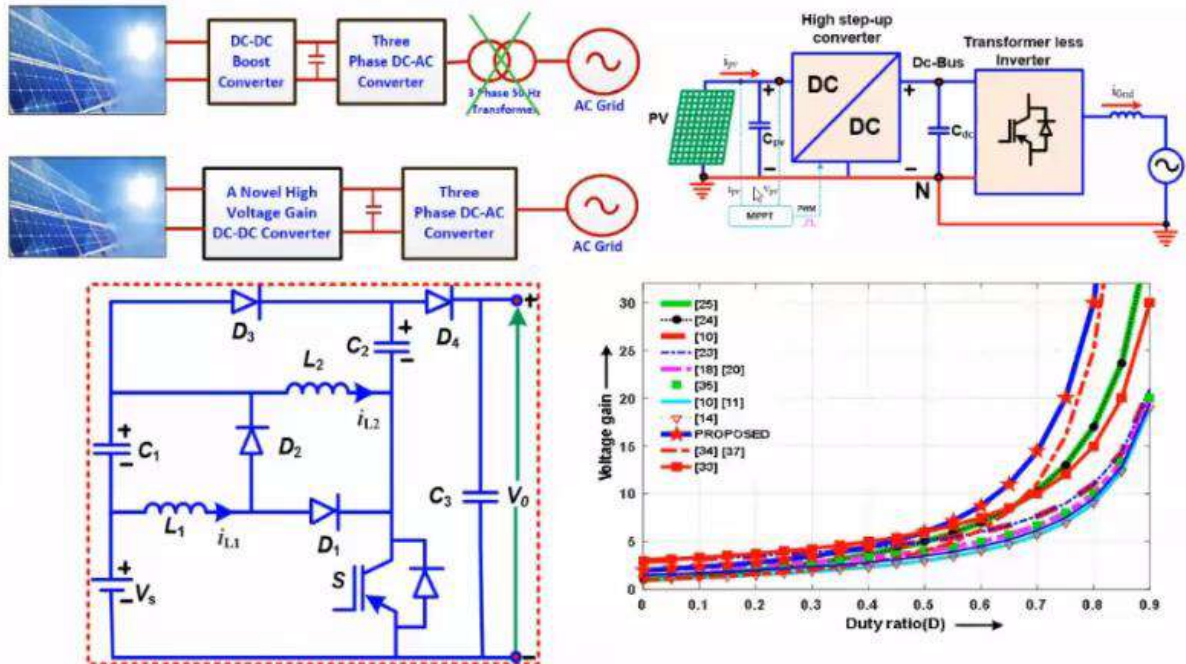


DC-DC Converters

- Nonisolated High gain DC-DC Converters – Literature review



Design and Development of Non-isolated High Gain DC-DC Converters



Kumaravel S. et. al., Switched Capacitor-Inductor Network based Ultra-Gain DC-DC Converter using Single Switch, IEEE Trans. on Indu. Elect., 2020.

Kumaravel S is presenting

Sebasthirani kat... and 41 more

DC-DC Converter $\rightarrow$ ~~MATLAB~~ $\rightarrow$ Simulation $\rightarrow$ ~~Variable~~ ~~step size~~

$\downarrow$

Model $\rightarrow$ steady-state

$\downarrow$

$V_o = \frac{V_s}{1-D}$

Dynamic (State-space)

$\dot{X} = AX + BU$

$Y = CX$

State-space avg. $\rightarrow$ $i_L, V_C \rightarrow$ state variable

$\hat{i}_L = \hat{\Delta i}_L + \hat{I}_L$

$\hat{V}_o = \hat{\Delta V}_o + \hat{V}_o$

$V_s, i_o \rightarrow$ input variable

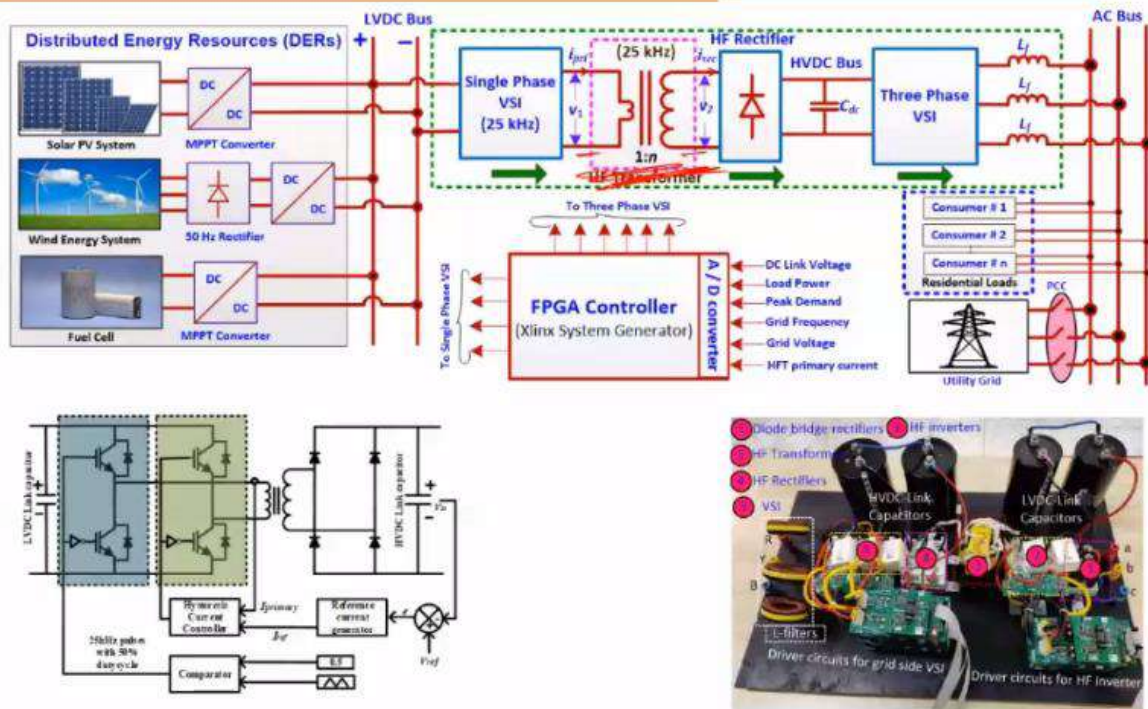
$V_o \rightarrow$ output variable

$> 10 \text{ KHz}$

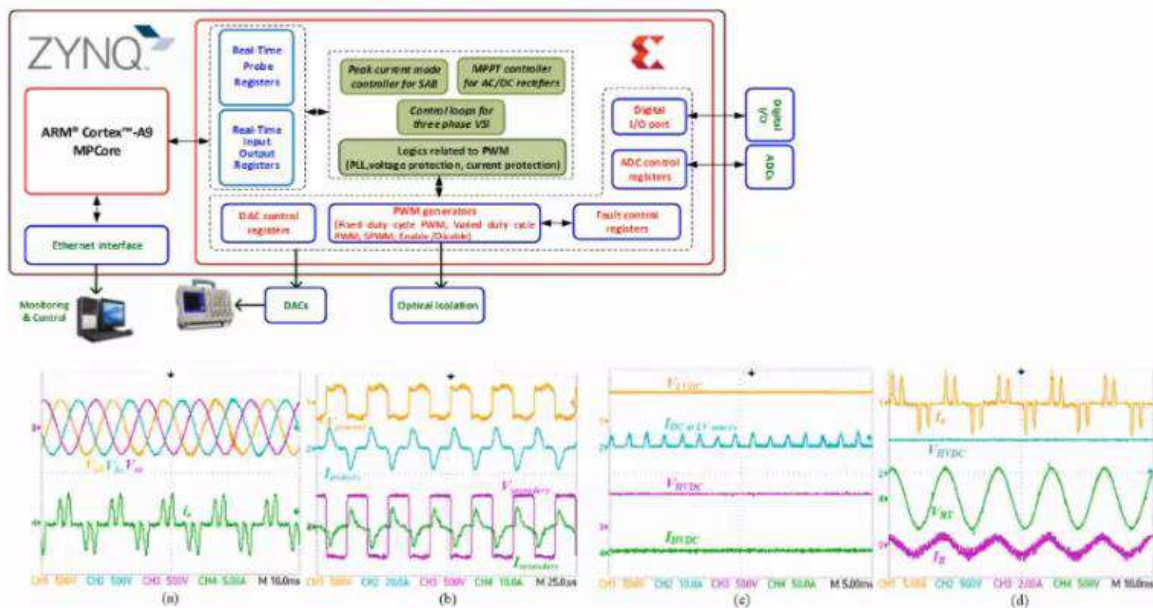
Fixed $0.1 \mu s$

$\rightarrow$

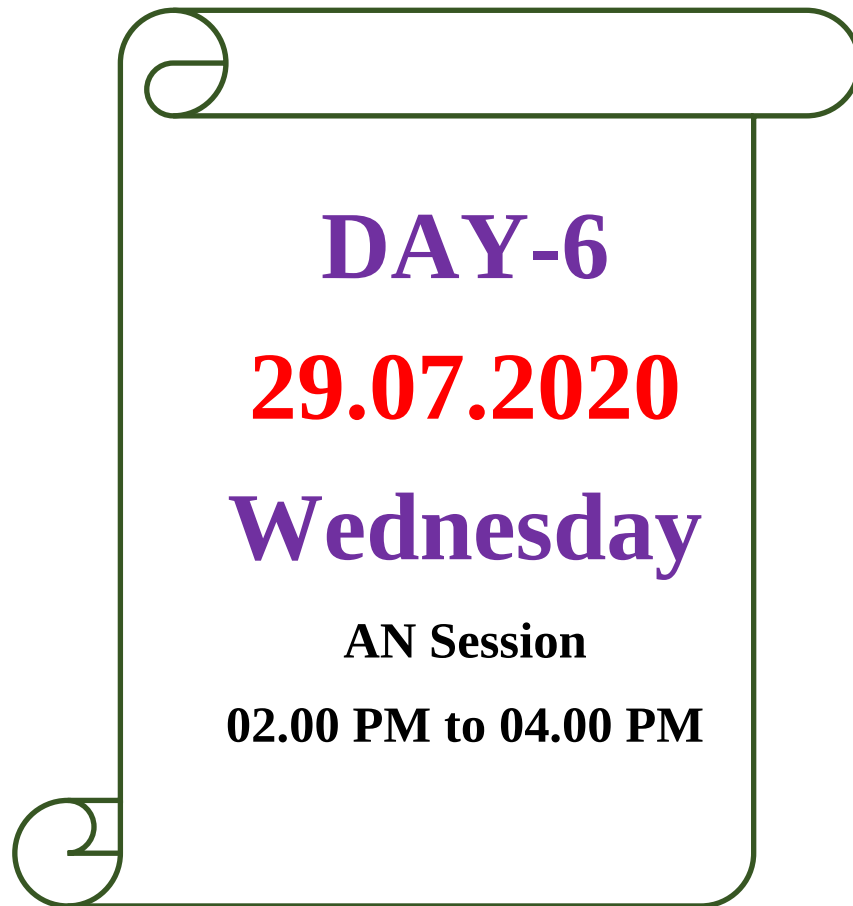
Solid-State Transformer



Solid-State Transformer



Ref: Haritha G, Kumaravel S and Ashok S, "Xilinx System Generator-based Rapid Prototyping of Solid-State Transformer for On-Grid Renewable Energy Integration", IEEE Journal of Emerging and Selected Topics in Power Electronics



Resource Person

Dr.P.Maruthupandi

Assistant Professor, Government College of Engineering

Coimbatore, Tamil Nadu

Topic: Control and Protection Schemes in Grid Connected PV Systems

CONTROL AND PROTECTION STRATEGIES OF ON GRID SOLAR PV SYSTEMS



Dr. P. MARUTHUPANDI M.E. Ph.D.,
Asst. Professor/ Electrical Engg.,
Government College of Technology,
Coimbatore-641 013
pandi@gct.ac.in

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1

OVER VIEW OF THE PRESENTATION

- **Characteristics of solar cell**
- **Off grid Solar PV System**
- **Maximum Power Point Tracking in solar system**
- **Grid Connected PV System**
- **Control of grid connected inverter**
- **Protection -LVRT, Anti-Islanding requirements**
- **Conclusions**

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2

OVER VIEW OF THE PRESENTATION

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- Conclusions

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2

Merits of Renewable Energy Sources

1. Renewable Energy sources are ever lasting
2. Maintenance requirements are lower
3. No pollution
4. Renewables lower reliance on foreign energy sources

Demerits

1. **Higher installation cost**
2. **Intermittency**
3. **Storage capabilities**
4. **Geographic limitations**

Renewable energy has more benefits than drawbacks

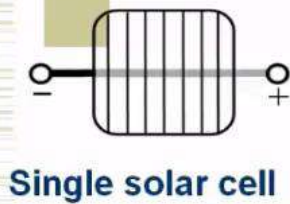
Not only save money but also promote a cleaner, healthier environment for the future.

Installing solar panels is one of the easiest ways to go green.

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4

Solar Cell to Solar PV Module



Cell Rating

I_m	= 5 A
V_m	= 0.5 V
P_m	= 2.5 W

Generate 15 Watts
using single solar
cell ?

Technical issues
Homogeneity Problem,
Fabrication issues- may
become brittle
Handling is difficult

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6

Solar PV array

Cell



Module



Array



Provide power of 100 W to several MW

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8

Types of PV Panels

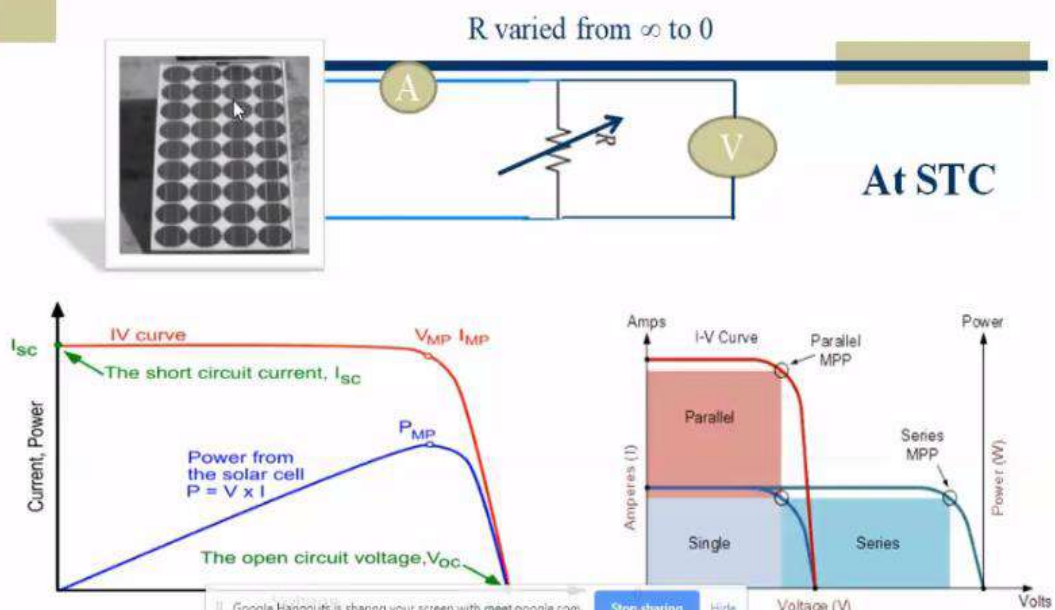
- ♦ **Mono Crystalline**
 - ♦ Highest efficiency ($\approx 25\%$)
 - ♦ Long life (25 Years)
 - ♦ Most expensive
 - ♦ Requires micro-inverter under partial shading conditions
- ♦ **Poly Crystalline**
 - ♦ Less efficiency ($\approx 17\%$)
 - ♦ Less costly
 - ♦ Poor aesthetic look
- ♦ **Thin Film**
 - ♦ Poor efficiency ($\approx 14\%$)
 - ♦ Less cost, Less weight
 - ♦ Flexible
 - ♦ Less affected by shading



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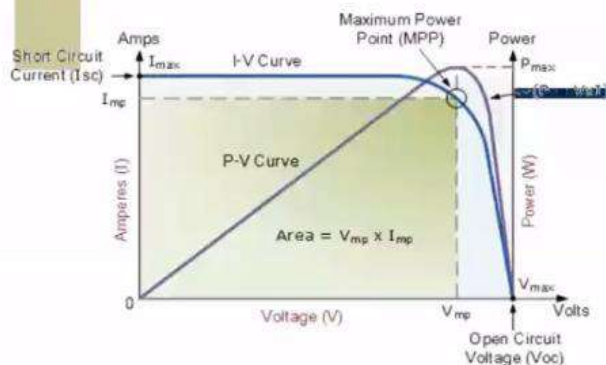
9

I-V characteristics of a PV module



10

Solar cell-Parameters



- Open Circuit voltage
- Short Circuit Current
- Efficiency
- Fill Factor

Fill Factor: Measure of quality of a solar cell

It is the ratio of available power at the maximum power point (P_m) divided by the open circuit voltage (V_{oc}) and the short circuit current (I_{sc}) $FF = \frac{V_{mp} I_{mp}}{V_{oc} I_{sc}}$

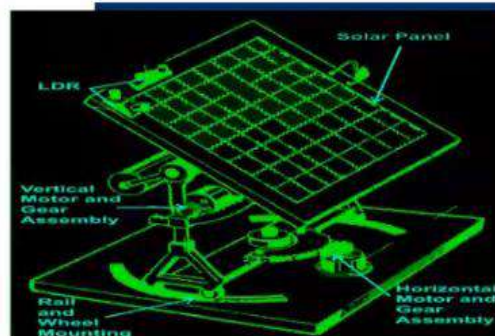
Cell efficiency: The fraction of incident power converted into electricity.

Efficiency = $\frac{V_{oc} I_{sc}}{W \times A}$

12

Maximizing the solar PV output

♦ Mechanical Tracking



♦ Electrically tracking the operating point –load matching

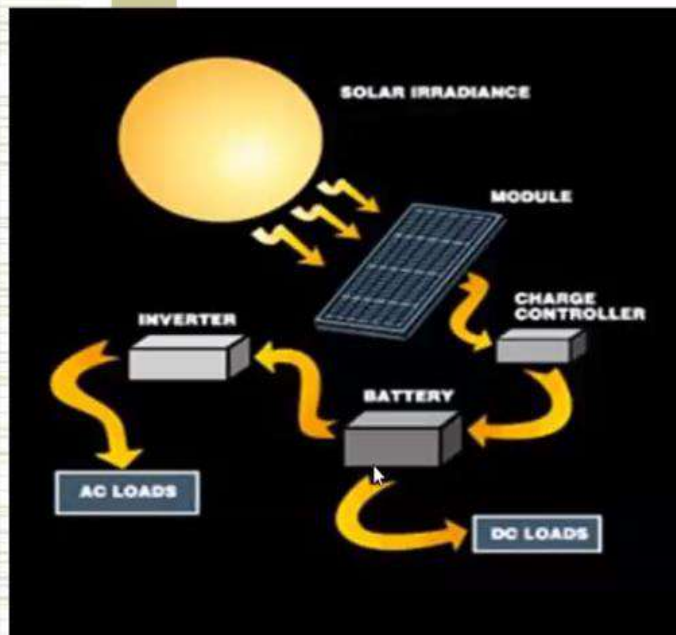
15

MPPT TECHNIQUES FOR PV SYSTEMS

- Perturb and Observe (P&O) method
- Incremental Conductance method
- Fractional Voltage and Current method

18

Off grid (Stand alone) Solar PV System

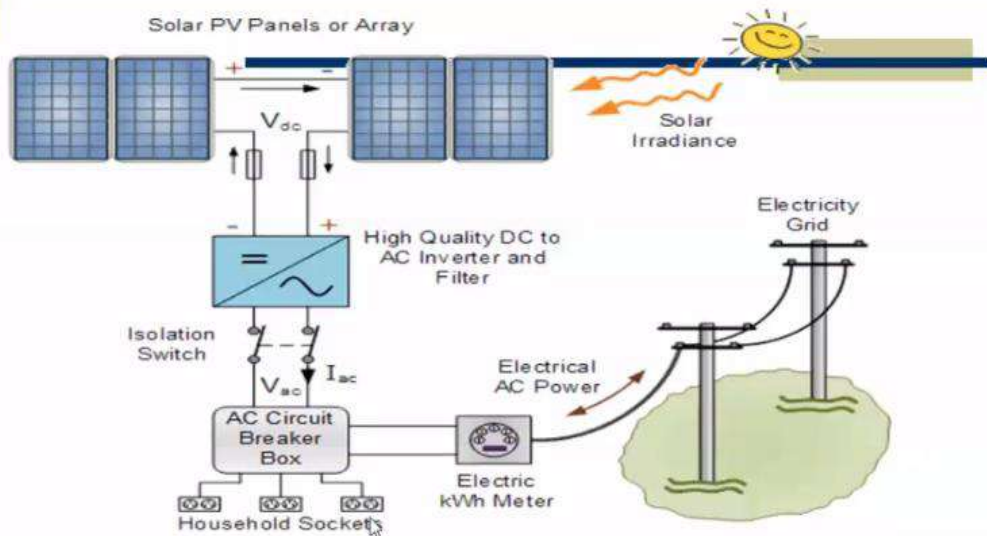


Most suitable locations:
Remote villages, mountains,
islands and base stations .

No connection to grid,
Self-sufficient system,
Independent energy supply

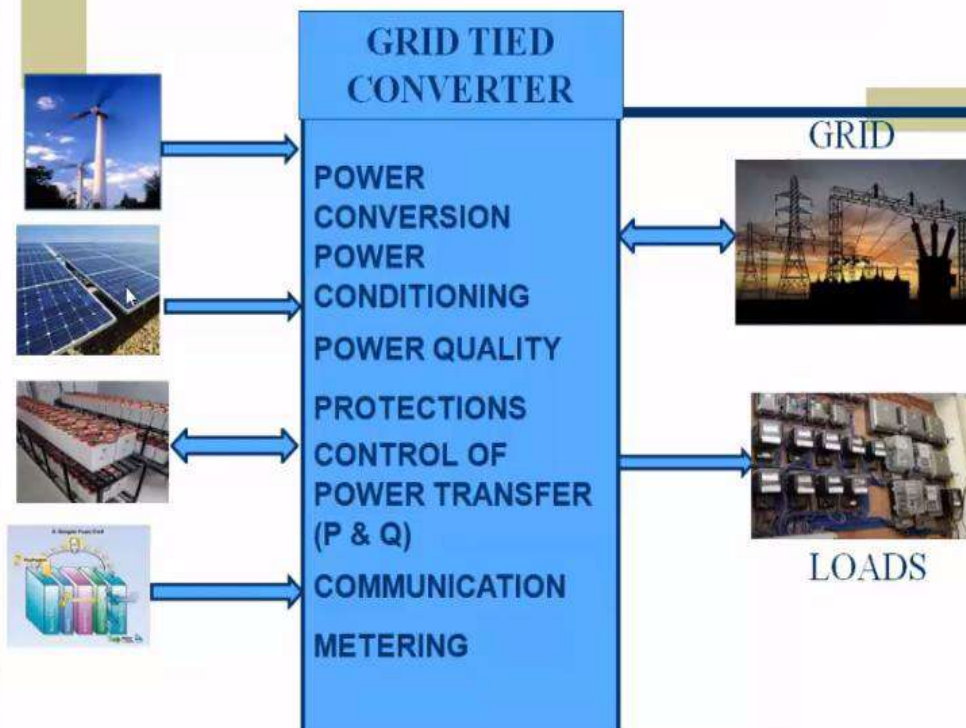
22

Grid Connected PV System



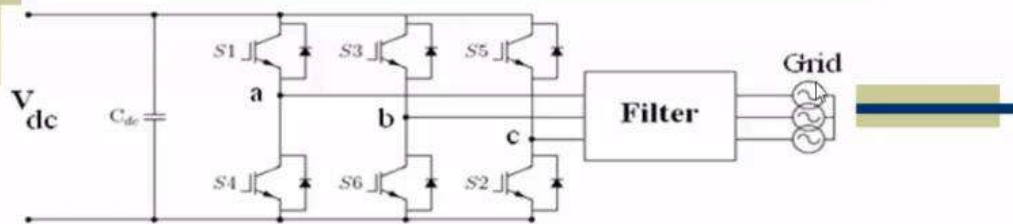
25

Role of Power Electronics in Grid Integration



26

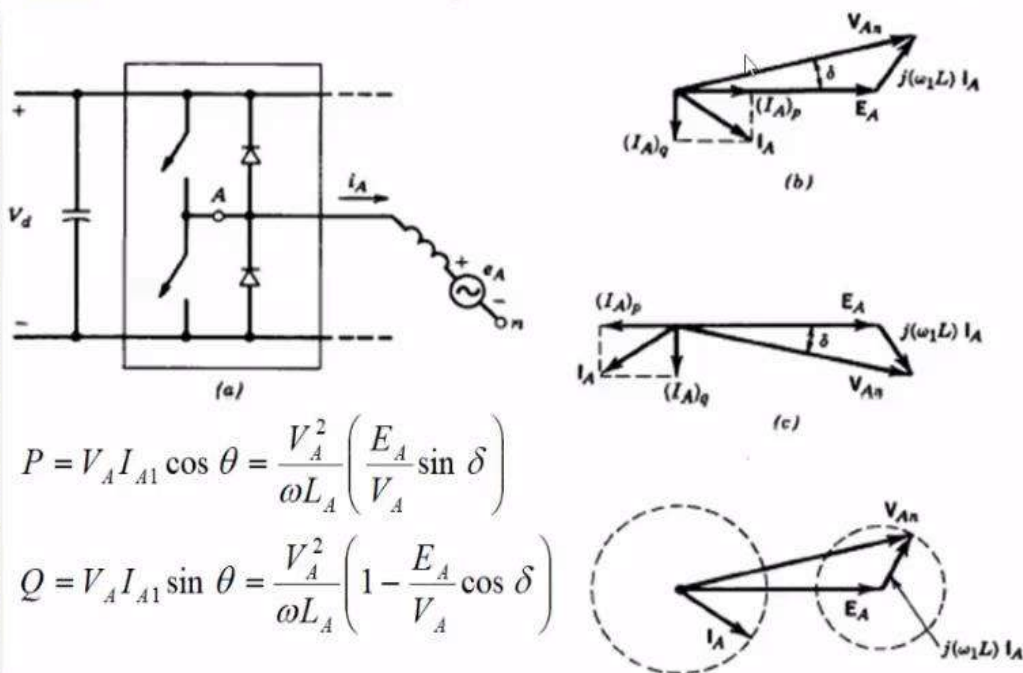
FUNCTIONS OF GRID TIED INVERTER



- AC voltage generation
- Synchronization to grid
- Independent control of active and reactive powers
- Meeting the harmonics standards
- Control under grid fault and distorted grid conditions
- Islanding detection and isolation

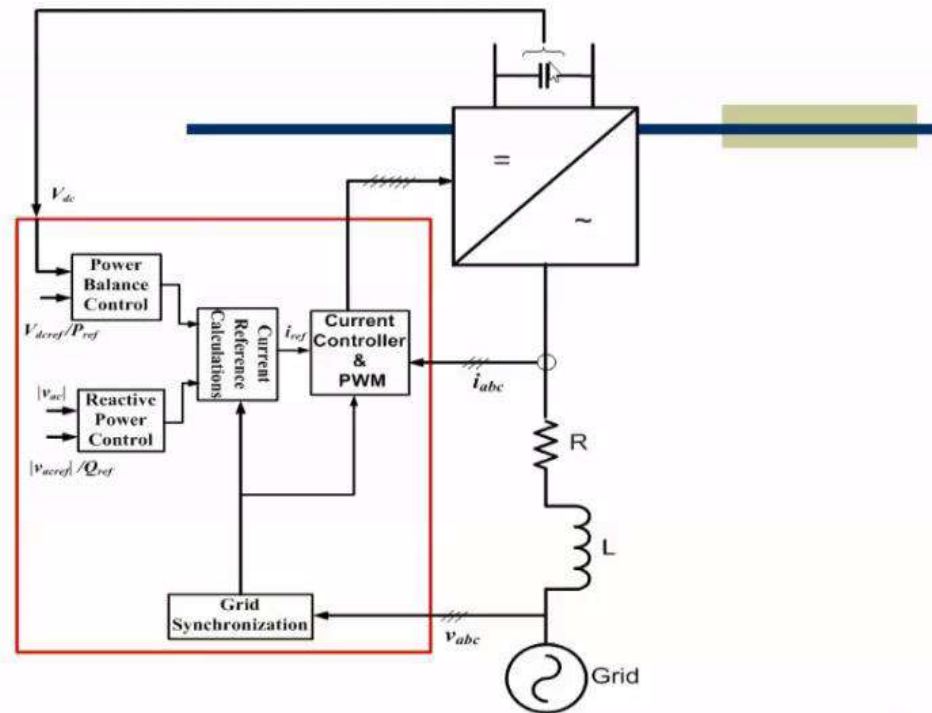
27

ACTIVE AND REACTIVE POWER FLOW



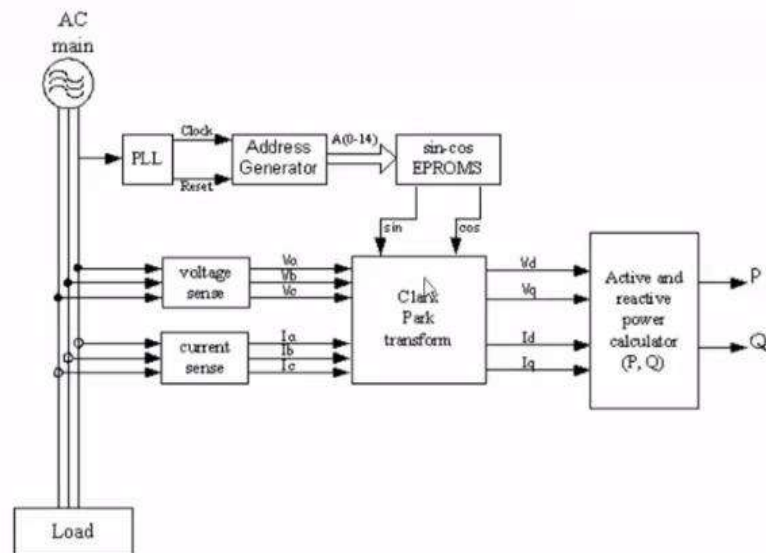
29

General structure of control of grid connected converter



30

Measurement System

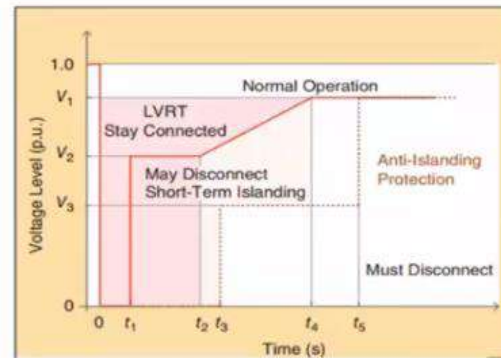
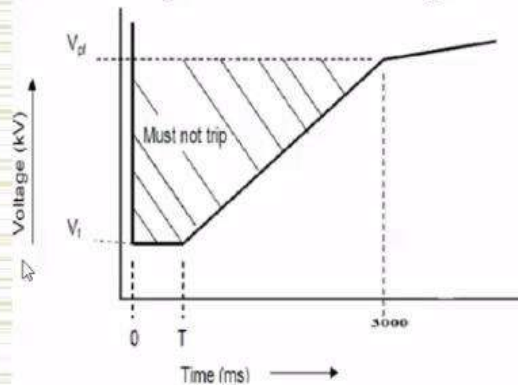


Power Equations:
$$P = \frac{3}{2}(u_d i_d + u_q i_q) \quad Q = \frac{3}{2}(u_q i_d - u_d i_q)$$

33

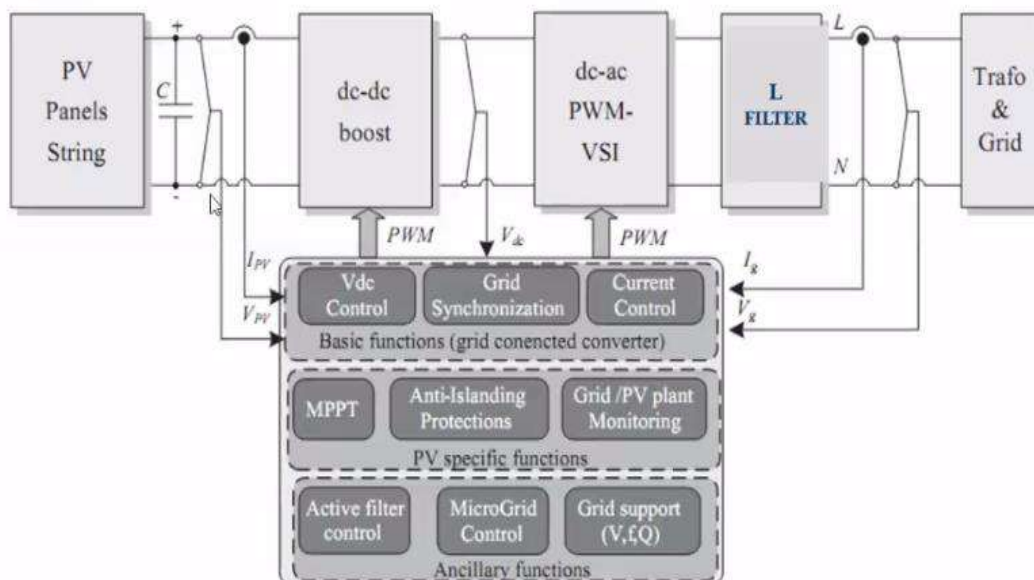
LVRT and Islanding Detection Requirements of PV Inverter

During minor fault or transients, drop in grid voltage occur. Fault Ride Through (FRT), Low Voltage Ride Through (LVRT) are the capability of electric generators to stay connected during short period of voltage dip



35

CONVERTERS IN PHOTOVOLTATIC SYSTEMS



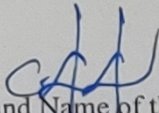
38

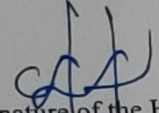
VALEDICTORY SESSION

The six days AICTE Sponsored Online Short-Term Training Programme on Novel Design & Control Strategies and Innovative Technical Practices in LV/HV Modern Switch Gear (Phase-II) ended with a valedictory session. Mr. P. Ram Prakash, Assistant Professor, Department of Electrical and Electronics Engineering thanked all the participants and resource person with his valedictory speech.

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Signature and Name of the Coordinator
Dr. C. Krishnakumar


Signature of the HoD



SARANATHAN COLLEGE OF ENGINEERING
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
TIRUCHIRAPALLI - 620 012.
(Accredited by NBA)

Report

Department Organized: EEE

Venue: Online (Google Meet)

Participated by: Teaching staff and Research scholars

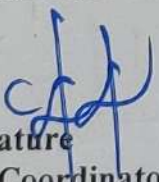
Event: 6 days "AICTE sponsored online STTP on Novel Design & Control Strategies and Innovative Technical Practices in LV/HV Modern Switchgear (Phase II)" from "23-07-2020 to 29-07-2020".

Resource Persons : From IIT's , NIT's , Reputed Institution and Industry.

Number of participants : Around 50

Highlights of Event:

- The six days AICTE Sponsored Online Short-Term Training Programme on Novel Design & Control Strategies and Innovative Technical Practices in LV/HV Modern Switchgear (Phase - II) started on 23rd July 2020 with an inauguration ceremony. Coordinator of the STTP, Dr. C. Krishnakumar, Professor & Head, Department of Electrical and Electronics Engineering welcomed all the participants with his welcome address. Dr. D. Valavan, Principal of Saranathan College of Engineering, added a special value to the STTP by delivering felicitation address.
- On first day the Session-I was inaugurated and Handled by "**DR. HITESH DUTT MATHUR Associate Professor, BITS Pilani**" on the topic Protection Challenges and Strategies in Smart Grid Scenario.
- The Inauguration ceremony ended with vote of thanks given by **Dr.K.Rajkumar**, Assistant Professor, EEE, SCE.
- Each day scheduled as two sessions: **Session-I** starts at **10:00AM to 12:00PM** and **Session-II** starts at **02:00AM to 04:00PM**.
- Around **50 Participants** of Faculty members and Research Scholars from various Institutions got benefited.
- The STTP (Phase-II) ended with a valedictory session. **Mr. P. Ram Prakash**, Assistant Professor, Department of Electrical and Electronics Engineering thanked all the participants and resource person with his valedictory speech.


Signature

"Name of the Coordinator"
Dr. C. Krishnakumar


Signature of HoD



SARANATHAN COLLEGE OF ENGINEERING

(Approved by AICTE and Affiliated to Anna University, Chennai)
Venkateswara Nagar, Panjappur, Tiruchirapalli - 620012



DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING



AICTE
sponsored

online Short Term Training Programme (STTP)
on

**Novel Design & Control Strategies and Innovative
Technical Practices in LV/HV Modern Switchgear**

03.08.2020 - 08.08.2020 (Phase III)

KEYNOTE SPEAKERS



Dr. S. Vasantharathna
Professor, CIT Coimbatore



Dr. Manoj Tripathy
Asso. Professor, IIT Roorkee



Dr. Premalata Jena
Asso. Professor, IIT Roorkee



Dr. Bhavesh Bhalja
Asso. Professor, IIT Roorkee



Dr. Avik Bhattacharya
AP, IIT Roorkee



Dr. Dipayan Guha
AP, MNNIT Allahabad



Dr. A. Karthikeyan
AP, NIT Suratkal



Dr. Pradeep Kumar Yemula
AP, IIT Hyderabad



Dr. M. Suman
AP, MNNIT Allahabad



Dr. Rupesh Wandhare
AP, IIT Hyderabad



Dr. Sumit Ghatak Choudhuri
AP, IIT Roorkee



Mr. V. Vijay Karthik
Technical Lead, GE T&D Chennai

Dr. C. Krishnakumar
HoD / EEE, Coordinator

Dr. D. Valavan
Principal

Shri. S. Ravindran
Secretary

Register at: <https://forms.gle/6WiTGuPzasnqX3Et8>
www.saranathan.ac.in

1. No Registration Fee
2. E-Certificate will be provided to all the
Active Participants



SARANATHAN COLLEGE OF ENGINEERING
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
TIRUCHIRAPALLI - 620 012.
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Report

Department Organized: EEE

Venue: Online (Google Meet)

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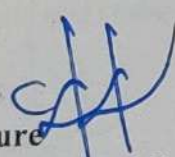
Event: 6 days "AICTE sponsored online STTP on Novel Design & Control Strategies and Innovative Technical Practices in LV/HV Modern Switchgear (Phase III)" from "03-08-2020 to 08-08-2020".

Resource Persons : From IIT's , NIT's , Reputed Institution and Industry.

Number of participants : Around 45

Highlights of Event:

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- **Dr.D.Kalyanakumar**, Professor, Saranathan College of Engineering, Tiruchirappalli, has Inaugrated the programme and delivered a lecture on "TECHNICAL REQUIREMENTS - from Protection Perspectives for Power System Reliability"
- Each day scheduled as two sessions: **Session-I** starts at **10:00AM to 12:00PM** and : **Session-III** starts at **02:00AM to 04:00PM**.
- Around **45 Participants** of Faculty members and Research Scholars from various Institutions got benefited.
- The STTP (Phase-III) ended with a valedictory session. **Mr. P. Ram Prakash**, Assistant Professor, Department of Electrical and Electronics Engineering thanked all the participants and resource person with his valedictory speech.


Signature
"Name of the Coordinator"
Dr. C. Krishnakumar


Signature of HoD



SARANATHAN COLLEGE OF ENGINEERING
DEPARTMENT OF INSTRUMENTATION AND CONTROL ENGINEERING
TIRUCHIRAPALLI - 620 012.

Date: 17-07-2020

Ref No: SCE/ICE/2020-21/01

Report on 3 days workshop on 'Latest Innovation Techniques in Engineering'

The department of Instrumentation and Control Engineering conducted online workshop on 'Latest Innovative Techniques in Engineering' during (15 - 17) Jul. 2020. The speakers are from reputed central institutions and 4/6 speakers are from other state (2 IITs, 4 NITs). The workshop started with the addressing by Dr. S. M. Girirajkumar, Head of the Department, Department of Instrumentation and Control Engineering, Saranathan College of Engineering, Tiruchirappalli. The participants are from India, China and Ethiopia. Out of 207 registrations, 89 faculty members from various institutes and industries were short listed for the workshop.

15 July forenoon session of the workshop was about 'Sensing based on electro wetting principle' by Dr. Karabi Biswas, Associate Professor, Electrical Engineering Department, IIT Kharagpur, West Bengal. The application of electro wetting principle was explained with its advantages and limitations.

The second session was on 15 Jul. 2020 AN. The topic of presentation was 'Identification and control of multivariable systems' by Dr. M. Chidambaram, Visiting Professor - Chemical Engineering Department, NIT Warangal, Former Director, NITT, Professor, IITM. The multiple input and multiple output system with the real time modeling was explained.

The third session of the workshop was on FN session of 16 Jul. 2020. Dr. Ashis Kumar Sen, Associate Professor, Dept. of Mechanical Engineering, IITM, Chennai handled the session about the topic 'Microfluidics'. He introduced about the basics of microfluidics with its advantages and



SARANATHAN COLLEGE OF ENGINEERING
DEPARTMENT OF INSTRUMENTATION AND CONTROL ENGINEERING
TIRUCHIRAPALLI - 620 012.

Date: 17-07-2020

Ref No: SCE/ICE/2020-21/01

limitations. He addressed about acousto microfluidics which deals with blood plasma separation. He also enlightened with early diagnosis of sepsis, isolation of CTCs based on acoustic impedance and challenges in isolation for breast cancer. He addressed about acoustic coalescence of drop with stream, surface acoustic waves and droplet microfluidics

Dr. Seshagiri Rao Ambatti, Associate Professor, Dept. Chemical Engineering, NIT, Warangal, Telangana handled the fourth session on 16Jul. 2020 AN. He addressed about 'The rise of digital water: How digital technology will transform the water and wastewater utilities'. He started with some facts about water challenges both positive and negative. He addressed about the decision support in water sector, water eco system with digital solutions, water collection, treatment and distribution. He made the session interesting with the real time application of water treatment of COD, POD, and many other suspended particles. Process optimization for reducing operating cost, threat for safety issues, 3 scales of water innovation was dealt with. He suggested about waking up of Artificial Intelligence in water industry to reduce operating expenditure and minimize cost. The application of Model predictive control and Fuzzy logic control for the Prediction error method in Matlab to detect unknown parameters of water treatment was dealt with.

The fifth session was on 17 Jul. 2020 FN. Dr. Abraham T. Mathew Professor, Dept. Electrical Engineering, NIT Calicut. He addressed about Kalman Filter, Extended KF and Unscented Kalman Filter. The requirement of state model and measurement model for Kalman filter and the importance of filtering for non linear model was dealt with.



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The last topic of the workshop was about 'Industrial automation' by Dr. M. Sivakumaran, Professor, Dept. Instrumentation and Control Engineering, NIT Trichy. He started the lecture with industrial automation for SISO and MIMO system. Linear and nonlinear system applied with PLC and SCADA was explained. He enlightened with the need for industrial safety system and security issues. He also addressed about sensor fusion, secured automation system with cloud architecture and IoT security considerations.

M. Shuangavalli
Adh

Program Co coordinator

Chang
HoD/ICE

AICTE



Sponsored

One Week Online Short Term Training Programme (STTP)

on

"BIG DATA ANALYTICS"

Organized by



DEPARTMENT OF INFORMATION TECHNOLOGY

(Accredited by NBA)

SARANATHAN COLLEGE OF ENGINEERING

Venkateswara Nagar, Panjapur,

Tiruchirappalli - 620 012.

PROGRAM EVALUATION COMMITTEE



SARANATHAN COLLEGE OF ENGINEERING

(Approved by AICTE, New Delhi, Affiliated by Anna University, Chennai - 600 025)

Venkateswara Nagar, Panjappur, Tiruchirappalli - 620012.



DEPARTMENT OF INFORMATION TECHNOLOGY

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AICTE Sponsored Six day Online Short Term Training Programme on

"BIG DATA ANALYTICS"

Contents

S.no	Title
1	Utilization Certificate and Statement of Expenditure
2	PEC Documents
3	STTP Brochure
4	Program Schedule
5	Resource Persons Contact Details
6	List of Participants (External & Internal)
7	End Test Question Paper sample
8	Participants Feedback Forms (consolidated)

SHORT TERM TRAINING PROGRAMME**FEED BACK FORM**

AICTE File No. & Date of Offer Letter : 34-65/331/RIFD/STTP/Policy-1/2018-19
dated 12.12.2019 and guidelines from
AICTE dated 25.06.2020

Name of the Coordinator : DR.R.SUMATHI

Name and Address of the Institution : Saranathan College of Engineering
Venkateswara Nagar,
Edamalaipattipudur Post,
Panjappur Village,
Tiruchirapalli – 620 012,
Tamil Nadu.

Title of the Programme : One Week online Short Term Training
Programme (STTP) on “Big Data Analytics”

Dates : 27.07.2020 – 01.08.2020 (Phase – I)
03.08.2020 – 08.08.2020 (Phase – II)
16.11.2020 – 21.11.2020 (Phase – III)

Total no. of participants proposed and actually attended:

Phase – I	: Proposed	60	Attended	194
Phase – II	: Proposed	60	Attended	85
Phase – III	: Proposed	60	Attended	64

Number and Date of the offer Letter :

Letter Number	Date	Grant Received
F.No. 34- 65/331/RIFD/STTP/Policy- 1/2018-19	12.12.2019	Rs.3,00,000 /-
Guidelines from AICTE	25.06.2020	

Total Amount Sanctioned : Rs.3,00,000

Total Expenditure incurred in conducting : Nil
the seminar

Grant Received from various agencies other Than AICTE for this Short Term Training
Programme : Nil

Details of the internal revenue if any generated by the Institution / Department on account of
this Programme : Nil

Briefly mention about the technological / academic / or any other benefit generated by conducting this programme with respect to a) the institution, b) the faculty, c) students, d) industry / society
: Enclosed in Annexure A

The soft as well as hard copy of the detailed study material / proceedings of the programme must be furnished to the council
: Enclosed in Annexure B



Name & Signature of the
Coordinator with Seal
Dr.R.Sumathi, M.Tech., Ph.D

H.O.D. (IT)
Saranathan College of Engg.,
Trichirapalli - 620 012.



Name & Signature of the Head
of the Institution with Seal

Dr. D. Valavan, M.Tech., Ph.D.,
Principal
Saranathan College of Engineering
Trichy - 12.

Short Term Training Programme(STTP)**FORMAT FOR UTILIZATION CERTIFICATE UNDER THE SCHEME
SHORT TERM TRAINING PROGRAMME**

AICTE File No. : 34-65/331/RIFD/STTP/Policy-1/2018-19 dated
12.12.2019 and guidelines from AICTE
dated: 25.06.2020

Name of the Coordinator : Dr.R.Sumathi

Title of the Programme : Six days online Short Term Training Programme(STTP)
on "Big Data Analytics"

Dates of the Programme: 27.07.2020 – 01.08.2020 (Phase – I)
03.08.2020 – 08.08.2020 (Phase – II)
16.11.2020 – 21.11.2020 (Phase – III)

S.No	AICTE Sanction order/ Letter No. & Date	Amount (Rs.)	
1	34- 65/331/RIFD/STTP/Policy-1/2018-19 dated 12.12.2019 and guidelines from AICTE dated: 25.06.2020	Rs.3,00,000/-	Certified that out of Rs.3,00,000/- of Grant-in-aid sanctioned by the AICTE during the financial year 2018-2019 in favour of the Principal under this Institution Letter No. F.No. 34-65/331/RIFD/STTP/Policy-1/2018-19 dated 12.12.2019 and guidelines from AICTE dated: 25.06.2020 given in the margin a sum Rs.2,79,000/-has been utilized for the purpose of Short Term Training Programme(STTP) for which it was sanctioned and that the balance of Rs. 21,000 remaining unutilized at the end of the year has been surrendered to the All India Council for Technical Education.
2.	Grant Received	Rs.3,00,000/-	
3.	Balance to be reimbursed to AICTE	Rs.21,000/-	

Certified that I have satisfied myself that the conditions on which the grant-in-aid was sanctioned have been duly fulfilled and that I have exercised the following checks to see that the money was actually utilized for the purpose for which it was sanctioned.

Kinds of checks exercised:-

1. Remuneration to Speakers
2. Designing and Printing Expenses
3. Miscellaneous Charges

R. Sumathi

Name & Signature of the
Coordinator with Seal

Dr.R.Sumathi, M.Tech., Ph.D

H.O.D. (IT)
**Saranathan College of Engg-
Trichirapalli - 620 012.**

Signature of Chartered Accountant :
Name of Chartered Accountant :
Membership No. :
Full Address with Seal :

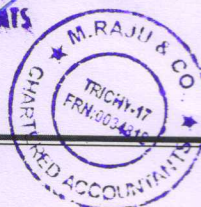
**For M.RAJU & Co.,
CHARTERED ACCOUNTANTS**

(A.KUMAR)
M No: 026517
PROPRIETOR

Dr. D. Valavan

Name & Signature of the
Head of the Institute with Seal

Dr. D. Valavan, M.Tech., Ph.D.,
Principal
Saranathan College of Engineering
Trichy - 12.



**Short Term Training Programme(STTP)
STATEMENT OF EXPENDITURE**

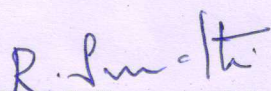
AICTE File No. : 34-65/331/RIFD/STTP/Policy-1/2018-19 dated 12.12.2019 and guidelines from AICTE dated 25.06.2020

Name of the Coordinator : Dr.R.Sumathi

Title of the Programme : Six days online Short Term Training Programme (STTP) on "Big Data Analytics"

Dates of the Programme: 27.07.2020 – 01.08.2020 (Phase – I)
03.08.2020 – 08.08.2020 (Phase – II)
16.11.2020 – 21.11.2020 (Phase – III)

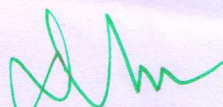
Sanction No. & Date	Grant Sanctioned	Details of Expenditure Incurred Item wise	No.of Participants	Duration of the Programme (with dates)
34-65/331/ RIFD/STTP/Policy-1/ 2018-19 dated 12.12.2019 and guidelines from AICTE dated: 25.06.2020	Rs.3,00,000/-	Remuneration to Speakers Rs.2,49,000	194 (Phase-I)	Six days for each Phase
		Designing and Printing Expenses Rs.18,000	85 (Phase-II)	
		Miscellaneous Charges Rs.12,000	62 (Phase-III)	
		Total Expenditure	Rs.2,79,000	
		Grant Received	Rs.3,00,000	
		Balance to be reimbursed	Rs.21,000	


Name & Signature of the

Coordinator with Seal

Dr.R.Sumathi, M.Tech., Ph.D

H.O.D. (IT)
Saranathan College of Engg.
Trichy - 620 012


Name & Signature of the

Head of the Institute with Seal

Dr. D. Valavan, M.Tech., Ph.D.,

Principal

Saranathan College of Engineering
Trichy - 12.

Signature of Chartered Accountant :

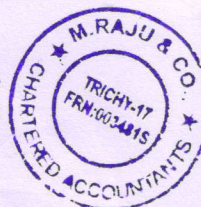
Name of Chartered Accountant :

Membership No. :

Full Address with Seal :

For M.RAJU & Co.,
CHARTERED ACCOUNTANTS

(A.KUMAR)
M.No: 026517
PROPRIETOR





SARANATHAN COLLEGE OF ENGINEERING
(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)

DEPARTMENT OF INFORMATION TECHNOLOGY

(Accredited by NBA)

AICTE Sponsored Six days (Online)

Short Term Training Programme on

Big Data Analytics"

27.07.2020 – 01.08.2020 (Phase – I)

03.08.2020 – 08.08.2020 (Phase – II)

16.11.2020 – 21.11.2020 (Phase – III)

Statement of Accounts

S.No	Description	Amount (Rs.)	Grant Total (Rs.)
1.	Remuneration to Speakers		2,49,000
	Honorarium to Course Coordinator	15,000	
	Honorarium to Resource Persons	2,25,000	
	Provision for payment to Lab attendant engaged during Lab practices	9,000	
2.	Designing and Printing Expenses		18,000
	Designing of Brochure and Certificate	7,000	
	Printing of Proceedings	10,500	
	Printing of Program Evaluation Committee Report	500	
3.	Miscellaneous Charges		12,000
	Courier Bill	500	
	Data and Recharge Pack values	4,500	
	Audit Fees	1,000	
	Stationary and other Expenses	6,000	
Total Amount (Rs.)			2,79,000

R. Sumathi

Name & Signature of the
Coordinator with Seal

Dr.R.Sumathi, M.Tech., Ph.D

H.O.D. (IT)
Saranathan College of Engg.,
Trichirappalli - 620 012.

Dr. D. Valavan

Name & Signature of the
Head of the Institute with Seal

Dr. D. Valavan, M.Tech., Ph.D.,

Principal
Saranathan College of Engineering
Trichy - 12.



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DEPARTMENT OF INFORMATION TECHNOLOGY



AICTE Sponsored six days
Short Term Training Programme on
Big Data Analytics

Submitted to the Principal:

Sub: Formation of Program Evaluation Committee (PEC) for STTP – reg.
Ref: Ref.No.34-65/331/RIFD/STTP/Policy-1/2018-19 on 12.12.2019 and guidelines
from AICTE dated 25.06.2020

The AICTE sanctioned six days **Short Term Training Programme (STTP)** on “**Big Data Analytics**” organized by the department of Information Technology. We have planned to conduct the training programme as a phased manner from **27th July 2020 to 1st August 2020 (Phase I)**, **3rd August 2020 to 8th August 2020 (Phase II)** and **16th November 2020 to 21st November 2020 (Phase III)** as per AICTE guidelines. As per instructions given in the sanction letter, the **Programme Evaluation Committee (PEC)** is constituted on **26.06.2020** and the details are given below:

Sl.No	Name of the Staff Member	Designation & Department	Position	Signature
1	Dr.D.Valavan	Principal	Chairperson	
2	Dr.R.Sumathi	Professor & Head / IT	Member Secretary	
3	Dr.S.A.Sahaya Arul Mary	Professor & Head / CSE	Member	
4	Dr. M.Santhi	Professor & Head / ECE	Member	
5	Dr.V.Punitha	Professor, CSE	Subject Expert	

Thanking You,

Yours faithfully,

Dr.R.Sumathi

(Coordinator)

H.O.D. (IT)
Saranathan College of Engg.,
Trichirappalli - 620 012



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DEPARTMENT OF INFORMATION TECHNOLOGY



**AICTE Sponsored Six day
Short Term Training Programme on
Big Data Analytics**

Minutes of Meeting

The Programme Evaluation Committee (PEC) meeting is convened on **30.06.2020** at 10.00 AM in IT Seminar Hall. The following points are discussed and proposed in the meeting.

- Roles of Programme Evaluation Committee (PEC)
- Conducting the programme in online mode as a phased manner as per AICTE guidelines.
- Duration of the programme
- Resource Persons for the entire duration of the programme
- Honorarium for the Resource Persons
- Selection procedure for the outside participants
- Video conference tool for online mode.
- Conduct of Test and issue of certificate to the participants
- Proposed Budget of STTP

Dr.D.Valavan

(Chairperson)

Dr.S.A.Sahaya Arul Mary

(Member)

Dr.M.Santhi

(Member)

Dr. R.Sumathi

(Member Secretary)

Dr.V.Punitha

(Subject Expert)

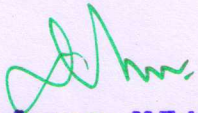


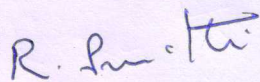
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DEPARTMENT OF INFORMATION TECHNOLOGY



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AICTE Sponsored Six day Online Short Term Training Programme on
Big Data Analytics
16.11.2020 – 21.11.2020 (Phase III)
Resource Person Contact Details

Sl.No	Resource Person Name	Designation	Name of the Institution	Phone Number
1.	Mr.Aditya Sambamoorthy	Founder and Director	InLustro, Chennai	+91 7338709583
2.	Dr.P. RadhaKrishna	Professor	National Institute of Technology, Warangal	+91 9704988816
3.	Dr. B. Janet	Associate Professor	National Institute of Technology, Tiruchirapalli	+91 9442648096
4.	Dr.K.Latha	Assistant Professor	University College of Engineering, BIT Campus, Anna University, Tiruchirapalli	+91 8667470840
5.	Mr.Hariharan	Assistant Professor	Veltech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology, Chennai	+91 9894550871
6.	Ms.Dilshath Fathima	Assistant Professor	Veltech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology, Chenna i	+91 8668122854


Dr. D. Valavan, M.Tech., Ph.D.,
Principal
Saranathan College of Engineering
Trichy - 12.


Coordinator
Dr.R.Sumathi, M.Tech., Ph.D
H.O.D. (IT)
Saranathan College of Engg.,
Tiruchirapalli - 620 012.



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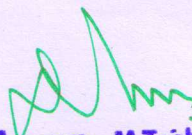
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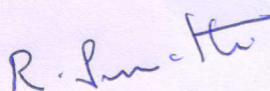
**AICTE Sponsored Six day Online Short Term Training Programme on
Big Data Analytics**

27.07.2020 – 01.08.2020 (Phase I)

Resource Person Contact Details

Sl.No	Resource Person Name	Designation	Name of the Institution	Phone Number
1.	Dr.Anand Jayaraman,	Adjunct Professor	Indian Institute of Technology, Bombay	+91 9959466177
2.	Dr.K.Chandrasekaran	Professor	National Institute of Technology Karnataka, Surathkal	+91 9448251453
3.	Dr.Santhi Thilagam	Professor	National Institute of Technology Karnataka, Surathkal	+91 9448984316
4.	Dr.G.R.Gangadharan	Associate Professor	National Institute of Technology, Tiruchirapalli	+91 7799833300
5.	Dr.P.Natesan	Associate Professor	Kongu Engineering College, Erode	+91 9443840665
6.	Dr.S.P.Syed Ibrahim	Professor	Vellore Institute of Technology, Vellore	+91 9944416392
7.	Mr.M.Thangavel	Assistant Professor	Thiagarajar College of Engineering, Madurai	+91 9500898297
8.	Mr.R.Venkatasubramanian	System Engineer	Infosys Ltd, Chennai	+91 8760846209


Dr. D. Valavan, M.Tech., Ph.D.,
Principal
Saranathan College of Engineering
Trichy - 12.


Coordinator
Dr.R.Sumathi, M.Tech., Ph.D

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Saranathan College of Engg.,
Trichirapalli - 620 012.



SARANATHAN COLLEGE OF ENGINEERING
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Venkateswara Nagar, Panjappur, Tiruchirapalli - 620012
DEPARTMENT OF INFORMATION TECHNOLOGY



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**AICTE Sponsored Six day Online Short Term Training Programme on
Big Data Analytics**

03.08.2020 – 08.08.2020 (Phase II)

Resource Person Contact Details

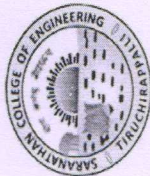
Sl.No	Resource Person Name	Designation	Name of the Institution	Phone Number
1.	Dr. U. Srinivasulu Reddy	Assistant Professor	National Institute of Technology, Tiruchirapalli	+91 8438207784
2.	Dr.B.Surendiran	Assistant Professor	National Institute of Technology, Pondicherry	+91 9942761363
3.	Dr.S.P.Syed Ibrahim	Professor	Vellore Institute of Technology, Vellore	+91 9944416392
4.	Mr.M.Thangavel	Assistant Professor	Thiagarajar College of Engineering, Madurai	+91 9500898297
5.	Dr.G.Vinodhini	Assistant Professor	Annamalai University, Chidambaram	+91 9626885482
6.	Mr.Vikas Srinivasan	Senior Computer Vision Engineer	eCon Systems India Pvt Ltd, Chennai	-91 9842929622
7.	Mr.V. Premanayagam	Manager	PWC Advisory, Bangalore	+91 9620491727
8.	Ms.Jayanthi Kumar	Assistant Professor	Veltech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology, Chennai.	+91 8883433568
9.	Ms.M.Keerthika	RPA developer	RR Donnelley, Chennai	+91 8056724523

Dr. D. Valavan, M.Tech., Ph.D.,
Principal
Saranathan College of Engineering
Trichy - 12.

Coordinator

Dr.R.Sumathi, M.Tech., Ph.D

H.O.D. (IT)
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Tiruchirapalli - 620 012.



SARANATHAN COLLEGE OF ENGINEERING

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Venkateswara Nagar, Panjappur, Trichirappalli-12, Tamil Nadu.



DEPARTMENT OF INFORMATION TECHNOLOGY

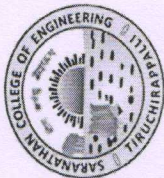
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Schedule for AICTE sponsored STTP on Big Data Analytics – Phase- I - 27.7.2020 to 1.8.2020

Topics & Resource Persons		
S.no	Date	FN (10.30 am to 12.00 noon)
1	27.07.2020	AN (2.00 pm to 3.30 pm) Practical Session on Data Analytics Dr.Anand Jayaraman, IIT Bombay
2	28.07.2020	Map Reduce Programming Dr.P.Natesan , Associate Professor, Department of Computer Science and Engineering, Kongu Engineering College, Erode
3	29.07.2020	Social Media Analysis Dr.Santhi Thilagam, Professor, National Institute of Technology Karnataka, Surathkal
4	30.07.2020	Social Media Analysis Dr.Santhi Thilagam, Professor, National Institute of Technology Karnataka, Surathkal
5	31.07.2020	Spark ML Dr.S.P.Syed Ibrahim, Professor, School of computer Science and Engineering VIT University-Chennai Campus, Chennai
6	01.08.2020	Data Science Using Python Mr.R.Venkatasubramanian, System Engineer, Infosys Ltd, Chennai

Dr. D. Valavan, M.Tech., Ph.D.,
Principal
Saranathan College of Engineering
Trichy - 12.

Dr.R.Sumathi, M.Tech., Ph.D
Coordinator
R.O.D. (IT)
Saranathan College of Engg-
Trichirappalli - 620 012.



SARANATHAN COLLEGE OF ENGINEERING

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
Venkateswara Nagar, Panjappur, Trichirappalli-12, Tamil Nadu.



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Schedule for AICTE sponsored STTP on Big Data Analytics – Phase –II - 03.08.2020 to 08.08.2020

S.no	Date	Topics & Resource Persons	
		FN	AN
1	3.08.2020	NoSQL, MongoDB and Neo 4j Dr.S.P.Syed Ibrahim, Professor, School of computer Science and Engineering VIT University, Chennai	Hands on Hadoop Framework Mr.M.Thangavel, Assistant professor, Thiagarajar College of Engineering, Madurai
2	04.08.2020	Big Data Analytics using ML Algorithm Dr. U. Srinivasulu Reddy; Assistant Professor, Dept of Computer Applications, National Institute of Technology, Tiruchirappalli	Big Data Analytics using ML Algorithm Dr. U. Srinivasulu Reddy, Assistant Professor, Dept of Computer Applications, National Institute of Technology, Tiruchirappalli
3	05.08.2020	ML Concepts using Tensorflow Dr.Vinodhini, Assistant Professor, Annammalai University, Chidambaram	CNN, Person Identification using SDD,yolo Mr.Vikas Srinivasan, Senior Computer Vision Engineer, VisAI labs, eCon Systems India Pvt Ltd, Chennai
4	06.08.2020	ML Concepts using Tensorflow Dr.Vinodhini, Assistant Professor, Annammalai University, Chidambaram	Augmented data preparation using Oracle Analytics Cloud Mr.V. Premanayakam, Manager, PWC Advisory, Bangalore
5	07.08.2020	Reduction for Medical Images Dr.B.Surendiran, Assistant Professor, National Institute of Technology, Puducherry	ML Tools for Healthcare Dr.B.Surendiran, Assistant Professor, National Institute of Technology, Puducherry
6	08.08.2020	Hands-on Predictive Modelling Ms.Jayanthi, Assistant Professor, VelTech, Chennai	Data Visualization using Tableau Ms.R.Keerthiga, RPA developer, RR Donnelley, Chennai

Dr. D. Valavan, M.Tech., Ph.D.,

Principal

Saranathan College of Engineering

Trichy - 12.

Coordinator

R.D.D. (IT)

Saranathan College of Engineering
Trichirappalli - 620 012

SARANATHAN COLLEGE OF ENGINEERING

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AICTE sponsored STTP on Big Data Analytics – Phase-III - 16.11.2020 to 21.11.2020

S.no	Date	Topics and Resource Persons	
		FN (10.30 am to 12.00 noon)	AN (2.00 pm to 3.30 pm)
1	16.11.2020	Introduction to Artificial Neural Networks Mr.Aditya Sambamoorthy, Founder and Director, InLustro, Chennai	Introduction to Deep Learning Mr.Hariharan, Dept of IT VelTech Institute of Science & Technology, Chennai
2	17.11.2020	Social Media and Network Analytics Dr.P. RadhaKrishna Prof & Head, Department of CSE, National Institute of Technology, Warangal	Research Trends in Big Data Analytics and Deep Learning Dr.P. RadhaKrishna Prof & Head, Department of CSE, National Institute of Technology, Warangal
3	18.11.2020	Hands on Convolutional Neural Networks Mr.Hariharan, Dept of IT VelTech Institute of Science & Technology, Chennai	Applications of Big Data Analytics Dr. B. Janet, Associate Professor, National Institute of Technology, Trichirapalli
4	19.11.2020	Introduction to Deep Learning Optimization Ms.Dilshat Fathima, Dept of IT, Veltech Institute of Science & Technology, Chennai	Hands on - Avoiding overfitting in Tensorflow Ms.Dilshat Fathima , Dept of IT, Veltech Institute of Science & Technology, Chennai
5	20.11.2020	Training on Deep Neural Networks using Tensor Flow Mr.Aditya Sambamoorthy, Founder and Director, InLustro, Chennai	Recurrent Neural Networks using Tensor Flow Mr.Aditya Sambamoorthy, Founder and Director, InLustro, Chennai
6	21.11.2020	Hands on Big Data Analytics statistical tool on IBM SPSS Dr.K.Latha, Dept of CSE & IT, University College of Engineering, BIT Campus, Trichirapalli	Hands on Big Data Analytics statistical tool on IBM SPSS Dr.K.Latha, Dept of CSE & IT, University College of Engineering, BIT Campus, Trichirapalli

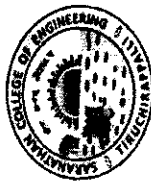
R. Sumathi

Coordinator

Dr.R.Sumathi, M.Tech., Ph.D

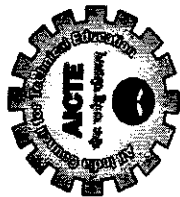
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SARANATHAN COLLEGE OF ENGINEERING

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
Venkateswara Nagar, Panjappur, Trichirappalli-12, Tamil Nadu.



DEPARTMENT OF INFORMATION TECHNOLOGY

(Accredited by NBA & IEI)

AICTE sponsored online Short Term Training Programme on Big Data Analytics
Phase I - 27.07.2020 to 01.08.2020

S.NO	Name of the Participant	Designation	Name of the Institution
External Participants			
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4	Mr.Mohammed Jaynal Abedin	Associate Professor	Stamford University Bangladesh
5	Dr.Ajay Agarwal	Professor	KIET Group of Institutions Ghaziabaf
6	Mr.AJAY JOE B	ENGINEER	IBM
7	Dr.ALAGU KARTHIKEYAN A	Assistant Professor	RVS Agricultural College, Thanjavur
8	Dr.Amar Jyoti Dutta	Assistant Professor	Pragjyotish College
9	Mr.Ameer Afrith	Assistant Professor	Arden university Berlin
10	Mrs.P.Anitha	Assistant Professor	Hindusthan college of Engineering and Technology
11	Dr.S Anu H Nair	Lecturer	Dr.Dharmambal Government Polytechnic College for women
12	Mr.Appasami G	Research Scholar	NIT
13	Mr.ARUN RAJ S R	Assistant Professor	University B.D.T College of Engineering / V.T.U
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23	Dr.Prof. Brijesh S	Professor	Sri Balaji University, Pune
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25	Dr.Birendra Kumar Chauhan	Associate Professor	Dr. KNMIET Modinagar Ghaziabad UP

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36	Dr. SARDAR KHOME SINGH	Professor	St. Martin's Engineering college
37	Mr.P.KARTHIKEYAN	Assistant Professor	Anjalai Ammal Mahalingam Engineering College
38	Mrs.Maheswari. G	Assistant Professor	Mangayarkarasi college of arts and science for women
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S.NO	Name of the Participant	Designation	Name of the Institution
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61	Dr. Kanimozhi Suguna S	Assistant Professor	SASTRA DEEMED UNIVERSITY Thanjavur
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63	Dr R C Karpagalakshmi	Professor	Gnanamani College of Technology
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83	Mr.Mohan	Instructor	Sri Venkateswara College of Engineering
84	Mr.Mohan	Instructor	Sri Venkateswara College of Engineering
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86	Mrs.Muskan Wadhvani	Research Scholar	Institute of Management Studies
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88	Dr.N. Mahesh	Professor	A C Patil College of Engineering
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90	Mr.Naveen N	Assistant Professor	Rajagiri School of Engineering & Technology

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101	Ms.Pallavi Das	Research Scholar	Central University of Gujarat
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119	Mrs.R.SUDHA	Associate Professor	VASAVI COLLEGE OF ENGINEERING
120	Mr.R. ANANDH	Research Scholar	Annamalai university
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S.NO	Name of the Participant	Designation	Name of the Institution
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133	Mr.Ratan Rajan Srivastava	Assistant Professor	Shri Ramswaroop Memorial Group of Professional Colleges, Lucknow
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138	Mrs.Reny Jose	Assistant Professor	Marian College Kuttikkanam (Autonomous)
139	Mr.Robin Rohit	Lecturer	Ibra College of Technology
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156	Mr.M SHIVA RAMA KRISHNA	Assistant Professor	HOLY MARY INSTITUTE OF TECHNOLOGY AND SCIENCE

S.NO	Name of the Participant	Designation	Name of the Institution
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DEPARTMENT OF INFORMATION TECHNOLOGY

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AICTE sponsored online Short Term Training Programme on Big Data Analytics

Phase – II (3rd August 2020 to 8th August 2020)

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6	Mr.Akhilesh kumar Singh	Research Scholar	JNU New Delhi
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9	Dr.Anuranjan Misra	Professor	Greater Noida Institute of Technology, Greater Noida
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15	Mr.R. ARUNKUMAR	Assistant Professor	MRK INSTITUTE OF TECHNOLOGY
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21	Mrs.Thunga Bharathi	Assistant Professor	S V College Of Engineering
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32	Dr.M.NEWLIN RAJKUMAR	Assistant Professor	ANNA UNIVERSITY REGIONAL CAMPUS COIMBATORE
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34	Mr.Silambarasan Elkanaebnazer	Research Scholar	National Institute of Technology Tiruchirappalli
35	Mrs.Farheen Jahan Aara	Senior scale lecturer	Government polytechnic for women
36	Mr.A. GANESAN	Assistant Professor	SRM TRP Engineering College
37	Mrs.S.Gayathri	Research Scholar	NIT, Trichy
38	Mr.Kuldeep singh	Principal	Jat college of polytechnic,Kaithal
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S.NO	Name of the Participant	Designation	Name of the Institution
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44	Mrs.P JAYANTHI	Teaching Fellow	Anna University MIT campus
45	Ms.Deepika Jegan Mohan	Assistant Professor	Sona College of Technology
46	Ms.JEEVITHA V	Research Scholar	PG and Research Department of Commerce
47	Mr.Aleti Ravichandra	Assistant Professor	ST.MARY'S WOMEN'S ENGINEERING COLLEGE
48	Mr.KAMLESH KUMAR PANDEY	Research Scholar	Doctor Harisingh Gour Vishwavidyalaya
49	Mrs.N.KANIMOZHI	Assistant Professor	A.V.C College of Engineering
50	Dr. Kanimozhi Suguna S	Assistant Professor	SASTRA DEEMED UNIVERSITY Thanjavur
51	Mrs.KANYAKUMARI K T	Faculty	University BDT College of Engineering
52	Dr.Kavitha S	Assistant Professor	Dayananda Sagar College of Arts,Science and Commerce
53	Ms.KAVYASHREE M K	Assistant Professor	JSS Science and Technology University
54	Mr.KONDA HARI KRISHNA	Assistant Professor	SRI VASAVI ENGINEERING COLLEGE
55	Ms.KEERTHIKA K	Assistant Professor	KARPAGAM COLLEGE OF ENGINEERING
56	Dr.Kiran Shrimant Kakade	Assistant Professor	Guru Nanak Institute of Management Studies, Mumbai
57	Mr.KRISHANU CHATTERJEE	Technical Assistant	Global Institute of Management and Technology
58	Mr.SHIVANAND BHIMASHANKAR KONADE	Assistant Professor	G V Acharya college shelu Mumbai
59	Mr.RAGHU KASULA	Assistant Professor	MAHATMA GANDHI INSTITUTE OF TECHNOLOGY
60	Mr.B L V S R Krishna	Assistant Professor	S R K R Engineering College
61	Mrs.CAROLINE GNANATHEEPA K T	Assistant Professor	S.I.V.E.T. College, Chennai
62	Dr.P. KURINCHI	LECTURER - HOD(i/c)	DR. DHARMAMBAL GOVERNMENT POLYTECHNIC COLLEGE FOR WOMEN
63	Dr.Lakshmi D	Associate Professor	B V Raju Institute of Technology
64	Mrs.K.Latha	Assistant Professor	Sri Sairam Engineering college
65	Mrs.Lavanya Gottemukkala	Assistant Professor	Gokaraju Rangaraju Institute of Engineering and Technology

66	Mrs.M Hemalatha	Assistant Professor	AALIM MUHAMMED SALEGH COLLEGE OF ENGINEERING
67	Ms.MADHURAM N	Assistant Professor	IFET COLLEGE OF ENGINEERING
68	Ms.M. MAHASREE	Research Scholar	Annamalai University
69	Mrs.Umadevi S	Associate Professor	IFET College of Engineering
70	Mr.Ali Ahmed Ali Mansoor	Research Scholar	Dr.Bamu university
71	Ms.MEENA C	Assistant Professor	MAM SCHOOL OF ENGINEERING
72	Mr.MEIVEL	Assistant Professor	M.KUMARASMY COLLEGE OF ENGINEERING, KARUR.
73	Mrs.Mariyam Ejaz Maniyar	Assistant Professor	K.K.K.Wagh Institute of Engineering Education and Research
74	Mrs.Minal Shahakar	Assistant Professor	Dr. D. Y. Patil Institute of Technology
75	Dr.MINAXI SHIVDAS BHAGWAT	Former URF	THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA
76	Dr.N. Mahesh	Professor	A C Patil College of Engineering
77	Mrs.Naga Chandrika Gogulamudi	Assistant Professor	VNR VJIED
78	Dr.Neha Shivhare	Assistant Professor	Dayalbagh Educational Institute (Deemed University) Dayalbagh Agra
79	Mrs.Nisha R S	Assistant Professor	Rajalakshmi Engineering College
80	Mr.NITIN ASHOK MISKIN	Assistant Teacher	Gangai Sapate Prashala
81	Mrs.Smitha Krishnan	Assistant Professor	SB college
82	Mr.RAJESH N	LECTURER	GOVT DEGREE COLLEGE FOR WOMEN WANAPARTHY
83	Mrs.N.SWARNALATHA	Assistant Professor	A.D.J.D.POLYTECHNIC COLLEGE,NAGAPATTINAM
Internal Participants			
84	Mrs.J.Sangeetha Priya	Assistant Professor	Saranathan College of Engineering
85	Mr.V.Manojkumar	Assistant Professor	Saranathan College of Engineering


Coordinator

H.O.D. (IT)
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Trichy - 620 012.


Dr. D. Valavan, M.Tech.,Ph.D.,
Principal
Saranathan College of Engineering
Trichy - 12.



SARANATHAN COLLEGE OF ENGINEERING

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
Venkateswara Nagar, Panjappur, Trichirappalli-12, Tamil Nadu.



DEPARTMENT OF INFORMATION TECHNOLOGY

(Accredited by NBA & IEI)

AICTE sponsored online Short Term Training Programme on Big Data Analytics
Phase-III (16.11.2020 to 21.11.2020)

S.NO	Name of the Participant	Designation	Name of the Institution
External Participants			
1	Anita Dayanand Mhatre	Assistant Professor	Datta Meghe College Of Engineering
2	DR.D.THAMARASELVI	ASST.PROFESSOR	SCSVMV
3	Dr.M.NEULIN RAJKUMAR	ASSISTANT PROFESSOR	ANNA UNIVERSITY REGIONAL CAMPUS COIMBATORE
4	Jitendra Singh	Research Scholar	University of Delhi, Delhi
5	KM Kamna	Research scholar	University of Delhi
6	PUSPITA DASH	RESEARCH SCHOLAR	ANNAMALAI UNIVERSITY
7	JAYAPRAKASH.J	LECTURER	KARAIKAL POLYTECHNIC COLLEGE KARAIKAL
8	KALPANA C	Assistant Professor	NPR College of Engineering and Technology
9	Dr KIRAN SHRIMANT KAKADE	Assistant professor	Guru Nanak Institute of Management Studies, Mumbai
10	Dr.N.Mahesh	Professor & Head	A C PATIL COLLEGE OF ENGINEERING, MANAGEMENT STUDIES & RESEARCH
11	J.Viswanath	Assistant Professor	NPR College of Engineering and Technology
12	Jyoti Yadav	Assistant Professor	Dronacharya Govt. College Gurugram
13	Dr.K.Balaji	Professor & HOD	Surana College, Bangalore
14	K Ranjit Kumar	Assistant Professor	Annamalai University
15	MADHURAM N	ASSISTANT PROFESSOR	IFET COLLEGE OF ENGINEERING
16	S.KANNADHASAN	ASSISTANT PROFESSOR	CHERAN COLLEGE OF ENGINEERING
17	D. NAGARAJ	ASSISTANT PROFESSOR	NPR COLLEGE OF ENGINEERING AND TECHNOLOGY, NATHAM
18	Dr M SHUNMUGASUNDARAM	Professor	SCAD COLLEGE OF ENGINEERING AND TECHNOLOGY
19	Dr. M.karthika	HOD	Mannar Thirumalai Naicker College

S.NO	Name of the Participant	Designation	Name of the Institution
External Participants			
20	Dr.S.SHAIK PARVEEN	Assistant Professor	MANNAR THIRUMALAI NAICKER COLLEGE
21	Md. Abul Ala Walid	Lecturer	Northern University of Business and Technology
22	G.Devika	Assistant Professor	Mannar Thirumalai Naicker College
23	Mr.V. RAMAKRISHNAN	Assistant professor	Saveetha School of Engineering
24	Dr S HASAN HUSSAIN	Associate Professor	Syed Ammal Engineering College
25	Dr	Dr.Manvendra Vashistha	Pillai HOC College of Engineering and Technology, Rasayani
26	Shobha K	Assistant Professor	Siddaganga Institute of Technology
27	Angeline R	Assistant professor	SRM INSTITUTE OF SCIENCE AND TECHNOLOGY
28	S.SURESHKUMAR	Assistant Professor	Bannari Amman Institute of Technology
29	SIVASAKTHI S	ASSISTANT PROFESSOR	G. VENKATASWAMY NAIDU COLLEGE
30	SHAIK MUNAWAR	Assistant Professor	JYOTHISHMATHI INSTITUTE OF TECHNOLOGY AND SCIENCE
31	N.KIRTHIGA	Assistant Professor	Shree Venkateshwara Hi-Tech Engineering College
32	Dr. P. KAVIPRIYA	Associate professor	Sathyabama Institute of Science and Technology
33	Khadri S S	Research scholar	Apj Abdul kalam university, indore
34	Jeny Rachel Samuel	Assistant Professor	CMS College Kottayam
35	V T RAM PAVAN KUMAR M	assistant professor	kakaraparti bhavanarayana college
36	THIRUGNANAM K	LECTURER	IRT POLYTECHNIC COLLEGE BARGUR
37	Dr.T.P.Anithaashri	Associate Professor	Saveetha School of Engineering
38	Arulkumar K	Lecturer	IRT POLYTECHNIC COLLEGE KRISHNAGIRI
39	Dr.M.NEWLIN RAJKUMAR	ASSISTANT PROFESSOR	ANNA UNIVERSITY REGIONAL CAMPUS COIMBATORE
40	DR. MAUPARNA NANDAN	ASSOCIATE PROFESSOR	BRAINWARE UNIVERSITY
41	Puspita Dash	Research Scholar	Annamalai University
42	M.Manickam	lecturer	IRT POLYTECHNIC COLLEGE, BARGUR

S.NO	Name of the Participant	Designation	Name of the Institution
External Participants			
43	VISHNU DURAI R S	ASSISTANT PROFESSOR	SRI RAMAKRISHNA ENGINEERING COLLEGE
44	Dr.K.Priyadarsini	Assistant Professor	VISTAS
45	REVATHY G	AP	ERODE SENGUNTHAR ENGINEERING COLLEGE
46	R.Rajalakshmi	Asst.Prof	Scsvmv
47	P.Malathi	Assistant Professor	Saveetha School of Engineering
48	PADMA PRIYA J	Assistant Professor	GITAM School of Technology, Bengaluru
49	P.JAYASREE.P@HINDUS	ASST.PROFESSOR	HINDUSTHAN COLLEGE OF ARTS and SCIENCE
50	MADHUSUDHAN R A	Guest Lecturer	Govt.Degree College and PG Center
51	Sandeep r Kapse	Research Scholar and Professor CHB	Dr Babasaheb Ambedkar Marathwada University Aurangabad Maharashtra
52	Dr B Kumaran	Assistant Professor	Scsvmv university
53	Dr. Vibha Pandey	Asst professor	Govt. P. G. College OBRA (SONBHADRA) U. P.
54	Dr Ritu Sharma Singh	Medico Social Worker	Government Medical College Raigarh
55	Dr.Paramasivam A	Associate Professor	Rajalakshmi Engineering College
56	M.DHIVYASHREE	Assistant Professor	Sri Ramakrishna Engineering College
57	M. VASUMATHY	Assistant Professor	THE AMERICAN COLLEGE
58	Bhaskar Kapoor	Asstt Professor	MAIT New Delhi
59	MANOJ KUMAR VEMULA	Assistant professor	Vardhaman college of engineering
60	Dr. R. POORVADEVI	Assistant Professor	SCSVMV UNIVERSITY
Internal Participants			
61	Mr.V.Senthil Balaji	Assistant Professor	Saranathan College of Engineering
62	Ms.M.Padmapriya	Assistant Professor	Saranathan College of Engineering

Dr. D. Valavan, M.Tech., Ph.D.,
Principal
Saranathan College of Engineering

R. P. R. R. R.
Coordinator
H.O.D. (IT)
Saranathan College of Engineering

Bigdata Analytics STTP3 test

Give correct details to generate certificate.

* Required

1. Email address *

2. NAME OF THE PARTICIPANT *

3. COLLEGE NAME WITH PLACE (don't use short form) *

4. DEPARTMENT *

5. STTP ID (SHOULD BE IN THE FORMAT OF BDA3-ID) *

ANSWER ALL QUESTIONS

60% PASS MARKS ARE REQUIRED TO PASS.

6. 1. A 4-input neuron has weights 1, 2, 3 and 4. The transfer function is linear with the constant of proportionality being equal to 2. The inputs are 4, 10, 3 and 10 respectively. The output will be: *
- 1 point

Mark only one oval.

- ☐ a.238
- ☐ b.146
- ☐ c. 140
- ☐ d.138

7. 2. Why are linearly separable problems of interest of neural network researchers? *
- 1 point

Mark only one oval.

- ☐ a)Because they are the only class of problem that network can solve successfully
- ☐ b) Because they are the only class of problem that Perceptron can solve successfully
- ☐ c) Because they are the only mathematical functions that are continue
- ☐ d) Because they are the only mathematical functions you can draw

8. 3. In the case of an algebraic model for a straight line, if a value for the x variable is specified, then *
- 1 point

Mark only one oval.

- ☐ a. the exact value of the response variable can be computed
- ☐ b. the computed response to the independent value will always give a minimal residual
- ☐ c. the computed value of y will always be the best estimate of the mean response
- ☐ d. none of these alternatives is correct

9. 4. What's the series of the following duties in a perceptron in tensorflow? 1 point
1. Initialize weights of perceptron randomly 2. Visit the subsequent batch of the dataset 3. If the prediction does no longer in shape the output, trade the weights 4. For a sample enter, compute an output *

Mark only one oval.

- ☐ a. 1,2,3,4
- ☐ b. 1,3,4,2
- ☐ c. 1,4,3,2
- ☐ d. 3,4,1,2

10. 5. In social network analysis, The degree of a node describes--- *
- 1 point

Mark only one oval.

- ☐ a. its out-degree
- ☐ b. its in-degree
- ☐ c. its level of connectedness in the network
- ☐ d. None of these

11. 6. Which one of the following characteristic differentiate CNN and ANN *
- 1 point

Mark only one oval.

- ☐ a.. CNN uses a more simpler alghorithm than ANN.
- ☐ b. CNN has one or more layers of convolution units, which receives its input from multiple units.
- ☐ c. CNN is a easiest way to use Neural Networks.
- ☐ d. They complete eachother, so in order to use ANN, you need to start with CNN.

12. 7. Which one of the following are true for CNN Architecture? *

1 point

Check all that apply.

- ☐ a. Size of the input (height and width) decreases, while depth increases
- ☐ b. Multiple convolutional layers has followed by pooling layers
- ☐ c. Backpropagation can be applied when using pooling layers
- ☐ d. Fully connected layers in first few layers

13. 8. Data Normalization is better to achieve ----- *

1 point

Check all that apply.

- ☐ a. Overfitting
- ☐ b. perception
- ☐ c. Convergence
- ☐ d. underfitting

14. 9. Dropout is a technique ----- *

1 point

Check all that apply.

- ☐ a. to prevent overfitting
- ☐ b. loss function
- ☐ c. error function
- ☐ d. Activation function

15. 10. What is the relationship between dropout rate and regularization?Note: 1 point
we have defined dropout rate as the probability of keeping a neuron active?
A) Higher the dropout rate, higher is the regularization B) Higher the dropout rate, lower is the regularization C) linear D)None of these *

Mark only one oval.

- ☐ Option A alone
☐ Option B alone
☐ Option A & C
☐ Option D alone

16. 11. A _____ serves as the master and there is only one NameNode per cluster *

Mark only one oval.

- ☐ a. Data Node
☐ b. NameNode
☐ c. Data block
☐ d. Replication

17. 12. What are the different features of Big Data Analytics? *

Mark only one oval.

- ☐ a. Open Source
☐ b. Data Recovery
☐ c. Scalability
☐ d. All of the above

18. 13. Your data contains a large number of fields which have very long names. 1 point
You want to rename these fields without having to manually edit them. Which option from the Filter option menu, within the Filter node, allows you to accomplish this task? *

Mark only one oval.

- ☐ a. Truncate Field Names...
- ☐ b. Rename for IBM SPSS Statistics...
- ☐ c. Use Input Field Names...
- ☐ d. Rename Duplicate...

19. 14. A Neural Network can answer? * 1 point

Mark only one oval.

- ☐ a. For Loop questions
- ☐ b. what-if questions
- ☐ c. IF-The-Else Analysis Questions
- ☐ d. None of these

20. 15. Which of the following is FALSE about Deep Neural Networks? * 1 point

Mark only one oval.

- ☐ a. These are computationally more complex as compared to shallow networks
- ☐ b. These have less generalization capabilities as compared to shallow networks
- ☐ c. These may suffer from overfitting problem
- ☐ d. These may suffer from vanishing gradients problem

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Timestamp	Participant ID	Feedback	Participant full name	Designation or Profession	Name of the Department	Name of the Institution/Organization	Contact Number (Whatsapp number)	Were you aware of the course schedule before joining this session?	The Session delivered the information I expected to receive	The Subject matter was presented effectively	The pace of the STTP session was satisfactory	Overall rating of this session	Any Suggestion/Comments
2020/07/27 12:04:06 PM GMT+5:30	BDA20-445	Day1-FN	YOGESHKUMAR JETHABHAI PATEL	ASSISTANT PROFESSOR	BCA	SHRI C.J. PATEL COLLEGE OF COMPUTER STUDIES	9723862458	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:04:09 PM GMT+5:30	Not Assigned	Day1-FN	SRIDHAR P	SENIOR LECTURER	COMPUTER ENGINEERING	IRT POLYTECHNIC COLLEGE, CHENNAI Marathwada	9444200292	Yes	Strongly agree	Strongly agree	Fully covered	5	Please assign ID for me
2020/07/27 12:04:19 PM GMT+5:30	BDA20-329	Day1-FN	PANKAJ RAMDAS BHUSARI	Assistant Professor	Electronics and Telecommunication	Institute of Technology Aurangabad	8329988243	Yes	Strongly agree	Strongly agree	Fully covered	5	Excellent session
2020/07/27 12:04:25 PM GMT+5:30	BDA20-223	Day1-FN	ARULMOZHI VIJAYA BANUN	Lecturer	Electronics and communication Engineering ELECTRONICS and COMMUNICATION ENGINEERING	IRT Polytechnic College, Chennai	9444464056	Yes	Strongly agree	Strongly agree	Fully covered	5	Excellent
2020/07/27 12:04:38 PM GMT+5:30	BDA20-216	Day1-FN	Dr. B.KAVITHA	LECTURER	ENGINEERING	IRT POLYTECHNIC COLLEGE, CHENNAI	9444359441	NO	Strongly agree	Strongly agree	Fully covered	5	Excellent
2020/07/27 12:04:40 PM GMT+5:30	BDA20-542	Day1-FN	Dr. KIRAN SHRIMANT KAKADE	Assistant professor	IT	Guru Nanak Institute of Management Studies, Mumbai	9975872756	Yes	Agree	Agree	Fully covered	4	NIL
2020/07/27 12:04:43 PM GMT+5:30	BDA20-129	Day1-FN	AJAY JOE B	ENGINEER	ECE	IBM	9994372632	Yes	Agree	Agree	Fully covered	4	NIL
2020/07/27 12:04:43 PM GMT+5:30	BDA20-198	Day1-FN	SUBHASHREE K	Assistant Professor	Computer Science and Engineering	Karpagam College of Engineering	9486634469	Yes	Strongly agree	Strongly agree	Fully covered	5	Awesome
2020/07/27 12:04:43 PM GMT+5:30	BDA20-314	Day1-FN	Rajesh Kannan K	Assistant Professor	IT	CBIT(Autonomous)	9944836316	Yes	Strongly agree	Strongly agree	Fully covered	5	Excellent Session
2020/07/27 12:04:47 PM GMT+5:30	BDA20-509	Day1-FN	Dr. Brijesh S	Professor	Management	Sri Balaji University, Pune	9225501920	May be	Agree	Agree	Fully covered	4	None
2020/07/27 12:04:50 PM GMT+5:30	BDA20-255	Day1-FN	PARTHASARATHY G	ASSISTANT PROFESSOR	CSE	ENGINEERING COLLEGE BABA GHULAM SHAH BADSHAH UNIVERSITY,RAJOUR	9597686564	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:04:51 PM GMT+5:30	BDA20-214	Day1-FN	Mr.SREENU BANOTH	Assistant Professor	Computer Science and Engineering	UNIVERSITY,RAJOUR IJ&K	9949965598	Yes	Strongly agree	Strongly agree	Fully covered	5	excellent session
2020/07/27 12:04:51 PM GMT+5:30	BDA20-696	Day1-FN	R MOHANKUMAR	ASSISTANT PROFESSOR	COMPUTER SCIENCE AND ENGINEERING	SARANATHAN COLLEGE OF ENGINEERING	9944555323	May be	Strongly agree	Strongly agree	Fully covered	5	NIL

2020/07/27 12:04:52 PM GMT+5:30	BDA20-360	Day1-FN	Preeti Gupta	Faculty	CSE	Ludhiana Shri Ramswaroop Memorial Group of Professional Colleges KARPAGAM COLLEGE OF ENGINEERING	7027021666	Yes	Strongly agree	Strongly agree	Fully covered	5	Nice session
2020/07/27 12:04:59 PM GMT+5:30	BDA20-815	Day1-FN	Ratan Rajan Srivastava	Assistant Professor	Computer Application	Dr. Harisingh Gour Vishwavidyalaya	7905656521	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:04:59 PM GMT+5:30	BDA20-195	Day1-FN	MADAN MOHAN M	ASSISTANT PROFESSOR	CSE	KAMLESH KUMAR PANDEY	9688160493	Yes	Strongly agree	Strongly agree	Fully covered	5	GOOD
2020/07/27 12:05:13 PM GMT+5:30	BDA20_133	Day1-FN	KAMLESH KUMAR PANDEY	Research Scholar			9.17509E+11	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:05:20 PM GMT+5:30	BDA20-749	Day1-FN	KARTHIKEYAN V	LECTURER	INFORMATION TECHNOLOGY	A.V.C. POLYTECHNIC COLLEGE, MANNAMPANDAL Rajagiri School of Engineering & Technology SRM INSTITUTE OF SCIENCE AND TECHNOLOGY Chellammal Women's College, Chennai VEL TECH	9486096901	Yes	Strongly agree	Strongly agree	Fully covered	5	Good
2020/07/27 12:05:23 PM GMT+5:30	BDA20-602	Day1-FN	Naveen N	Assistant Professor	ECE		8921334435	Yes	Strongly agree	Strongly agree	Fully covered	5	Good seession
2020/07/27 12:05:27 PM GMT+5:30	BDA20	Day1-FN	Dr.s.srividhya	Associate Professor	Commerce		8610424428	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:05:57 PM GMT+5:30	BDA20-130	Day1-FN	SUDHA S	Assistant Professor	Business Administration		9444646736	Yes	Strongly agree	Strongly agree	Fully covered	5	-
2020/07/27 12:05:57 PM GMT+5:30	BDA20-665	Day1-FN	S.THYLASHRI	ASSISTANT PROFESSOR	CSE		9843664510	Yes	Agree	Agree	Fully covered	4	
2020/07/27 12:06:05 PM GMT+5:30	BDA20-116	Day1-FN	Dr R C Karpagalakshmi	Professor	CSE	Gnanamani College of Technology Vidnyan mahavidyalaya, malikapur	9442895577	Yes	Strongly agree	Agree	Fully covered	4	good
2020/07/27 12:06:14 PM GMT+5:30	BDA20-678	Day1-FN	Punam Ingale	Assistant professor	Punam Ingale		7588688885	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:06:19 PM GMT+5:30	BDA20-545	Day1-FN	Pushpa Singh	Lecturer	Computer Science Computer Science and Engineering	Aggarwal College Baliabgarh	9711081316	Yes	Agree	Strongly agree	Fully covered	5	
2020/07/27 12:06:28 PM GMT+5:30	BDA20-792	Day1-FN	Dineshkumar P	Assistant Professor			9791353699	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:06:31 PM GMT+5:30	BDA20-901	Day1-FN	MARY JOSEPHINE CAROLINE.R	Academician	Electronics and Communication engg	IRT POLYTECHNIC COLLEGE,CHROME ET,CHENNAI-44	9080315397	Yes	Strongly agree	Strongly agree	Fully covered	5	Useful session
2020/07/27 12:06:34 PM GMT+5:30	BDA20-089	Day1-FN	KARTHIK. R	ASSISTANT PROFESSOR	COMPUTER SCIENCE AND ENGINEERING	SARANATHAN COLLEGE OF ENGINEERING	9787816272	Yes	Strongly agree	Strongly agree	Fully covered	5	Informative session

2020/07/27 12:06:36 PM GMT+5:30	BDA20-071	Day1-FN	Dr. ALAGU KARTHIKEYAN A	Assistant Professor	Computer Science	RVS Agricultural College, Thanjavur	9994562523	Yes	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 12:06:40 PM GMT+5:30	BDA20-662	Day1-FN	Rupavathy N	Assistant Professor	Computer Science and Engineering	Vel Tech Rangarajan Dr.Sagunthala R&D Institute of science and Technology	9952999276	Yes	Agree	Agree	Moderately covered	4
2020/07/27 12:06:49 PM GMT+5:30	BDA20-226	Day1-FN	Dr P Sudhakaran	Professor and Head	CSE INSTRUMENTAT ION & CONTROL ENGINEERING	SRM TRP Engineering College	9443529272	Yes	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 12:06:50 PM GMT+5:30	BDA20-115	Day1-FN	RaghuRaman R	Lecturer	COMPUTER ENGINEERING	GPTC OOTY IRT POLYTECHNIC COLLEGE,CHENNAI- 44	9566154015	May be	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 12:06:51 PM GMT+5:30	BDA20-204	Day1-FN	KAVITHA B	LECTURER	COMPUTER ENGINEERING	COLLEGE,CHENNAI- 44	9444190646	Yes	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 12:07:07 PM GMT+5:30	BDA20-356	Day1-FN	Dr. Syed Shahul Hameed	Assistant Professor	Information Technology	SUR College of Applied Science, The Sultanate of Oman Vel Tech Rangarajan Dr.Sagunthala R & D Institute of Science and Technology	96897938993	Yes	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 12:07:08 PM GMT+5:30	BDA20-745	Day1-FN	V.USHA	Assistant Professor	CSE	Science and Technology	8098053157	Yes	Strongly agree	Strongly agree	Fully covered	4
2020/07/27 12:07:10 PM GMT+5:30	BDA20-213	Day1-FN	ARUN RAJ S R	Assistant Professor	Electronics and Communication Engineering	University B.D.T College of Engineering / V.T.U	9164488260	Yes	Agree	Agree	Fully covered	5
2020/07/27 12:07:25 PM GMT+5:30	BDA20-172	Day1-FN	Chaitrali Vinay Nalawade	Assistant Professor	Electronics and Telecommunica tion Engineering	SBPCOE, Indapur	9960795634	Yes	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 12:07:28 PM GMT+5:30	BDA20-874	Day1-FN	R.Thilailkarasi	Associate professor	CSE	Saranathan College of Engineering, Trichy, Tamil Nadu, India	9.19894E+11	Yes	Strongly agree	Strongly agree	Fully covered	5

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BDA20-619 &
BDA20-623 in
which I have
to use?

2020/07/27 12:07:31 PM GMT+5:30	BDA20-619 & BDA20-623	Mr. Vinod Wamanrao Gangane	Day1-FN	Assistant Professor	Computer Science	Yogeshwari Mahavidyalaya Ambajogai	8668508411	Yes	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 12:07:33 PM GMT+5:30	BDA20-014	Mr. Kishore Kumar Shah	Day1-FN	Assistant Professor	Commerce Computer Science and Engineering	Sri Aurobindo College (University of Delhi)	8826686689	Yes	Strongly agree	Strongly agree	Fully covered	4
2020/07/27 12:07:37 PM GMT+5:30	BDA20-198	SUBHASHREE K	Day1-FN	Assistant Professor	Engineering	Karpagam College of Engineering Smt. G. G. Khadse College, Muktainagar, Dist.:	9486634469	Yes	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 12:07:48 PM GMT+5:30	BDA20-414	Mrs. SEEMA VIJAY RANE	Day1-FN	Assistant Professor	Computer Science	Jaigaon	9422941416	Yes	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 12:07:50 PM GMT+5:30	BDA20-171	Vinay Shivalirao Nalawade	Day1-FN	Assistant Professor	Computer Engineering	S. B. Patil College of Engineering	7972697227	Yes	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 12:07:55 PM GMT+5:30	BDA20 -ID	RAJALAKSHMY P	Day1-FN	Assistant Professor	Commerce	St.Aloysius College, Eithuruth, Kerala	9605343394	Yes	Agree	Strongly agree	Fully covered	5
2020/07/27 12:07:56 PM GMT+5:30	BDA20-189	Dr. Rajee A M	Day1-FN	Data Scientist	CSE	Freelancer	9962667734	Yes	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 12:07:56 PM GMT+5:30	BDA20-357	A.Priya	Day1-FN	Assistant Professor	Computer Science and Engineering Dept. of	Sri Krishna College of Engineering and Technology	9629680614	Yes	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 12:07:58 PM GMT+5:30	BDA20-491	P.SUGUNA	Day1-FN	SPECIAL OFFICER	Computer Science Electrical and Electronics Engineering	ANNAMALAI UNIVERSITY Kumaraguru College of Technology	9.19501E+11	May be	Agree	Strongly agree	Fully covered	4
2020/07/27 12:07:59 PM GMT+5:30	BDA20-365	Mr. T. Viswanathan	Day1-FN	Assistant Professor			9566625001	Yes	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 12:08:04 PM GMT+5:30	BDA20-487	Mrs. T. Indhumathi	Day1-FN	Faculty	Mathematics Computer Science & Engineering	SCSVMV	9791668281	Yes	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 12:08:07 PM GMT+5:30	BDA20-140	Dr.B.Santhosh Kumar	Day1-FN	Sr.Assistant Professor		GMR Institute of Technology	9843622130	Yes	Strongly agree	Strongly agree	Fully covered	5

2020/07/27 12:08:08 PM GMT+5:30	BDA-20-663	Day1-FN	C..Saranya Jothi	Assistant professor	Computer science	VeITech Ranjarajan Dr Sagunthala R &D Institute of Science and Technology	9677291117	Yes	Agree	Agree	Moderately covered	4	Nice
2020/07/27 12:08:10 PM GMT+5:30	BDA-20-324	Day1-FN	KATANGURI SWAPNIKA	Assistant Professor	Information Technology	GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY	9617026493	Yes	Agree	Agree	Fully covered	4	Good session
2020/07/27 12:08:18 PM GMT+5:30	2013	Day1-FN	Rengaraj	Assistant Professor	IT	Saranathan College of Engineering	9443529666	Yes	Strongly agree	Strongly agree	Fully covered	5	GOOD
2020/07/27 12:08:30 PM GMT+5:30	BDA-20-159	Day1-FN	Soumya Das	Assistant Professor	CSE	Driems ,Tangi ,Cuttack	8895540273	Yes	Strongly agree	Strongly agree	Fully covered	5	Please provide the ppts and recording of the program
2020/07/27 12:08:34 PM GMT+5:30	BDA-20-528	Day1-FN	Dr. SEEMA YADAV	Assistant Professor	Department of Education	The Bhopal School of Social Sciences	9926270076	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:08:39 PM GMT+5:30	BDA-20-585	Day1-FN	NIKHIL MADHUSUDAN JOSHI	Assistant Professor	Statistics	NaranLala College of Commerce & Management, Navsari	9824290809	Yes	Strongly agree	Strongly agree	Fully covered	5	None
2020/07/27 12:08:43 PM GMT+5:30	BDA-20-232	Day1-FN	Kochumol Abraham	Assistant professor	MCA	Marian College Kuttikanam	9446286893	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:08:45 PM GMT+5:30	BDA-20-533	Day1-FN	S.SANTHI	LECTURER	Computer Engineering	Valivalam Desikar Polytechnic College Nagapattinam	9943025997	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:08:51 PM GMT+5:30	BDA-20-176	Day1-FN	Vijay Kumar Tonk	Lecturer	Vijay Kumar Tonk	Meera Bai Institute of Technology	9811708146	Yes	Strongly agree	Strongly agree	Fully covered	5	Very Good
2020/07/27 12:08:55 PM GMT+5:30	BDA-20-ID	Day1-FN	Jayashree Yadannavar	Technical	SCET	MIT ACADEMY OF ENGINEERING	9881343697	Yes	Strongly agree	Strongly agree	Fully covered	5	No
2020/07/27 12:08:56 PM GMT+5:30	BDA-20-ID	Day1-FN	Dr Padmaja Pulicherla	Professor	Computer Science and Engineering	Teegala Krishna Reddy Engineering College	8309255335	Yes	Strongly agree	Strongly agree	Fully covered	5	Good Session
2020/07/27 12:09:09 PM GMT+5:30	BDA-20-325	Day1-FN	Katanguri Swanthana	Asstistant Professor	Information technology	Gokaraju Rangaraju Institute of Engineering and technology	9618048219	Yes	Agree	Agree	Fully covered	4	Good session

2020/07/27 12:09:11 PM GMT+5:30	BDA20-161	Day1-FN	D.Jeraldin Auxillia	Professor	ECE	St Xaviers Catholic College of Engineering, Chunkankadai	9442564736	Yes	Strongly agree	Strongly agree	Fully covered	5	-
2020/07/27 12:09:13 PM GMT+5:30	BDA20-892	Day1-FN	B.Gnana priya	Lecturer	Computer Engineering	Central polytechnic college KIET GROUP OF INSTITUTIONS	9445437002	Yes	Strongly agree	Strongly agree	Fully covered	5	Excellent session
2020/07/27 12:09:25 PM GMT+5:30	BDA20-673	Day1-FN	Ajay Agarwal	Professor	Information Technology computer science and engineering	Ghaziabad sri venkateswara college of engineering	9917083437	NO	Strongly agree	Strongly agree	Fully covered	5	No
2020/07/27 12:09:26 PM GMT+5:30	BDA20-719	Day1-FN	k venkata sravani	Assistant Professor	COMPUTER SCIENCE AND ENGINEERING	ANNAMALAI UNIVERSITY	8247462963	Yes	Agree	Agree	Fully covered	5	thanks
2020/07/27 12:09:26 PM GMT+5:30	BDA20-068	Day1-FN	MAHASREE M	RESEARCH SCHOLAR		ANNAMALAI UNIVERSITY	7397102731	Yes	Strongly agree	Strongly agree	Fully covered	4	
2020/07/27 12:09:38 PM GMT+5:30	BDA20-077	Day1-FN	R.Anandh	Research scholar	FEAT,CSE Computer Science and Engineering	Annamalai university	9842344492	Yes	Agree	Agree	Moderately covered	4	nice session
2020/07/27 12:09:38 PM GMT+5:30	BDA20-092	Day1-FN	A.T.BARANI VIJAYA KUMAR	Assistant Professor		Saranathan College of Engineering	8220351548	Yes	Strongly agree	Strongly agree	Fully covered	5	No Comments
2020/07/27 12:09:39 PM GMT+5:30	BDA20-690	Day1-FN	Dr.M.NEWLIN RAIKUMAR	ASSISTANT PROFESSOR	CSE	ANNA UNIVERSITY REGIONAL CAMPUS COIMBATORE ANJALAI AMMAL MAHALINGAM ENGINEERING COLLEGE	9952153334	Yes	Strongly agree	Strongly agree	Fully covered	5	GOOD SESSION
2020/07/27 12:09:45 PM GMT+5:30	BDA20-126	Day1-FN	Mrs.V. SIVASAKTHI	ASSISTANT PROFESSOR	INFORMATION TECHNOLOGY	Dr.B.C.Roy Engineering College,Durgapur	9790662227	Yes	Strongly agree	Strongly agree	Fully covered	5	Nil
2020/07/27 12:09:49 PM GMT+5:30	BDA20-881	Day1-FN	Uday Shankar	Student	IT		8936022448	Yes	Strongly agree	Agree	Moderately covered	4	Give some hands on material.
2020/07/27 12:09:50 PM GMT+5:30	BDA20748	Day1-FN	DEBRUPA PAL	ASSISTANT PROFESSOR	COMPUTER APPLICATION	NARULA INSTITUTE OF TECHNOLOGY	9830698155	Yes	Strongly agree	Strongly agree	Moderately covered	5	
2020/07/27 12:09:54 PM GMT+5:30	BDA20-330	Day1-FN	Dr.A.Arunkumar	Teaching Fellow	ECE	Anna University CEG campus	9710330234	Yes	Strongly agree	Strongly agree	Fully covered	5	More on Big data and Analytics could have been covered.
2020/07/27 12:10:04 PM GMT+5:30	BDA20-079	Day1-FN	Dr.B S CHARULATHA	Professor	CSE computer science and engineering technology Computer Science and Engineering	Rajalakshmi Engineering College	9884370124	Yes	Neutral	Agree	Moderately covered	3	
2020/07/27 12:10:13 PM GMT+5:30	BDA20-ID	Day1-FN	PUSPITA DASH	REAEASRCH SCHOLAR		Annamalai University	9843568303	Yes	Agree	Strongly agree	Fully covered	5	very good
2020/07/27 12:10:16 PM GMT+5:30	BDA20-710	Day1-FN	Pavithra M	Assistant Professor		Jansons Institute of Technology	7708295689	Yes	Strongly agree	Strongly agree	Fully covered	5	

2020/07/27 12:10:17 PM GMT+5:30	BDA20-ID	Day1-FN	ANJIT RAJA R	Assistant Professor	Information Technology	Dr. N.G.P ARTS AND SCIENCE COLLEGE	7299408979	Yes	Strongly agree	Strongly agree	Fully covered	4	No
2020/07/27 12:10:19 PM GMT+5:30	BDA20-891	Day1-FN	Dr.S Anu H Nair	Lecturer	Department of Computer Engineering	Dr.Dharmambal Govt. Polytechnic College for Women	9444796816	Yes	Strongly agree	Strongly agree	Fully covered	5	Nil
2020/07/27 12:10:23 PM GMT+5:30	BDA20-110	Day1-FN	B GURUNADHA RAO	ASSISTANT PROFESSOR	computer Science and Engineering Computers science and engineering P G	Sree Vidyunikethan Engineering College SRM TRP ENGINEERING COLLEGE	9676961558	NO	Strongly agree	Strongly agree	Fully covered	4	Informative
2020/07/27 12:10:55 PM GMT+5:30	BDA20-313	Day1-FN	JAIGANESH M	Assistant professor	Department of Computer Applications Computer Science and Engineering	Marian College Kuttikkanam Stella Mary's College of Engineering	9789796491	Yes	Strongly agree	Strongly agree	Fully covered	5	Every thing was good
2020/07/27 12:11:08 PM GMT+5:30	BDA20-501	Day1-FN	Win Mathew John	Associate Professor	Department of Computer Applications Computer Science and Engineering	Department of Computer Applications Computer Science and Engineering	9447573105	NO	Agree	Agree	Fully covered	5	Good Session
2020/07/27 12:11:28 PM GMT+5:30	9842399188	Day1-FN	Senthilkumar C.	Assistant Professor	Information Technology Department of Computer Science	Ilbra College Of Technology	96892230265	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:11:44 PM GMT+5:30	BDA20-799	Day1-FN	Robin Rohit	Lecturer	Computer Science	S.I.V.E.T. College, Chennai	9443519499	NO	Strongly agree	Strongly agree	Fully covered	5	Informative Session
2020/07/27 12:11:50 PM GMT+5:30	BDA20-159	Day1-FN	Soumya Das	Assistant Professor	CSE	DRIEMS ,TANGI,CUTTACK Bhavan's Bhagwandass Purohit Vidya	8895540273	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:11:59 PM GMT+5:30	BDA20-570	Day1-FN	Mr. Omprakash Suresh Wasnik	Physical Education Teacher	Physical Education Computer Science and Engineering	Mandir Srikrishna Nagar Nagpur Jansons Institute of Technology	9850849846	NO	Strongly agree	Strongly agree	Moderately covered	5	No
2020/07/27 12:12:03 PM GMT+5:30	BDA20-710	Day1-FN	Pavithra M	Assistant Professor	Engineering	Government polytechnic Nizamabad	7708295689	Yes	Strongly agree	Strongly agree	Fully covered	5	Provide ppts and recorded and videos sir
2020/07/27 12:12:10 PM GMT+5:30	BDA20-716	Day1-FN	R SriKanth	Faculty	Mechanical	Rajalakshmi Engineering College	8919490212	Yes	Agree	Agree	Moderately covered	5	
2020/07/27 12:12:20 PM GMT+5:30	BDA20-155	Day1-FN	Susmita Mishra	Assistant professor	CSE	Engineering College	9043273783	May be	Neutral	Agree	Moderately covered	4	-
2020/07/27 12:12:39 PM GMT+5:30	BDA20-327	Day1-FN	SURAJ DEELIPRAO KULKARNI	Assistant Professor	Electronics and Telecommunication Engineering	SHRI GURU GOBIND SINGHJI INSTITUTE OF ENGINEERING AND TECHNOLOGY, NANDED	9689274491	Yes	Strongly agree	Strongly agree	Fully covered	5	NA

2020/07/27 12:12:55 PM GMT+5:30	BDA20-288	Day1-FN	Gousiya Begum	Assistant Professor	Computer Science and Engineering Computer Science Engineering	Mahatma Gandhi Institute of Technology	7842098730	Yes	Strongly agree	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 12:13:01 PM GMT+5:30	BDA20-633	Day1-FN	Aarti	Assistant Professor	Science Engineering	Lovely Professional University	6280832287	NO	Agree	Agree	Agree	Moderately covered	3
2020/07/27 12:13:07 PM GMT+5:30	BDA20584	Day1-FN	Dr. K. RAMAKRISHNAN	Professor	Mathematics	Karpagam College of Engineering, Coimbatore	9994640697	Yes	Agree	Agree	Agree	Moderately covered	4
2020/07/27 12:13:09 PM GMT+5:30	BDA20-122	Day1-FN	Radha R	Associate professor	Computer science	Sdnb vaishnav college for women	9940094124	Yes	Strongly agree	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 12:13:12 PM GMT+5:30	BDA020-091	Day1-FN	SUGUNA.S	Assistant Professor	CSE COMPUTER SCIENCE AND ENGINEERING	MVJ College of Engineering SARANATHAN COLLEGE OF ENGINEERING	7402600209	Yes	Strongly agree	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 12:13:18 PM GMT+5:30	BDA20-028	Day1-FN	ARUN PRASAD P B	ASSISTANT PROFESSOR			9600717466	Yes	Strongly agree	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 12:13:31 PM GMT+5:30	BDA20-286	Day1-FN	Dr. K.PRABU	Associate Professor	Computer Science	Sudharsan College of Arts & Science, Pudukkottai - 622104	9843916940	Yes	Strongly agree	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 12:13:37 PM GMT+5:30	BDA20-101	Day1-FN	Dr. Kanimozhi Suguna S	Assistant Professor	Computer Science and Engineering	SASTRA Deemed University, Thanjavur	9941968423	Yes	Strongly agree	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 12:13:39 PM GMT+5:30	id is not yet received	Day1-FN	AJENSILA SMILE	ASSISTANT PROFESSOR	COMPUTER SCIENCE	SRI SARADA COLLEGE FOR WOMEN(AUTONOMOUS),SALEM-16	9442927172	Yes	Strongly agree	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 12:14:04 PM GMT+5:30	1	Day1-FN	P.Anitha	Assistant Professor	Information Technology	Hindusthan college of Engineering and Technology	9994643363	Yes	Strongly agree	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 12:14:05 PM GMT+5:30	BDA20-755	Day1-FN	Sartaj Ahmad	Asso. Professor	IT	KIET Group of Institutions	9582209390	Yes	Agree	Agree	Agree	Moderately covered	4
2020/07/27 12:14:10 PM GMT+5:30	BDA20-425	Day1-FN	Manjushri C Naik	Assistant Professor	Chemistry	Latthe Education Society, Sangli	8390096752	Yes	Strongly agree	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 12:14:10 PM GMT+5:30	BDA20-765	Day1-FN	S. L. Jany Shabu	Asst professor	CSE	Sathyabama Institute of science and Technology	9487526631	Yes	Strongly agree	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 12:14:47 PM GMT+5:30	BDA20-704	Day1-FN	Mr. Hemant Mahadev More	Assistant Professor	Mechanical Engineering Department	Lokmanya Tilak College of Engineering	9867363819	Yes	Strongly agree	Strongly agree	Strongly agree	Fully covered	5

THE PARTICIPANT ID IS NOT RECEIVED IN THE MAILID

2020/07/27 12:14:59 PM GMT+5:30	BDA20-286	Day1-FN	Dr. K.PRABU	Associate Professor	Computer Science	Sudharsan College of Arts & Science, Pudukkottai - Dr. KN Modi Institute Of Engineering & Technology Modinagar	9843916940	Yes	Strongly agree	Strongly agree	Fully covered	5	Good
2020/07/27 12:15:04 PM GMT+5:30	BDA20-544	Day1-FN	Birendra Kumar Chauhan	Associate Professor	Applied Science Computer Science and Engineering ELECTRICAL AND ELECTRONICS ENGINEERING	Ghaziabad UP Stella Mary's College of Engineering	9758324288	Yes	Strongly agree	Strongly agree	Fully covered	5	Session is very informative
2020/07/27 12:15:06 PM GMT+5:30	BDA20-893	Day1-FN	Senthilkumar C.	Assistant Professor	Engineering	Engineering	9842399188	Yes	Agree	Strongly agree	Fully covered	5	
2020/07/27 12:15:06 PM GMT+5:30	BDA20-224	Day1-FN	TAMILARASI R	LECTURER	Department of Mathematics	IRT POLYTECHNIC COLLEGE, CHENNAI	9444834721	Yes	Strongly agree	Strongly agree	Fully covered	5	NOTHING
2020/07/27 12:15:13 PM GMT+5:30	BDA20-697	Day1-FN	J. Sheeba Priyadharshini	Research Scholar	Department of Mathematics	Mother Teresa Women's University	9865173220	Yes	Agree	Agree	Fully covered	4	- Resource person have diversified experience.
2020/07/27 12:15:27 PM GMT+5:30	BDA20-054	Day1-FN	karthikeyan P	Assistant Professor	IT Computer science and engineering	Anjalai Ammal Mahalingam Engineering College	9894896180	Yes	Strongly agree	Strongly agree	Moderately covered	5	
2020/07/27 12:15:47 PM GMT+5:30	BDA20-072	Day1-FN	Nanthini N	Research scholar		Annamalai University	7010046106	Yes	Agree	Agree	Moderately covered	4	
2020/07/27 12:15:52 PM GMT+5:30	BDA20-184	Day1-FN	Ponnarasi S	ASSISTANT PROFESSOR	INFORMATION TECHNOLOGY Computer Science and Engineering	Anjalai Ammal Mahalingam Engineering College, Kovilvenni	9489845715	NO	Strongly agree	Strongly agree	Fully covered	5	NO
2020/07/27 12:16:04 PM GMT+5:30	BDA020-710	Day1-FN	Pavithra M	Assistant Professor	Science and Engineering	Jansons Institute of Technology Gokaraju Ranagaraju Institute of Engineering and Technology	7708295689	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:16:11 PM GMT+5:30	BDA20-328	Day1-FN	B.PADMA VIJETHA DEV	Assistant Professor	Computer Science and Engineering	Engineering and Technology	8106999514	Yes	Strongly agree	Strongly agree	Fully covered	5	Thank You
2020/07/27 12:16:16 PM GMT+5:30	BDA20-412	Day1-FN	Simi Neog	Assistant Professor	Commerce	B. P. Chaliha College, Nagarbera	7578887527	NO	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:17:01 PM GMT+5:30	BDA20-125	Day1-FN	Sathiya Jothi.J	Assistant Professor	Information Technology	Anjalai Ammal Mahalingam Engineering College S.I.V.E.T COLLEGE	9842617040	Yes	Strongly agree	Strongly agree	Fully covered	5	Very good session sir
2020/07/27 12:17:11 PM GMT+5:30	1234	Day1-FN	Harish.S	Student	Bsc(computer science)	GOWRIVAKKAM, CHENNAI-73	7418099470	Yes	Agree	Agree	Fully covered	3	Nice

2020/07/27 12:17:15 PM GMT+5:30	BDA20-125	Day1-FN	Sathiya Jothi.J	Assistant Professor	Information Technology	Anjalai Ammal Mahalingam Engineering College	9842617040	Yes	Strongly agree	Strongly agree	Fully covered	5	Very good session sir
2020/07/27 12:17:20 PM GMT+5:30	BDA20-766	Day1-FN	J. Refonaa	Asst professor	Cse	Sathyabama Institute of science and technology	9790422720	Yes	Strongly agree	Agree	Fully covered	4	Good
2020/07/27 12:17:40 PM GMT+5:30	BDA20-768	Day1-FN	S.DHAMODARAN	Assistant Professor	Computer science and Engineering Computers science and engineering	Sathyabama Institute of science and Technology SRM TRP ENGINEERING COLLEGE	9940364886	Yes	Strongly agree	Strongly agree	Moderately covered	5	Every thing was enough good
2020/07/27 12:17:48 PM GMT+5:30	BDA20-313	Day1-FN	JAIGANESH M	Assistant professor	Computer Science	Lady Doak College I. R. T. POLYTECHNIC COLLEGE, CHROMPET, CHENNAI	9789796491	Yes	Strongly agree	Strongly agree	Fully covered	5	Very Useful
2020/07/27 12:17:52 PM GMT+5:30	BDA20-	Day1-FN	Dr. N. Jayachandra	Associate Professor	MATHEMATICS	Delhi University	9976938424	Yes	Strongly agree	Strongly agree	Fully covered	5	Very useful and more informative session
2020/07/27 12:17:57 PM GMT+5:30	BDA20-211	Day1-FN	Dr. R. PALANIYAPPA	LECTURER	Department of Commerce	Delhi University	9444465477	Yes	Strongly agree	Strongly agree	Fully covered	5	good
2020/07/27 12:18:04 PM GMT+5:30	not received	Day1-FN	Dr. Parul Goel	Assistant Professor	Computer Engineering	Government Polytechnic College, Gandharvakottai A.D.J.DHARMAMBA L POLYTECHNIC COLLEGE, NAGAPATTINAM	9599097021	NO	Agree	Agree	Moderately covered	4	good
2020/07/27 12:18:29 PM GMT+5:30	BDA20-104	Day1-FN	S.ANBZAHAGAN	Lecturer	COMPUTER ENGINEERING	Government Polytechnic College, Gandharvakottai A.D.J.DHARMAMBA L POLYTECHNIC COLLEGE, NAGAPATTINAM	8110909518	Yes	Strongly agree	Strongly agree	Fully covered	5	NIL
2020/07/27 12:18:29 PM GMT+5:30	BDA20-682	Day1-FN	Ms.R.PRASANTHI@PUN ITHAVATHI , M.E.,	LECTURER (Sr. Gr.)	Information Technology	Government Polytechnic Nashik	9442085812	Yes	Strongly agree	Strongly agree	Fully covered	5	NICE SESSION
2020/07/27 12:18:29 PM GMT+5:30	BDA20-244	Day1-FN	Mohan Sudhakar Khedkar	Lecturer	CSE	Driems ,Tangi,Cuttack	7738013032	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:20:11 PM GMT+5:30	BDA20-159	Day1-FN	Soumya Das	Assistant Professor	Computer Science and Applications	Dr Harisingh Gour Vishwavidyalaya Sagar MP India Karmaveer Bhaurao Patil	8895540273	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:21:08 PM GMT+5:30	BDA20-134	Day1-FN	ABDUL ALIM	PhD. Scholar	Computer Science	Mahavida:aya(Aut onomous),Pandharp ur	9838170517	Yes	Strongly agree	Agree	Fully covered	5	No
2020/07/27 12:21:19 PM GMT+5:30	BDA-20-578	Day1-FN	Shahane S.P.	Assistant Professor	IT	Sri Venkateswara College of Engineering	7588892761	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:21:57 PM GMT+5:30	1	Day1-FN	Mr. K. Mohan	Instructor			9994174707	Yes	Strongly agree	Strongly agree	Fully covered	5	

2020/07/27 12:22:12 PM GMT+5:30	BDA 20-095	Day1-FN	NAVYA V K	ASSISTANT PROFESSOR	CSE	MVICE	9535571250	Yes	Strongly agree	Strongly agree	Fully covered	5	Nil
2020/07/27 12:23:06 PM GMT+5:30	BDA 20-439	Day1-FN	J. MACKLIN ABRAHAM NAVAMANI	Assistant Professor	Digital Sciences	Karunya Institute of Technology and Sciences	9865083014	Yes	Strongly agree	Strongly agree	Fully covered	5	Pl share PPT and recording of session for follow up
2020/07/27 12:23:48 PM GMT+5:30	jnmnm	Day1-FN	krishna rupendra singh	Asst professor	cse	VISAKHA INSTITUTE OF ENGINEERING & TECHNOLOGY	9494851978	NO	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:24:15 PM GMT+5:30	BDA 20-908	Day1-FN	Rengaraj alias Muralidharan	Assistant Professor	IT	Saranathan College of Engineering	9443529666	Yes	Strongly agree	Strongly agree	Fully covered	5	GOOD Kudos to organising committee
2020/07/27 12:25:26 PM GMT+5:30	BDA 20-909	Day1-FN	PRIYA V	Lecturer	Computer Engineering	IRT Polytechnic College-Chromepet	8220127823	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:25:41 PM GMT+5:30	BDA 20-289	Day1-FN	G. Jai Arul Jose	Associate Professor	Computer Science	St. John's College of Arts and Science IRT POLYTECHNIC	9443275341	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:27:03 PM GMT+5:30	BDA 20-863	Day1-FN	BABY T	SENIOR LECTURER	COMPUTER ENGINEERING	COLLEGE,TIRUNELVE LI	9751377667	Yes	Strongly agree	Strongly agree	Fully covered	5	Please send the PPT
2020/07/27 12:27:29 PM GMT+5:30	BDA 20-896	Day1-FN	Ms.Sangeethapriya J	Assistant Professor	Information Technology Msc	Saranathan College of Engineering	9443900909	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:27:33 PM GMT+5:30	BDA 20-868	Day1-FN	Ameer Afrith	Student	engineering Management	Arden university IRT POLYTECHNIC COLLEGE,	8110897387	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:28:22 PM GMT+5:30	BDA 20-866	Day1-FN	MANICKAVASAGAM P	LECTURER	COMPUTER ENGINEERING	TIRUNELVELI	9443867488	Yes	Strongly agree	Strongly agree	Fully covered	5	Useful Session
2020/07/27 12:28:29 PM GMT+5:30	BDA 20-895	Day1-FN	N.BHAVANI	Associate Professor	Information Technology	Saranathan College of Engineering	7598688891	Yes	Strongly agree	Strongly agree	Fully covered	5	Very informative
2020/07/27 12:28:55 PM GMT+5:30	BDA 20-867	Day1-FN	Jaya Shankari M	DW Developer	Information Technology	GAVS Technologies	6383226131	Yes	Strongly agree	Strongly agree	Fully covered	5	Great session, looking forward for more such informative sessions :)
2020/07/27 12:29:13 PM GMT+5:30	BDA 20-898	Day1-FN	P.Anand	Assistant Professor	Information Technology	Saranathan College of Engineering Indore Institute of Management and Research	9994820286	Yes	Strongly agree	Strongly agree	Fully covered	5	Nice
2020/07/27 12:30:04 PM GMT+5:30	BDA 20-363	Day1-FN	Dr Rakshita Puranik	Associate Professor	Management	St.Peters College of Engineering and Technology	9425312578	Yes	Strongly agree	Strongly agree	Fully covered	5	Valuable session
2020/07/27 12:31:21 PM GMT+5:30	BDA 20-772	Day1-FN	Dr. THARANI VIMAL	Professor	IT		9840929126	Yes	Strongly agree	Strongly agree	Fully covered	5	NIL

2020/07/27 12:31:23 PM GMT+5:30	BDA20-154	Day1-FN	MAMITHA S	Assistant Professor	MAMITHA S	Stella Mary's College of Engineering	9953733918	Yes	Strongly agree	Strongly agree	Fully covered	5	Good
2020/07/27 12:31:45 PM GMT+5:30	BDA-240	Day1-FN	Dr. P. KURINCHI	LECTURER-HOD(i/c)	COMPUTER ENGINEERING	Dr. Dharmambal Government Polytechnic College for Women	9840242989	May be	Agree	Agree	Moderately covered	4	GOOD
2020/07/27 12:35:04 PM GMT+5:30	BDA20-342	Day1-FN	KRISHNA RUPENDRA SINGH	ASST PROFESSOR	CSE	VISAKHA INSTITUTE OF ENGINEERING & TECHNOLOGY	9494851978	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:35:16 PM GMT+5:30	1038DA20-103	Day1-FN	VENKATRAJ S	Lecturer	Electrical and Electronics Engineering	137- Government Polytechnic College Gandharvakottai	6379645613	Yes	Strongly agree	Strongly agree	Fully covered	5	Outstanding Sir
2020/07/27 12:37:12 PM GMT+5:30	BDA20-873	Day1-FN	MARY JOSEPHINE CAROLINE.R	HOD/ECE	ELECTRONICS ANND COMMUNICATI ON ENGG	IRT POLYTECHNIC COLLEGE,CHROMEP ET,CHENNAI-44 SARANATHAN	9080315397	Yes	Strongly agree	Strongly agree	Fully covered	5	VERY INFORMATIVE. The speaker explained with practical examples very useful session.
2020/07/27 12:38:00 PM GMT+5:30	BDA20-897	Day1-FN	V.SENTHIL BALAJI	ASSISTANT PROFESSOR	INFORMATION TECHNOLOGY	COLLEGE OF ENGINEERING	9786602444	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:38:51 PM GMT+5:30	BDA20-323	Day1-FN	Lavanya Gottemukkala	Assistant Professor	Information Technology Department of Computer Applications	Gokaraju Rangaraju Institute of Engineering and Technology	7207306733	Yes	Agree	Agree	Moderately covered	5	Nice session
2020/07/27 12:40:02 PM GMT+5:30	M.Pravin Kumar	Day1-FN	M. Pravin Kumar	Assistant Professor	Computer Applications	Vasavi College of Engineering USHA PRAVIN GANDHI COLLEGE	9989306166	Yes	Strongly agree	Strongly agree	Fully covered	5	No Suggestions
2020/07/27 12:41:03 PM GMT+5:30	BDA20-138	Day1-FN	NEHA VORA	assistant professor	INFORMATION TECHNOLOGY	OF ARTS SCIENCE AND COMMERCE	9022787616	Yes	Strongly agree	Strongly agree	Fully covered	5	Very interesting and informative session
2020/07/27 12:42:01 PM GMT+5:30	BDA20-869	Day1-FN	Kannagi vellayam mal K	Lecturer	Computer engineering	IRT polytechnic college,Tirunelveli	9443969966	NO	Agree	Agree	Moderately covered	5	
2020/07/27 12:42:55 PM GMT+5:30	BDA20-582	Day1-FN	Mr.Devender kumar Dhaked	Assistant Professor	Computer Science and Engineering	Rajasthan College of Engineering For Women NARAYANA ENGINEERING COLLEGE,NELLORE	8209608996	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 12:5:28 PM GMT+5:30	BDA20-374	Day1-FN	AMBURU SUNIL KUMAR	ASSIATNT PROFESSOR	CSE		9494838495	May be	Strongly agree	Strongly agree	Fully covered	5	

2020/07/27 12:50:40 PM GMT+5:30	BDA20-722	Day1-FN	Dr. Deepa Yogesh Kamat	Assistant Professor of Statistics	Statistics ELECTRICAL AND ELECTRONICS ENGINEERING	Government Science College, Bangalore	9449153707	Yes	Strongly agree	Strongly agree	Fully covered	5	Well organised
2020/07/27 12:52:43 PM GMT+5:30	BDA20-248	Day1-FN	RAJAKUMARI A	LECTURER	COMPUTER ENGINEERING	IRT POLYTECHNIC COLLEGE	9445204146	Yes	Strongly agree	Strongly agree	Fully covered	5	INFORMATIVE SESSION
2020/07/27 12:55:42 PM GMT+5:30	BDA20-872	Day1-FN	SRIDHAR P	SENIOR LECTURER	COMPUTER ENGINEERING	IRT POLYTECHNIC COLLEGE, CHENNAI	9444300292	Yes	Strongly agree	Strongly agree	Fully covered	5	NIL
2020/07/27 1:01:43 PM GMT+5:30	BDA20-001	Day1-FN	R.SUDHA	ASSOCIATE PROFESSOR	COMPUTER APPLICATIONS	VASAVI COLLEGE OF ENGINEERING MVJ College of Engineering,	9491881658	Yes	Strongly agree	Strongly agree	Fully covered	5	VERY INFORMATIVE
2020/07/27 1:02:11 PM GMT+5:30	BDA20-107	Day1-FN	Tessy Rose R	Assistant Professor	CSE	Bangalore	9449382697	NO	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 1:05:29 PM GMT+5:30	BDA20-907	Day1-FN	MANOJ KUMAR V	Assistant Professor	Information Technology COMPUTER SCIENCE AND ENGINEERING	Saranathan college of Engineering STELLA MARY'S COLLEGE OF ENGINEERING	9600545357	Yes	Strongly agree	Strongly agree	Fully covered	5	Good
2020/07/27 1:12:20 PM GMT+5:30	BDA20-151	Day1-FN	DR A SELVA REEGAN	ASSISTANT PROFESSOR	COMPUTER SCIENCE AND ENGINEERING	SARANATHAN COLLEGE OF ENGINEERING	9486860213	Yes	Strongly agree	Agree	Fully covered	4	
2020/07/27 1:30:51 PM GMT+5:30	chandrasekaran -cse	Day1-FN	K S CHANDRASEKARAN	ASSOCIATE PROFESSOR	ENGINEERING	ENGINEERING	9942254580	Yes	Agree	Agree	Fully covered	5	GOOD The session was so informative and valuable.
2020/07/27 1:34:01 PM GMT+5:30	BDA20-920	Day1-FN	Balchandra Narsimalu Doddi	Asst. Prof.	MCA	Sinhgad Institute of Management	9922883385	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 1:36:43 PM GMT+5:30	BDA20-905	Day1-FN	Sheelavathi A	Assistant Professor	Information Technology	Saranathan College of Engineering	9524319922	Yes	Strongly agree	Strongly agree	Fully covered	5	Goof
2020/07/27 1:42:21 PM GMT+5:30	BDA20-321	Day1-FN	Selvaprabu	Research Scholar	CSE	BS ABDUR RAHMAN CRESCENT INSTITUTE SCIENCE AND TECHNOLOGY	9944884433	Yes	Agree	Agree	Fully covered	5	
2020/07/27 1:46:22 PM GMT+5:30	BDA20-364	Day1-FN	Dr Shefali	Professor	Management	Gujarati Institute Sri Venkateswara College of Engineering	9977280488	Yes	Agree	Agree	Fully covered	5	Nice
2020/07/27 1:49:30 PM GMT+5:30	BDA20-052	Day1-FN	Mr. K. Mohan	Instructor	IT	Engineering	9994174707	Yes	Strongly agree	Strongly agree	Fully covered	5	
2020/07/27 1:05:29 PM GMT+5:30	BDA20-906	Day1-FN	K.Muthukarpae	Assistant Professor	Information Technology	Saranathan college of Engineering	9600545357	Yes	Strongly agree	Strongly agree	Fully covered	5	Good
2020/07/27 1:10:56 PM GMT+5:30	309	Day1-FN	Vidyardhari Chalasani	Assistant professor	Information Technology	Gokaraju Rangaraju Institute of Engineering and Technology	9889069953	Yes	Strongly agree	Strongly agree	Fully covered	5	

2020/07/27 2:19:31 PM GMT+5:30	BDA20-778	Day1-FN	K Muruges	Assistant Professor	K Muruges	MVJ College of Engineering Guru Nanak Dev Institute of Technology Delhi	8147353307	Yes	Strongly agree	Strongly agree	Fully covered	5
2020/07/27 2:29:56 PM GMT+5:30	BDA20-790	Day1-FN	Harnamo Ram	Lecturer	DTTE Delhi	IRT POLYTECHNIC COLLEGE, BARGUR	9868569332	Yes	Strongly agree	Strongly agree	Fully covered	5 very informative
2020/07/27 2:30:06 PM GMT+5:30	BDA20-316	Day1-FN	M.MANICKAM	LECTURER	EEE	A.V.C.College of Engineering I R T	8667384998	Yes	Strongly agree	Strongly agree	Fully covered	5 Nice session
2020/07/27 2:33:14 PM GMT+5:30	BDA20-519	Day1-FN	Mr.S.SIVAKUMAR	Assistant Professor	MCA Electrical and Electronics Engineering	POLYTECHNIC,COLLEGE Greater Noida	8883233802	Yes	Strongly agree	Strongly agree	Moderately covered	5 Good
2020/07/27 2:44:53 PM GMT+5:30	BDA20-277	Day1-FN	S.D.GAYATHRI	LECTURER	Computer Science and Engineering	POLYTECHNIC,COLLEGE Greater Noida	9952722281	Yes	Strongly agree	Strongly agree	Fully covered	5 Informative session
2020/07/27 3:35:38 PM GMT+5:30	BDA20-029	21 Day1-FN	Dr Anuranjan Misra	Professor	Information Technology	Dr. N.G.P ARTS AND SCIENCE COLLEGE Institute of Management Studies	9.17679E+11	Yes	Strongly agree	Strongly agree	Fully covered	5 Its good
2020/07/27 3:48:39 PM GMT+5:30		Day1-FN	ANJIT RAJA R	Assistant Professor	Management		7299408979	Yes	Strongly agree	Strongly agree	Fully covered	5 No Very enlightening session
2020/07/27 4:02:26 PM GMT+5:30	BDA20-651	Day1-FN	Mrs. Muskan Wadhwani	Research Scholar			9039830050	Yes	Strongly agree	Strongly agree	Fully covered	5

SARANATHAN COLLEGE OF ENGINEERING



(Affiliated to Anna University-Chennai, Approved by AICTE-New Delhi)

Venkateshwara Nagar, Panjappur, Tiruchirapalli, Tamil Nadu, India.



E-Certificate

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<<college name>>,<<state>>

has successfully attended the AICTE sponsored One week online STTP I on
“**Big Data Analytics**” from **27th July 2020** to **1st Aug 2020** organised by the
Department of Information Technology, Saranathan College of Engineering,
Tiruchirapalli, Tamil Nadu, India.

R. Suresh

Coordinator & Head

Principal



SARANATHAN COLLEGE OF ENGINEERING

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E-Certificate

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<<designation>>

<<college name>>, <<state>>

has successfully attended the AICTE sponsored One week online STTP II on
“**Big Data Analytics**” from **03rd Aug 2020** to **08th Aug 2020** organised by the
Department of Information Technology, Saranathan College of Engineering,
Tiruchirappalli, Tamil Nadu, India.

R. Sumathi

Coordinator & Head
Dr. R. Sumathi

Dr. D. Valavan

Principal
Dr. D. Valavan

SARANATHAN COLLEGE OF ENGINEERING



(Affiliated to Anna University-Chennai, Approved by AICTE-New Delhi)
Venkateshwara Nagar, Panjappur, Tiruchirapalli, Tamil Nadu, India.



E-Certificate

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<<designation>>

<<college name>>,<<state>>

*has successfully attended the AICTE sponsored One week online STTP III on
“**Big Data Analytics**” from **16th Nov 2020** to **21st Nov 2020** organised by the
Department of Information Technology, Saranathan College of Engineering,
Tiruchirapalli, Tamil Nadu, India.*

R. Sumanth

Coordinator & Head

Principal

ABOUT THE COLLEGE

Saranathan College of Engineering was founded by "Vidya Seva Ratnam", "Guru Seva Mani" Auditor Sri. K. Santhanam in the year 1998. It was so named in respectful memory of his Guru Prof. Saranathan, the then Principal of National College, Tiruchirappalli. Saranathan College of Engineering is a self-financing college approved by AICTE and affiliated to Anna University, Chennai. Civil, CSE, EEE, ECE, IT, ICE and Mechanical Engineering departments are affiliated to Anna University, Chennai. All the eligible 6 UG branches are accredited by NBA, New Delhi. An acclaimed 'A+' grade by "NAAC" stand testimony to the commitment of the college to impart quality education.

ABOUT THE DEPARTMENT

The Department of Mechanical Engineering was started in the year 2005. The department offers an undergraduate programme B.E. Mechanical Engineering and a postgraduate programme M.E Thermal engineering. The department is accredited by NBA, New Delhi (since June 2018) in TIER II category. Also the department is a recognized research centre of Anna University, Chennai and it has state-of-the-art laboratories, CAD centre with advanced software, a department library, experienced and expert faculty members having doctoral degrees, outstanding research publications in peer reviewed International/National journals. The department's mission is to generate employable mechanical engineering graduates with knowledge, skills and ethics; provide them with the professional and soft skills necessary to lead a successful career and peaceful life and equip them with the confidence necessary to contribute to society by performing in their respective chosen fields of endeavour.

PROGRAMME EVALUATION COMMITTEE (PEC)

PATRON:

Shri.S.Ravindran
Secretary

CHAIRPERSON:

Dr. D.Valavan
Principal

CO-CHAIRPERSON:

Dr. G.Jayaprakash
Professor & Head, Mechanical Engineering.

COORDINATOR:

Dr. N.Baskar
Professor, Mechanical Engineering

PEC MEMBER

Dr.C.Krishnakumar
Professor & Head, Department of Electrical and Electronics Engineering.

CO-COORDINATORS:

Dr.A.MercyVasan
Associate Professor, Mechanical Engineering
Dr. R. Rekha
Associate Professor, Mechanical Engineering

CONVENERS:

Dr.M.R.AnanthaPadmanaban
Associate Professor, Mechanical Engineering
Dr.M.Ganesan
Associate Professor, Mechanical Engineering

ORGANIZERS:

Dr.G. Mahesh
Associate Professor, Mechanical Engineering
Mr.R.SureshBau
Assistant Professor, Mechanical Engineering
Mr.S.Sathyanarayanan
Assistant Professor, Mechanical Engineering

AICTE



Sponsored

One week Short Term Training program
on

**Rudiments and practices of
Computational Fluid Dynamics
in Thermo-fluid Analysis**

Phase I - 10.05.2021-15.05.2021

Phase II – 24.05.2021-29.05.2021



Organized by

Department of Mechanical Engineering
Accredited by NBA, New Delhi

**SARANATHAN COLLEGE OF
ENGINEERING**

(Approved by AICTE, New Delhi and
Affiliated to Anna University, Chennai)
(Accredited by NAAC with A+ Grade)

www.saranathan.ac.in

OBJECTIVES AND CONTEXT

- To provide a comprehensive training to engineers and researchers on application of CFD techniques over a broad range of applications like turbomachinery and multi-phase flows
- To familiarize the basic concepts, methods and mathematical equations controlling practical thermal and fluid flow phenomena
- To correlate theoretical and practical engineering usages of CFD through hands-on –training on various software packages
- To highlight the contemporary research trends in CFD and promote progressive research in product design and development

RELEVANCE

The short term training programme is essential in the current scenario to enable researchers and engineers to adopt CFD as a standard practice in industry and research. With simulation techniques becoming a vital part of design process in providing efficient solutions to thermal and fluid system design in lesser time, CFD has started playing a crucial role in product development cycle. The major obstacle in the growth of CFD from being a mere research tool to finding a deeper footage in real time applications in industries lack of fundamental knowledge and high level of expertise in coding and software usage.

RESOURCE PERSONS

Experts from IITs, NITs, Anna University, DRDO, IGCAR, Industry, etc.

EXPECTED OUTCOMES

This program will enable the faculty, practising engineers and researchers

- ✓ To solve fundamental equations relating to fluid flow and heat transfer problems
- ✓ To acquire software computing skills in CFD and interpret results to make design decisions
- ✓ To forecast implications of design changes and optimize a design based on CFD results towards quality product development to carry out virtual experimentation on complicated prototypes

TOPICS OF INTEREST

- Fundamental knowledge in theory and concepts of Computational Fluid Dynamics
- Hands on training on modern CFD software tools for solving Thermo-fluid problems.
- Industrial visits to understand the significance of CFD applications in solving real time industrial flow problems

COURSE DURATION

Each STTP is for a duration of 6 days and will be held online through Google meet. For the effectiveness of the program attendance on all the days is critical. Based on their convenience participants can choose to attend any one/ all of the phases of STTP listed.

REGISTRATION

The registration is based on first come first served basis. Google Meet link will be provided by E-Mail, to the selected participants only.

NO REGISTRATION FEE.

RegistrationLink :

<https://forms.gle/NFq498upV8vgsxVTA>



CONDUCT OF TEST AND ISSUANCE OF CERTIFICATE

All the participants have to appear for a test at end of the program. E-Certificate will be issued only to those participants who have attended the program on all the days and have qualified in the evaluation test.

IMPORTANT DATES

Last date of Receipt Application: 04-05-2021
(Google form)

Intimation to Selected Participants: 05-05-2021
(Mail)

ADDRESS FOR CORRESPONDENCE

Dr.G.Mahesh (+91 8610337854)

Associate Professor,
Department of Mechanical Engineering
Saranathan College of Engineering, Panjappur, Tiruchirappalli,
Tamil Nadu 620012.

email: saranathanmechdept@saranathan.ac.in



Saranathan College of Engineering
Trichy-12



Department of Mechanical Engineering

AICTE Sponsored one week Short Term Training Programme (STTP)
on

**Rudiments and Practices of Computational Fluid Dynamics in
Thermo Fluid Analysis**

Phase I - 10/05/2021 to 15/05/2021

The Department of Mechanical Engineering of Saranathan College of Engineering, Trichy organized a one week Short Term Training Programme (STTP) titled “**Rudiments and Practices of Computational Fluid Dynamics in Thermo Fluid Analysis**” in two phases. **Phase I** of the STTP was conducted from 10th May 2021 to 15th May 2021. This program was sponsored by AICTE, New Delhi. The programme began with the keynote address by Dr. S.Vengadesan, Professor, Department of Applied Mechanics, IIT Madras, Chennai, who emphasized the importance of adopting CFD in thermo fluid research and industrial practices. The training program was well structured with twenty-four technical sessions in which lectures were delivered by experts from eminent institutes like IITs, CEG (Anna University) etc. and practising CFD engineers and scientists from PSUs like BHEL (Trichy), IGCAR, Kalpakkam and other corporate units. A broad range of topics were covered during the sessions – topics ranging from fundamental concepts of Computational Fluid Dynamics to live demonstrations on applying CFD software tools in solving real time thermo fluid problems. The CFD team from FOSSEE, IIT Bombay gave a live demonstration on the capabilities of Open FOAM as free CFD software. The training program concluded with a valedictory address by Dr. S.M.Giriraj Kumar, HOD/ICE & Head (T&P), SCE, who gave a brief overview of the National Education Policy (NEP) and highlighted the salient features of the policy. The programme was well attended by academicians and researchers from all over Tamil Nadu and other neighbouring states and 59 participants received certificates.



SARANATHAN COLLEGE OF ENGINEERING
(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
(Accredited by NAAC with A+ Grade)
DEPARTMENT OF MECHANICAL ENGINEERING
(Accredited by NBA)



AICTE Sponsored One Week Short Term Training Programme on
Rudiments and Practices of Computational Fluid Dynamics in Thermo Fluid Analysis 03/05/2021
SCHEDULE OF TRAINING PROGRAMME-Phase I (10/05/21 to 15/05/21)

Day/ Session	SESSION-I (9.45 AM -11.15 AM)	SESSION-II (11.30 AM – 1.00 PM)		SESSION-III (2.00 PM – 03.30 PM)	SESSION-IV (3.45 PM – 5.15 PM)
10.05.21 MON	Prof. Dr. S. Vengadesan, Professor, Dept. of Applied Mechanics, IIT- Madras, Chennai <i>Inaugural Address and CFD- Basics and Governing Equations-Part I</i>	Prof. Dr. S. Vengadesan, Professor, Dept. of Applied Mechanics, IIT- Madras, Chennai <i>CFD- Basics and Governing Equations-Part II</i>		Dr. K. Arul Prakash, Professor , Dept.of Applied Mechanics, IIT- Madras, Chennai <i>Proposed topic: Finite Volume method –Part I</i>	Dr. K. Arul Prakash, Professor , Dept. of Applied Mechanics, IIT- Madras, Chennai <i>Proposed topic: Finite Volume method –Part II</i>
11.05.21 TUE	Dr.R.Sivakumar Professor & Dean, School of Mechanical Engineering, VIT-Chennai Campus <i>Proposed topic: Applications of CFD – An Overview</i>	Dr.P.R.Naren, Associate Professor, Dept. of Chemical Engineering, SCBT, SASTRA, Tanjore <i>Proposed topic: Building and Simulating CFD Models</i>	L U N C H	Dr. Kulasekharan Narasingamurthi, Specialist-Computational Fluid Dynamics, Simulation Metier-GEEDS, Valeo India Private Limited, Chennai <i>Proposed topics: 1. Design and Development of Compact Heat Exchangers 2. Gas Turbine Cooling System</i>	
12.05.21 WED	Dr.Prasad Patnaik BSV, Professor, Dept of Applied Mechanics, IIT- Madras, Chennai <i>Proposed Topic: Turbulent flows and Modelling</i>	Dr.K.Venkatasubbiah, Associate Professor, Department of Mechanical and Aerospace Engineering, IIT Hyderabad <i>Proposed topic: Computational Fluid Dynamics (CFD) and Heat transfer</i>	B R E A K	Dr.M.Ganesan, Associate Professor, Dept of Mech. Engineering, Saranathan College of Engineering, Trichy <i>Proposed Topic: Case Study on CFD Simulation</i>	Dr. G. Jayaprakash, Professor & Head, Dept of Mech. Engineering, Saranathan College of Engineering, Trichy <i>Proposed topic: CFD- Application Problems using ANSYS CFX</i>

Day/ Session	SESSION-I (9.45 A.M -11.15P.M)	SESSION-II (11.30 A.M – 1.00P.M)		SESSION-III (2.00 PM – 03.30 PM)	SESSION-IV (3.45 PM – 5.15 PM)
13.05.21 THU	Dr. Pallab Sinha Mahapatra, Assistant Professor, Department of Mechanical Engineering, IIT- Madras, Chennai <i>Proposed topic: Multiphase Flow heat transfer</i>			Dr.P.Harish, Asst.Professor, Dept. of Mechanical Engineering IIT Jammu,J&K <i>Proposed topic: CFD Modeling of Boiling heat Transfer</i>	Dr. N. Baskar, Professor, Dept of Mech. Engineering, Saranathan College of Engineering, Trichy <i>Proposed topic: Optimization of Finite Element Equations in Heat Transfer Problems</i>
14.05.21 FRI	Prof. Janani Srree FOSSEE IIT Bombay <i>Proposed topic: CFD- OpenFOAM</i>	Mr. Ashley Melvin and Mr. Divyesh Variya CFD Members, FOSSEE IIT Bombay <i>Proposed topic: Software Demo on CFD problems in Open FOAM</i>	L U N C H B R E A K	Prof. Dr. G. Kumaresan, Associate Professor, Institute of Energy Studies,CEG, Anna University, Chennai <i>Proposed topic: CFD Analysis of Thermal System Components</i>	Dr. A. Mercy Vasan, Associate Professor, Dept of Mech. Engineering, Saranathan College of Engineering, Trichy <i>Proposed topic: Challenges in applying CFD techniques to solve real time problems in CFB boilers</i>
15.05.21 SAT	Dr R.Elankovan, DGM(Commercial/Fossil Boilers) B.H.E.L, Trichy <i>Proposed topic :Grid Generation and Case studies on applications of CFD</i>			Dr. N. L. Parthasarathi, Scientific Officer, Metal Forming and Tribology Section, IGCAR , Kalpakkam <i>Proposed topic: Nano materials and coatings in industrial applications: A tribology perspective</i>	Dr.S.M.Giriraj Kumar, Professor& Head, Dept of ICE & Head(T&P), Saranathan College of Engineering, Trichy <i>Talk on National Education Poilcy(NEP) and Valediction</i>

Certification test on 15.5.2021 at 3.45PM

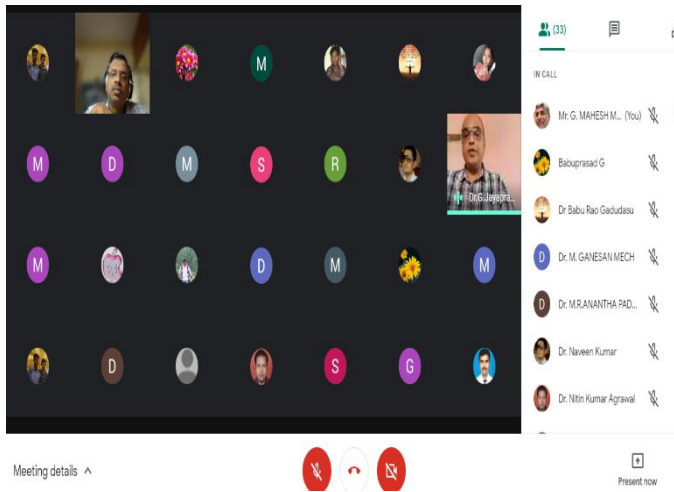
Coordinator

DAY 1: 10/05/2021

SESSION 1:

Inauguration & CFD- Basics and Governing Equations-Part I

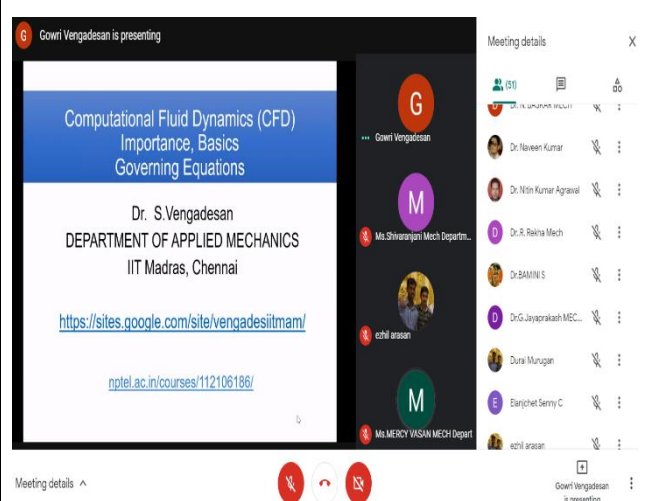
Prof. Dr. S. Vengadesan,
Professor,
Dept. of Applied Mechanics,
IIT- Madras, Chennai.



SESSION 2:

CFD- Basics and Governing Equations-Part II

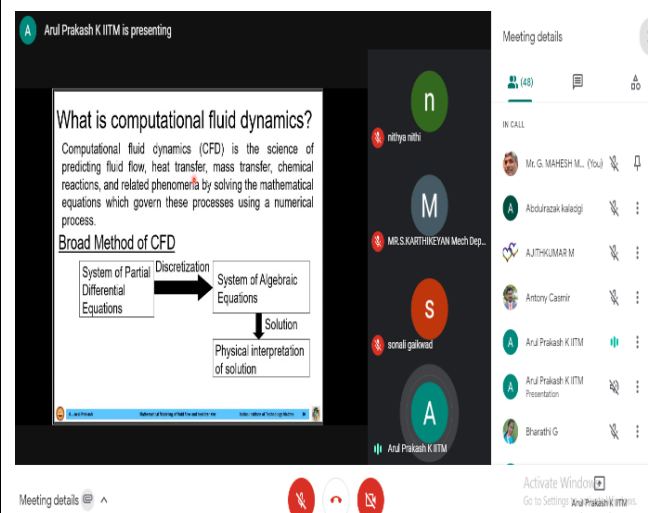
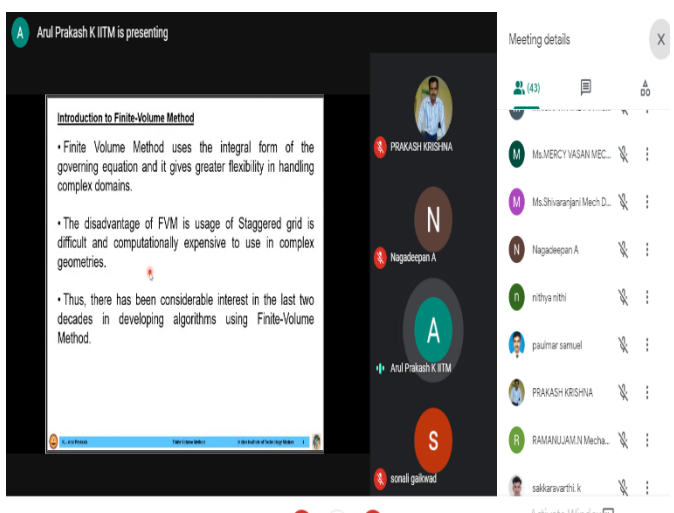
Prof. Dr. S. Vengadesan,
Professor,
Dept. of Applied Mechanics,
IIT- Madras, Chennai.



SESSION 3 & 4:

Finite Volume method

Dr. K. Arul Prakash,
Professor,
Dept. of Applied Mechanics,
IIT- Madras, Chennai



DAY 2: 11/05/2021

SESSION 1:
Applications of CFD – An Overview

Dr.R.Sivakumar
Professor & Dean,
School of Mechanical
Engineering,
VIT-Chennai Campus

SESSION 2:

Building and Simulating CFD Models

Dr.P.R.Naren,
Associate Professor,
Dept. of Chemical
Engineering,
SCBT, SASTRA, Tanjore

SESSION 3 & 4:

1. Design and Development of Compact Heat Exchangers
2. Gas Turbine Cooling System

Dr. Kulasekharan Narasingamurthi,
Specialist-Computational Fluid Dynamics, Simulation
Metier-GEEDES, Valeo India Private Limited, Chennai.

DAY 3: 12/05/2021

SESSION 1:

Proposed Topic: Turbulent flows and Modelling

Dr. Prasad Patnaik BSV,

Professor,

**Dept of Applied Mechanics,
IIT- Madras, Chennai**

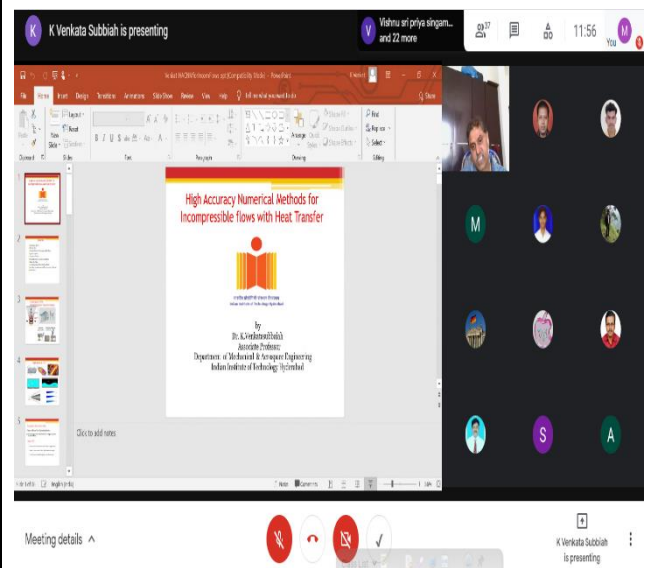
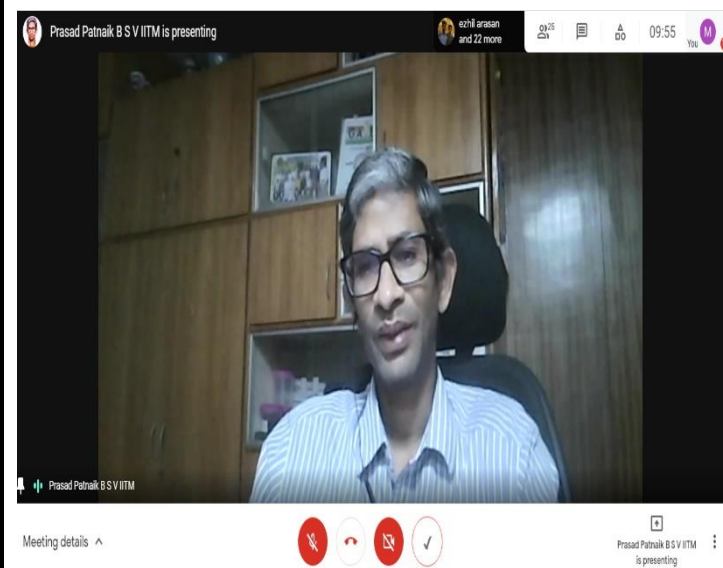
SESSION 2:

**Computational Fluid Dynamics (CFD) and
Heat transfer**

Dr. K. Venkatasubbiah,

Associate Professor,

**Department of Mechanical and Aerospace
Engineering,
IIT Hyderabad**



SESSION 3:

Case Study on CFD Simulation

Dr. M. Ganesan,

Associate Professor,

**Dept of Mech. Engineering,
Saranathan College of Engineering, Trichy**

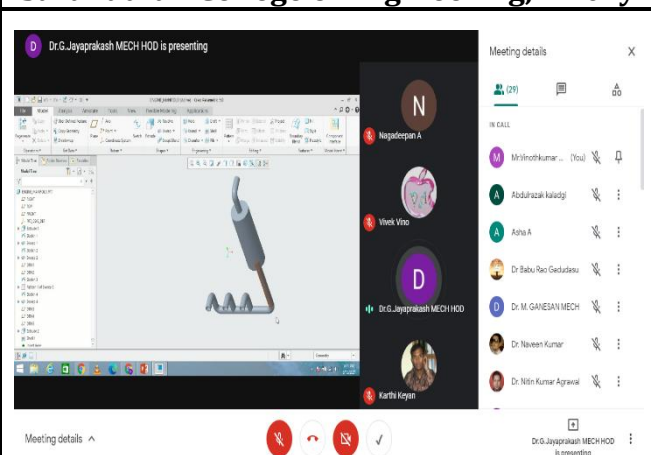
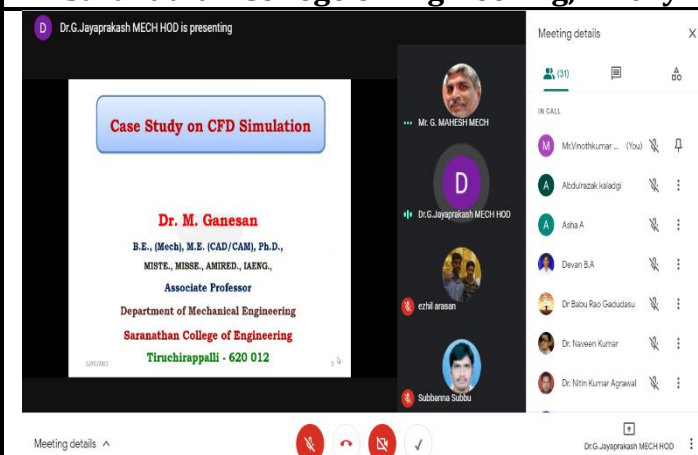
SESSION 4:

CFD Application Problems using ANSYS CFX

Dr. G. Jayaprakash,

Professor & Head,

**Dept of Mech. Engineering,
Saranathan College of Engineering, Trichy**

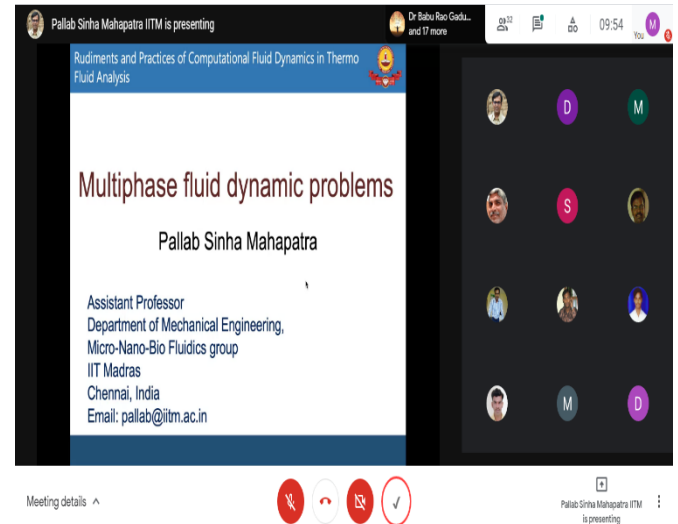
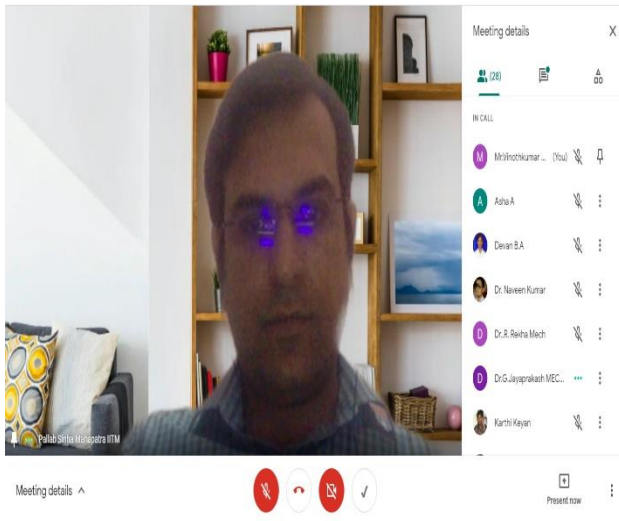


DAY 4: 13/05/2021

SESSION 1&2:

Multiphase Flow heat transfer

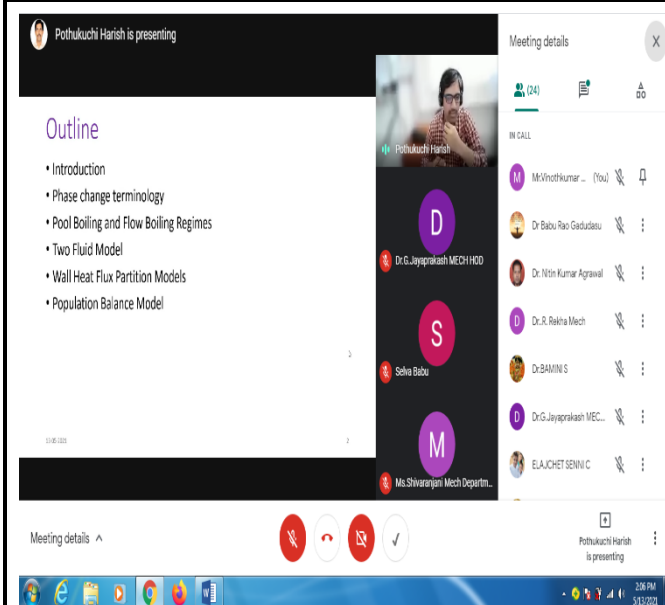
Dr. Pallab Sinha Mahapatra,
Assistant Professor,
Department of Mechanical Engineering,
IIT- Madras, Chennai



SESSION 3:

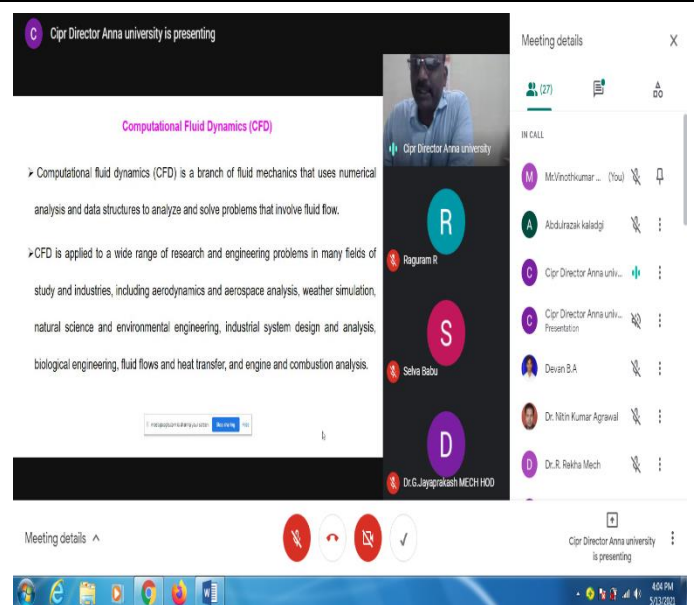
CFD Modeling of Boiling Heat Transfer

Dr.P.Harish,
Asst.Professor,
Dept. of Mechanical Engineering
IIT Jammu,J&K



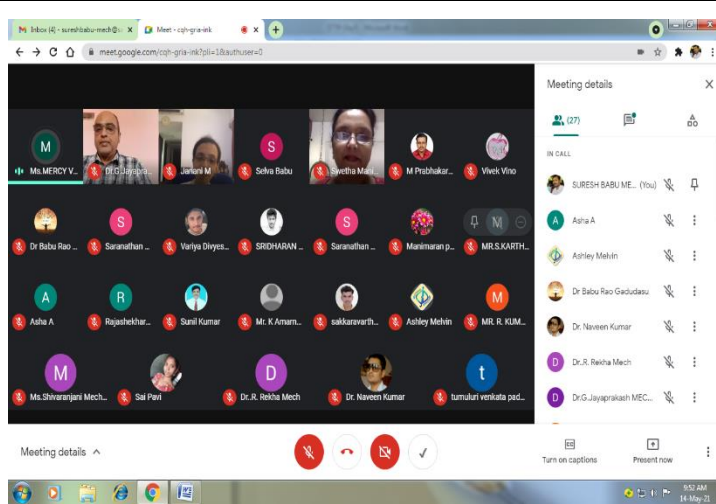
SESSION 4:

Research Patenting
Dr. M. Kantha Babu,
Director, CIPR, and Professor,
Dept. of Manufacturing Engineering, CEG,
Anna University, Chennai.

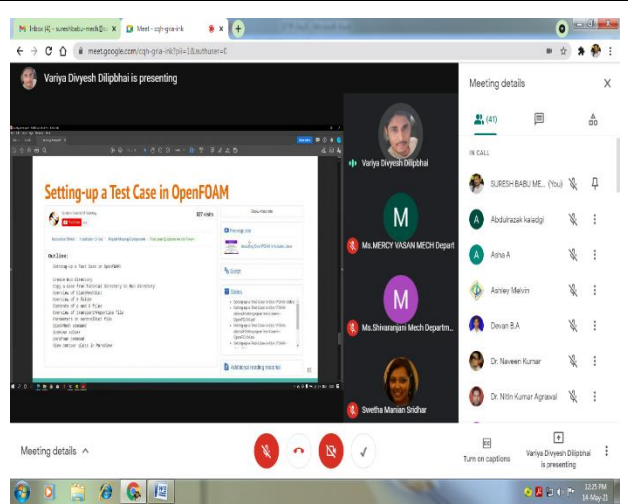


DAY 5: 14/05/2021

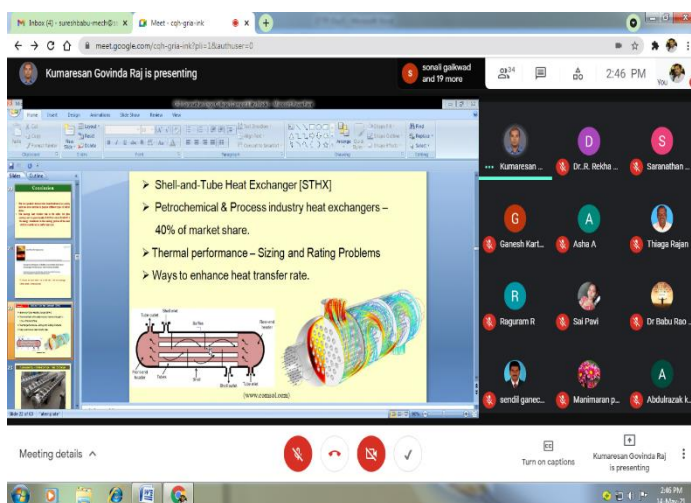
SESSION 1:
CFD – Open FOAM
Prof Janani Srree,
FOSSEE,
IIT Bombay



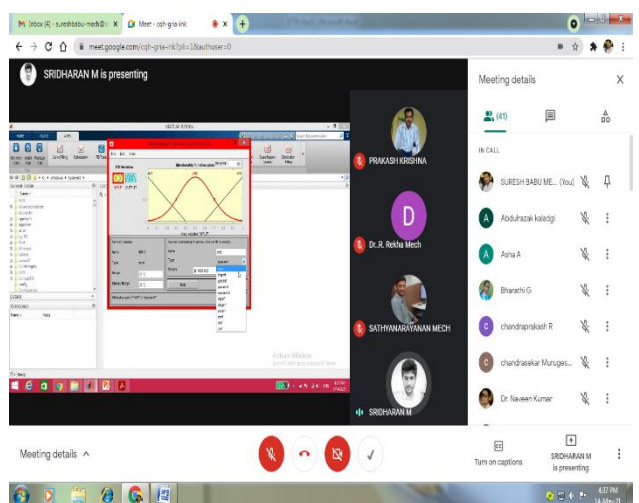
SESSION 2:
Software Demo on CFD problems in open FOAM
Mr. Ashley Melvin and Mr. Divyesh Variya,
CFD Members,
FOSSEE,
IIT Bombay.



SESSION 3:
CFD Analysis of Thermal System Components.
Prof. Dr. G.Kumaresan,
Associate Professor,
Institute of Energy Studies,
CEG,
Anna University,
Chennai



SESSION 4:
Applications of Fuzzy Logic Expert Systems in the Field of Thermo-Fluidics.
Dr. M.Sridharan,
Associate Professor,
Dept of Mech. Engineering,
K.Ramakrishnan College of Engineering,
Trichy



DAY 6: 15/05/2021

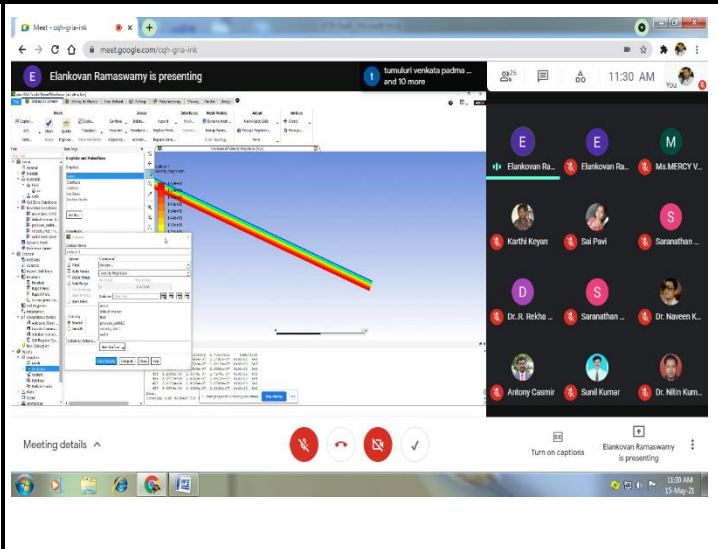
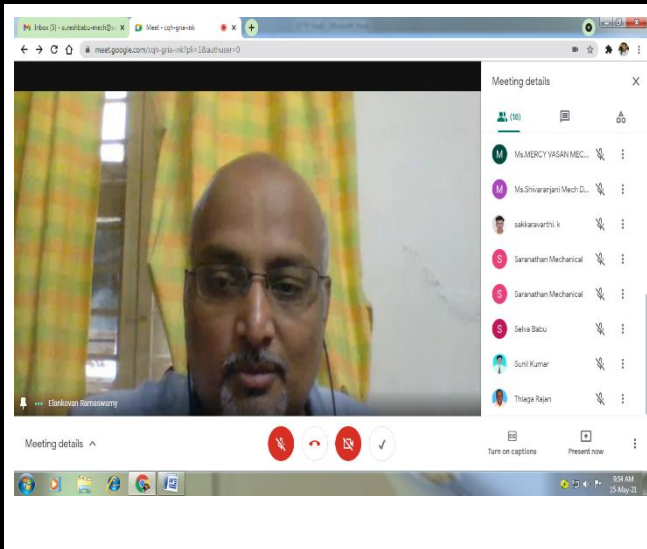
SESSION 1& 2:

Grid Generation and Case studies on applications of CFD

Dr.R.Elangovan,

DGM (Commercial/Fossil Boilers),

B.H.E.L., Trichy



SESSION 3:

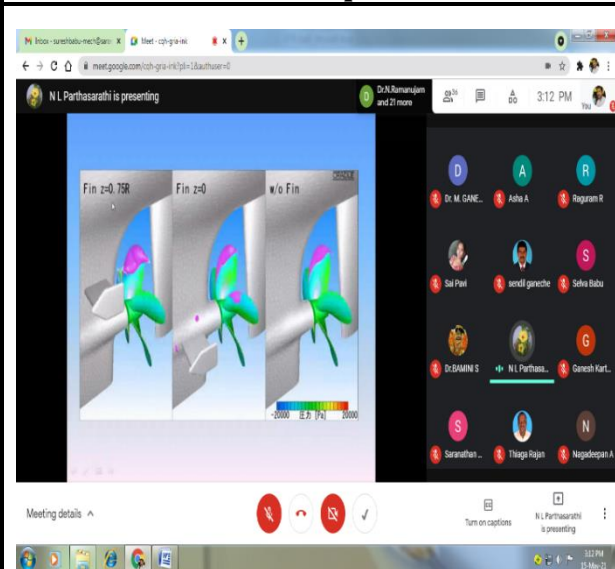
Nano materials and coatings in industrial applications : A tribology perspective

Dr. N.L.Parthasarathi,

Scientific Officer,

Metal Forming and Tribology Section,

IGCAR,Kalpakkam.



SESSION 4:

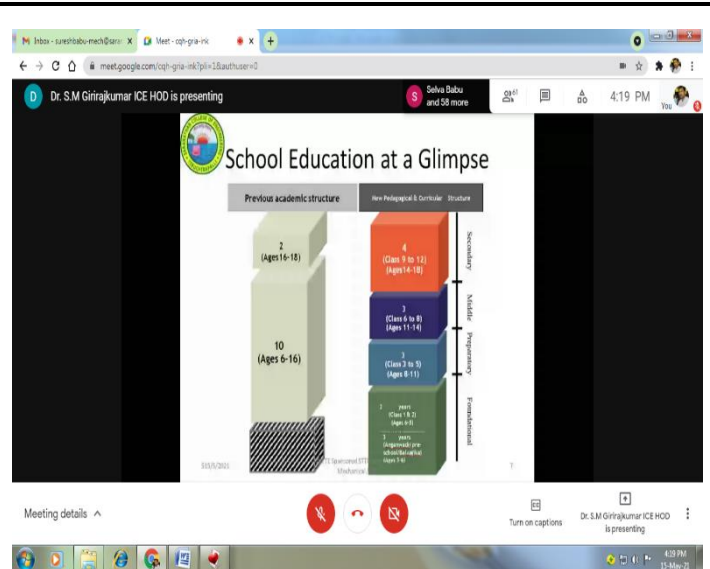
Talk on National Education Policy (NEP).

Dr. S.M.Giriraj Kumar,,

Professor & Head,

Dept of ICE & Head (T & P),

Saranathan College of Engineering, Trichy



ABOUT THE COLLEGE

Saranathan College of Engineering was founded in the year 1998 by "VidyaSevaRatnam", "Guru Seva Mani" Auditor Sri. K. Santhanam. The institution was so named in respectful memory of his Guru Prof. Saranathan, the then Principal of National College, Tiruchirappalli. Saranathan College of Engineering is a self-financing college approved by AICTE and affiliated to Anna University, Chennai for the UG courses it offers(Civil, CSE, EEE, ECE, IT, ICE and Mechanical Engineering). All the six (6) eligible UG branches are accredited by NBA, New Delhi. An enviable 'A+' rating by "NAAC" stands testimony to the commitment of the college to impart quality education.

ABOUT THE DEPARTMENT

The Department of Mechanical Engineering was started in the year 2005. The department offers an undergraduate programme B.E. in Mechanical Engineering and a postgraduate programme M.E. in Thermal Engineering. The department is accredited by NBA, New Delhi, since June 2018. The department is also a recognized research centre under Anna University, Chennai. The department has all of the following: state-of-the-art laboratories, CAD centre with advanced software, a department library, experienced and expert faculty members having doctoral degrees, outstanding research publications in peer reviewed International/National journals. The department's mission is to generate employable mechanical engineering graduates with knowledge, skills and ethics and provide them with the professional and soft skills necessary to lead a successful career and equip them with the confidence necessary to contribute positively to the society by performing in their respective chosen fields of endeavour.

PROGRAMME EVALUATION COMMITTEE (PEC)

PATRON:

Shri. S. Ravindran
Secretary

CHAIRPERSON:

Dr. D. Valavan
Principal

CO-CHAIRPERSON:

Dr. G. Jayaprakash
Professor & Head, Mechanical Engineering.

COORDINATOR:

Dr. N. Baskar
Professor, Mechanical Engineering

PEC MEMBER

Dr. C. Krishnakumar
Professor & Head, Department of Electrical and Electronics Engineering.

CO-COORDINATORS:

Dr. A. Mercy Vasan
Associate Professor, Mechanical Engineering
Dr. R. Rekha
Associate Professor, Mechanical Engineering

CONVENERS:

Dr. M. R. Anantha Padmanaban
Associate Professor, Mechanical Engineering
Dr. M. Ganesan
Associate Professor, Mechanical Engineering

ORGANIZERS:

Dr. G. Mahesh
Associate Professor, Mechanical Engineering
Mr. R. Suresh Babu
Assistant Professor, Mechanical Engineering
Mr. S. Sathyanarayanan
Assistant Professor, Mechanical Engineering

AICTE



Sponsored

**One-week Short Term Training Program
on**

***Rudiments and practices of
Computational Fluid Dynamics
in Thermo-fluid Analysis***

Phase I - 10.05.2021-15.05.2021

Phase II – 24.05.2021-29.05.2021



Organized by

**Department of Mechanical Engineering
Accredited by NBA, New Delhi**

**SARANATHAN COLLEGE OF
ENGINEERING**

**(Approved by AICTE, New Delhi and
Affiliated to Anna University, Chennai)
(Accredited by NAAC with A+ Grade)**

www.saranathan.ac.in

OBJECTIVES AND CONTEXT

- To provide a comprehensive training to engineers and researchers on application of CFD techniques over a broad range of applications like turbomachinery and multi-phase flows
- To familiarize the basic concepts, methods and mathematical equations controlling practical thermal and fluid flow phenomena
- To correlate theoretical and practical engineering usages of CFD through hands-on –training on various software packages
- To highlight the contemporary research trends in CFD and promote progressive research in product design and development

RELEVANCE

The short-term training programme is essential in the current scenario to facilitate researchers and engineers to adopt CFD as a standard practice in industry and research. With simulation techniques becoming a vital part of the design process in providing within the time constraints efficient solutions to thermal and fluid system, CFD has started playing a crucial role in product development cycle. The major obstacle, to the evolving of CFD from the stage of being a mere research tool to the stage of being used for real time applications in industries, is the lack of fundamental knowledge and high level of expertise in coding and software usage. This program aims to bridge that gap.

RESOURCE PERSONS

Experts from IITs, NITs, Anna University, DRDO, IGCAR, Industry, etc.

EXPECTED OUTCOMES

This program will enable the faculty, practising engineers and researchers

- ✓ To solve fundamental equations relating to fluid flow and heat transfer problems
- ✓ To acquire software computing skills in CFD and interpret results to make design decisions
- ✓ To forecast implications of design changes and optimize a design, based on CFD results, with an aim to create quality product development and to carry out virtual experimentation on complicated prototypes

TOPICS OF INTEREST

- Fundamental knowledge in theory and concepts of Computational Fluid Dynamics
- Hands on training on modern CFD software tools for solving Thermo-fluid problems
- Industrial visits to understand the significance of CFD applications in solving real time industrial flow problems

EXPECTED SKILLS AND SUGGESTED FURTHER ACTIONS

- Fundamental knowledge in theory and concepts of Computational Fluid Dynamics
- Industrial visits to understand the significance of CFD applications in solving real time industrial flow problems

COURSE DURATION

Each STTP is for a duration of 6 days and will be held online through Google meet. For an effective utilization of the program and to become eligible for the e-certificate attendance on all the days is important. Based on their convenience participants can choose to attend any one of the phases of STTP listed.

REGISTRATION

Registration is based on first come first served basis. Google Meet link will be provided by E-Mail, to the selected participants only.

NO REGISTRATION FEE.

Registration Link :

<https://forms.gle/NFg498upV8vgsxVTA>



CONDUCT OF TEST AND ISSUANCE OF CERTIFICATE

All the participants have to appear for a test at end of the program. E-Certificates will be issued only to those participants who have attended the program on all the days and have qualified in the evaluation test.

IMPORTANT DATES

Last date of Receipt Application: 04-05-2021
(Google form)

Intimation to Selected Participants: 05-05-2021
(Mail)

ADDRESS FOR CORRESPONDENCE

Dr.G.Mahesh (+91 8610337854)

Associate Professor,
Department of Mechanical Engineering
Saranathan College of Engineering, Panjappur, Tiruchirappalli,
Tamil Nadu 620012.

email:saranathanmechdept@gmail.com



Saranathan College of Engineering
Trichy-12



Department of Mechanical Engineering

AICTE Sponsored one week Short Term Training Programme (STTP)
on

**Rudiments and Practices of Computational Fluid Dynamics in
Thermo Fluid Analysis**

Phase II - 24/05/2021 to 29/05/2021

The Department of Mechanical Engineering of Saranathan College of Engineering, Trichy organized a one week Short Term Training Programme (STTP) titled “**Rudiments and Practices of Computational Fluid Dynamics in Thermo Fluid Analysis**” in two phases. **Phase II** of the STTP was conducted from 24th May 2021 to 29th May 2021. This program was sponsored by AICTE, New Delhi. The programme began with the keynote address by Dr. Sudhakar Yogaraj, Assistant Professor, Department of Mechanical Engineering, IIT Goa, who gave a broad perspective of Computational Fluid Dynamics and its relevance in solving real time thermo fluid. The training program was well structured with twenty-four technical sessions in which lectures were delivered by experts from eminent institutes like IITs, CEG (Anna University) etc. and practising CFD engineers and scientists from PSUs like BHEL (Trichy), IGCAR, Kalpakkam and other corporate units. A broad range of topics were covered during the sessions – topics ranging from fundamental concepts of Computational Fluid Dynamics to live demonstrations on applying CFD software tools in solving real time thermo fluid problems. The training program concluded with a valedictory address by Dr. S.M.Giriraj Kumar, HOD/ICE & Head (T&P), SCE, who gave a brief overview of the National Education Policy (NEP) and highlighted the salient features of the policy. The programme was well attended by academicians and researchers from all over Tamil Nadu and other neighbouring states and 41 attendees received certificates.



SARANATHAN COLLEGE OF ENGINEERING
 (Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
 (Accredited by NAAC with A+ Grade)
DEPARTMENT OF MECHANICAL ENGINEERING
 (Accredited by NBA)



AICTE Sponsored One Week Short Term Training Programme on
 Rudiments and Practices of Computational Fluid Dynamics in Thermo Fluid Analysis
SCHEDULE OF TRAINING PROGRAMME-Phase II
 (24/05/21 to 29/05/21)

20.05.2021

Day/ Session	SESSION-I (9.45 A.M -11.15 A.M)	SESSION-II (11.30 A.M – 1.00 P.M)	L U N C H B R E A K	SESSION-III (2.00 P.M – 03.30 P.M)	SESSION-IV (3.45 P.M – 5.15 P.M)
24.05.21 MON	Dr.Sudhakar Yogaraj, Assistant Professor, Dept. of Mechanical Engineering, IIT, Goa. <i>Inaugural address and CFD- Basics and Governing Equations-Part I.</i>	Dr.Sudhakar Yogaraj, Assistant Professor, Dept. of Mechanical Engineering, IIT, Goa. <i>Proposed topic: CFD- Basics and Governing Equations -Part II.</i>		Dr. K. Arul Prakash, Professor, Dept. of Applied Mechanics, IIT- Madras, Chennai. <i>Proposed topic: Finite Volume method –Part I.</i>	Dr. K. Arul Prakash, Professor, Dept. of Applied Mechanics, IIT- Madras, Chennai. <i>Proposed topic: Finite Volume method –Part II.</i>
25.05.21 TUE	Dr. R. Shivakumar, Professor & Dean, School of Mechanical Engineering, VIT-Chennai Campus. <i>Proposed topic: Applications of CFD- An Overview</i>	Dr.P.R.Naren, Associate Professor, Dept Of Chemical Engineering, SCBT, SASTRA, Tanjore. <i>Proposed topic: Reynolds-Averaged Navier-Stokes (RANS) Model Approach for Fluid Flow.</i>		Dr. Pallab Sinha Mahapatra, Assistant Professor, Department of Mechanical Engineering, IIT- Madras, Chennai. <i>Proposed topic: Multiphase Flow Modeling.</i>	
26.05.21 WED	Dr.S.Vengadesan, Professor, Dept.of Applied Mechanics, IIT- Madras, Chennai. <i>Proposed topic: Turbulent flow Modeling</i>			Dr.Kamatchi Sankaranarayanan, Assistant Professor-II (Biophysics), IASST, Autonomous Institute of DST, (Govt.of India), Guwahati, Assam. <i>Proposed topic: Multi-tasking Ionic Liquids - From protein stability to Nanomaterial Synthesis.</i>	Dr. M. Kantha Babu, Director, CIPR, and Professor, Dept. of Manufacturing Engineering, CEG, Anna University, Chennai. <i>Proposed topic: Research Patenting.</i>

Day/ Session	SESSION-I (9.45 A.M -11.15 A.M)	SESSION-II (11.30 A.M – 1.00 P.M)		SESSION-III (2.00 P.M – 03.30 P.M)	SESSION-IV (3.45 P.M – 5.15 P.M)	
27.05.21 THU	Dr. Kulasekharan Narasingamurthi, Specialist-Computational Fluid Dynamics, Simulation Metier-GEEDS, Valeo India Private Limited, Chennai. Proposed topics: 1. Design and Development of Compact Heat Exchangers 2. Gas Turbine Cooling System		L U N C H	Dr.M.Ganesan, Associate Professor, Dept of Mech. Engineering, Saranathan College of Engineering, Trichy. Proposed Topic: Fluid Flow Analysis using ANSYS-CFX	Dr. G. Jayaprakash, Professor & Head, Dept of Mech. Engineering, Saranathan College of Engineering, Trichy. Proposed topic: Fluid solid interaction (FSI) analysis in CFX.	
28.05.21 FRI	Dr Vivek Vittankar Founder & Director of FluidDimensions, Pune. Proposed topic: CFD Application: Software Demo	Dr.P.Harish Assistant professor, Dept. of Mechanical Engineering, IIT Jammu, J& K. Proposed topic: Modelling of boiling heat transfer	B R E A K	Dr.K.Murugesan, Professor, Dept.of Mechanical and Industrial Engineering, IIT, Roorkee. Proposed topic: Computational Fluid Dynamics using Nanofluids by Velocity- Vorticity Equations.	Prof. Dr. G. Kumaresan, Associate Professor, Institute of Energy Studies, CEG, Anna University, Chennai. Proposed topic: CFD Analysis of Thermal System Components.	
29.05.21 SAT	Dr.R.Elankovan, DGM(Commercial/Fossil Boilers), B.H.E.L, Trichy. Proposed topic: Grid Generation and Case studies on applications of CFD.			Dr. N. L. Parthasarathi, Scientific Officer, Metal Forming and Tribology Section, IGCAR , Kalpakkam. Proposed topic: Application of CFD- A power plant perspective.	Dr.S.M.Giriraj Kumar, Professor& Head, Dept. of ICE & Head(T&P), Saranathan College of Engineering, Trichy. Valediction and talk on National Education Poilcy(NEP)	Certification Test & Feedback

Certification test on 29/05/2021 at 4.45 p.m.

Coordinator

DAY 1: 24/05/2021

SESSION 1:

***Inaugural address and
CFD- Basics and Governing Equations-Part I.***

Dr.Sudhakar Yogaraj,
Assistant Professor,
Dept. of Mechanical Engineering,
IIT, Goa.

SESSION 2:

CFD- Basics and Governing Equations -Part II.

Dr.Sudhakar Yogaraj,
Assistant Professor,
Dept. of Mechanical Engineering,
IIT, Goa.

SESSION 3 & 4:

Finite Volume method

Dr. K. Arul Prakash,
Professor,
Dept. of Applied Mechanics,
IIT- Madras, Chennai.

DAY 3: 26/05/2021

SESSION 1&2

Turbulent flow Modeling

Dr.S.Vengadesan,

Professor,

**Dept.of Applied Mechanics,
IIT- Madras, Chennai.**

SESSION:3

Multi-tasking Ionic Liquids - From protein stability to Nanomaterial Synthesis.

Dr.Kamatchi Sankaranarayanan,

**Assistant Professor-II (Biophysics), IASST,
Autonomous Institute of DST, (Govt.of India),
Guwahati, Assam.**

SESSION:4

Research Patenting.

Dr. M. Kantha Babu,

**Director, CIPR, and Professor,
Dept. of Manufacturing Engineering, CEG,
Anna University, Chennai.**

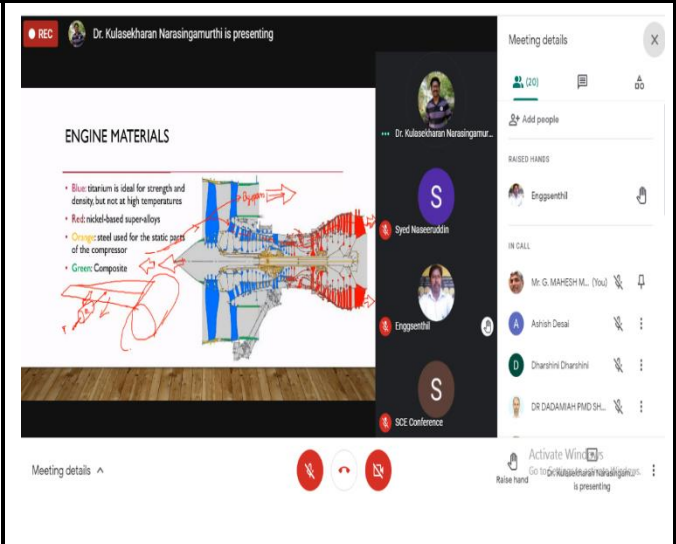
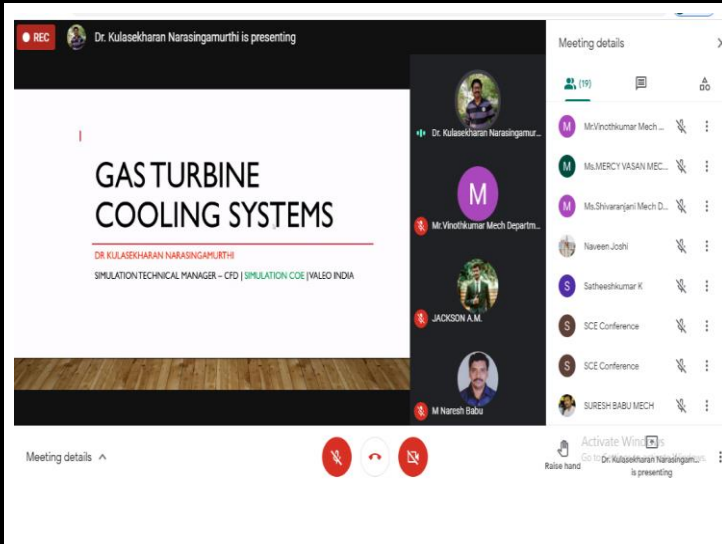
DAY 4: 27/05/2021

SESSION: 1&2

1. Design and Development of Compact Heat Exchangers

2. Gas Turbine Cooling System

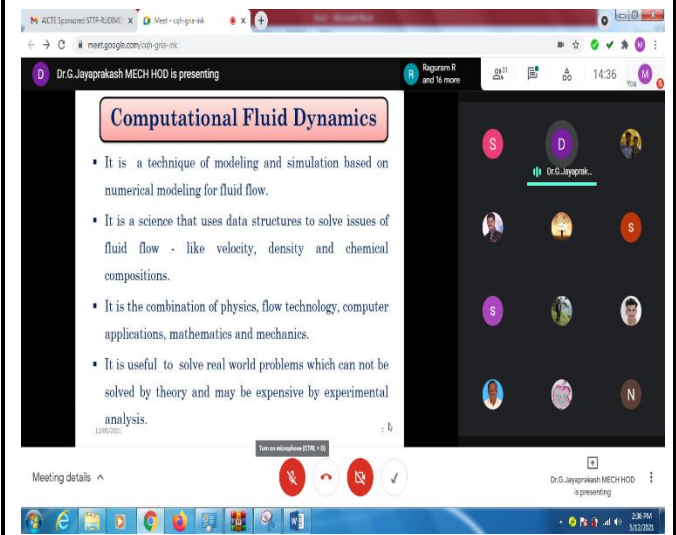
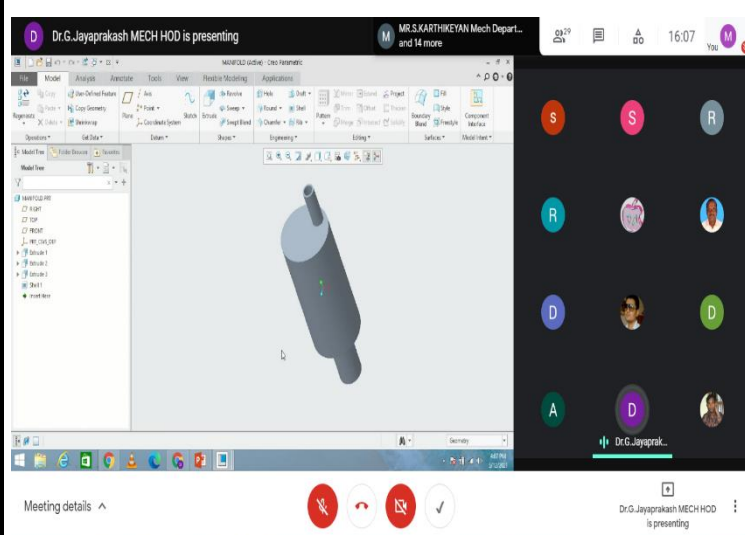
Dr. Kulasekharan Narasingamurthi,
Specialist-Computational Fluid Dynamics,
Simulation Metier-GEEDS,
Valeo India Private Limited,
Chennai.



SESSION:3

Fluid solid interaction (FSI) analysis in CFX.

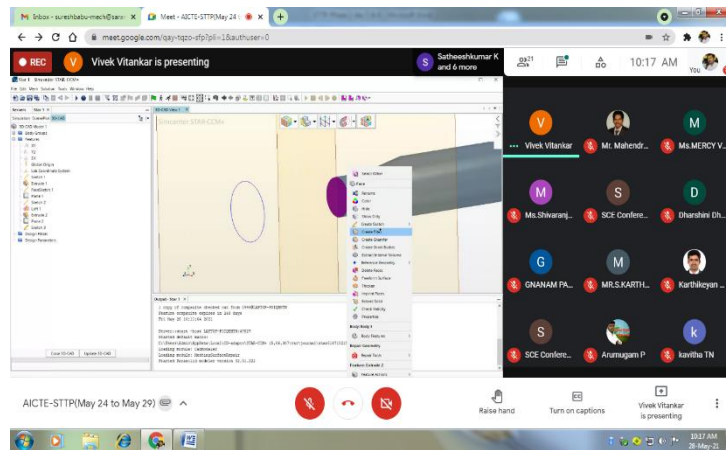
Dr. G. Jayaprakash,
Professor & Head,
Dept of Mech. Engineering, Saranathan College of
Engineering, Trichy.



DAY 5: 28/05/2021

SESSION 1:

CFD Application: Software Demo
Dr Vivek Vittankar
Founder & Director of FluidDimensions,
Pune.



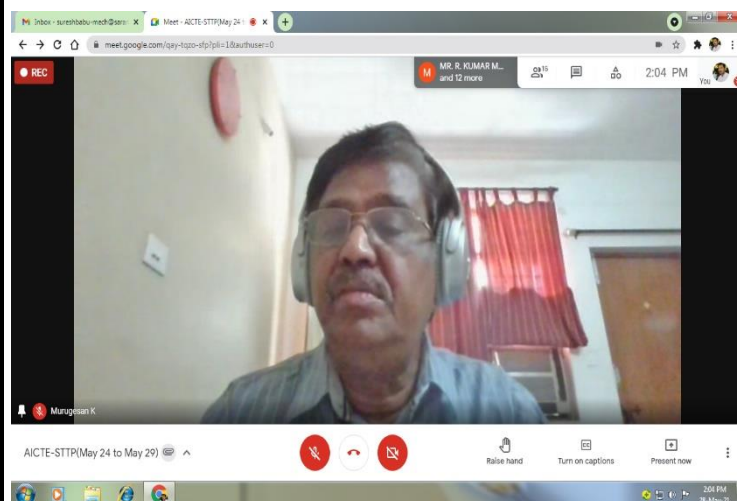
SESSION 2:

Modelling of boiling heat transfer
Dr.P.Harish
Assistant professor,
Dept. of Mechanical Engineering, IIT Jammu,
J& K.



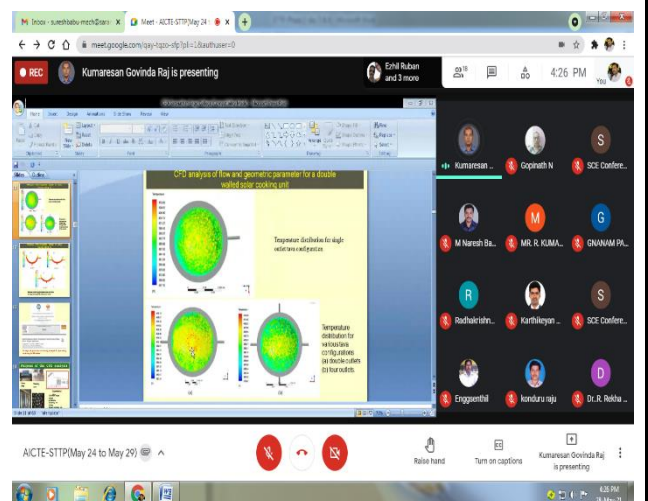
SESSION 3:

Computational Fluid Dynamics using Nanofluids by
Velocity-Vorticity Equations
Dr.K.Murugesan,
Professor,
Dept.of Mechanical and Industrial Engineering,
IIT, Roorkee.



SESSION 4:

CFD Analysis of Thermal System Components
Prof. Dr. G. Kumaresan,
Associate Professor,
Institute of Energy Studies,
CEG,
Anna University, Chennai.

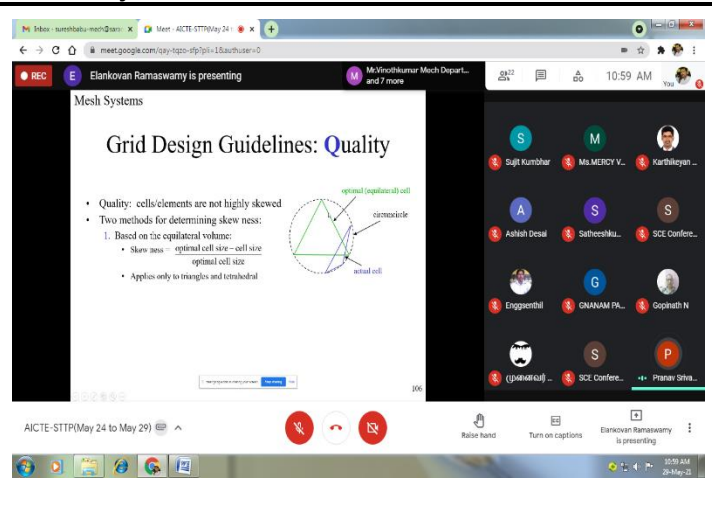
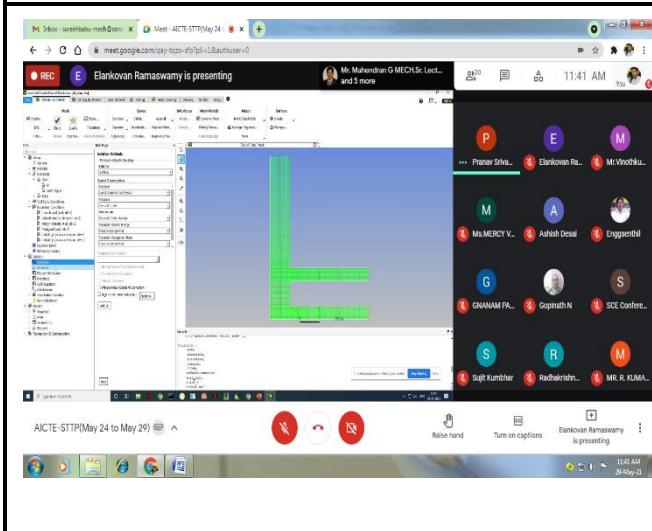


DAY 6: 29/05/2021

SESSION 1 & 2:

Grid Generation and Case studies on applications of CFD

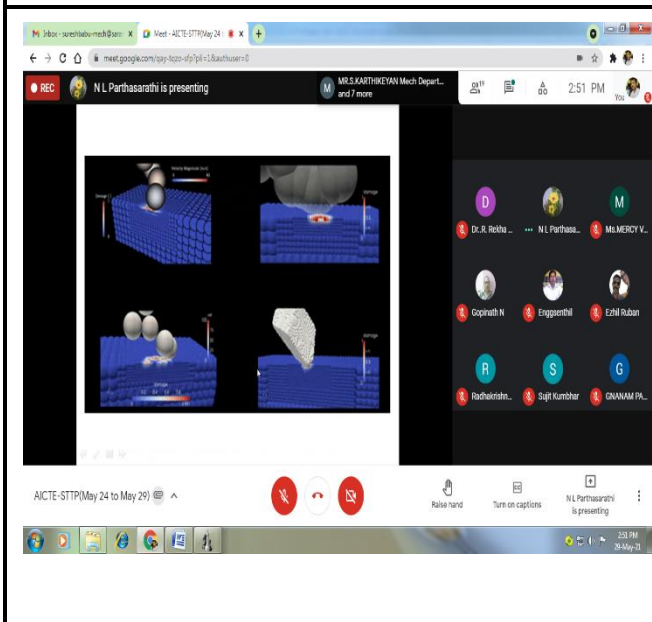
Dr.R.Elangovan,
DGM (Commercial/Fossil Boilers),
B.H.E.L., Trichy



SESSION 3:

Application of CFD- A power plant perspective.

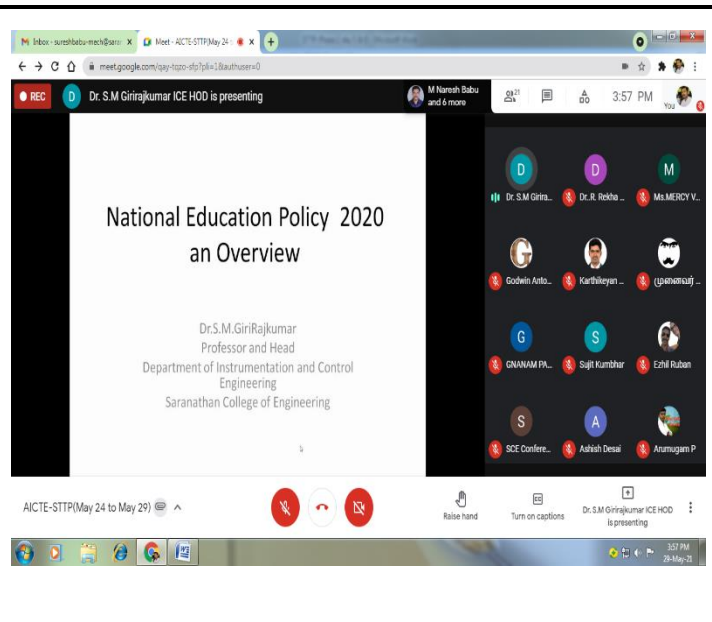
Dr. N.L.Parthasarathi,
Scientific Officer,
Metal Forming and Tribology Section,
IGCAR,Kalpakkam.



SESSION 4:

Valediction and talk on National Education Policy(NEP)

Dr. S.M.Giriraj Kumar,
Professor & Head,
Dept of ICE & Head (T & P),
Saranathan College of Engineering, Trichy.



ABOUT THE COLLEGE

Saranathan College of Engineering was founded in the year 1998 by "VidyaSevaRatnam", "Guru Seva Mani" Auditor Sri. K. Santhanam. The institution was so named in respectful memory of his Guru Prof. Saranathan, the then Principal of National College, Tiruchirappalli. Saranathan College of Engineering is a self-financing college approved by AICTE and affiliated to Anna University, Chennai for the UG courses it offers(Civil, CSE, EEE, ECE, IT, ICE and Mechanical Engineering). All the six (6) eligible UG branches are accredited by NBA, New Delhi. An enviable 'A+' rating by "NAAC" stands testimony to the commitment of the college to impart quality education.

ABOUT THE DEPARTMENT

The Department of Mechanical Engineering was started in the year 2005. The department offers an undergraduate programme B.E. in Mechanical Engineering and a postgraduate programme M.E. in Thermal Engineering. The department is accredited by NBA, New Delhi, since June 2018. The department is also a recognized research centre under Anna University, Chennai. The department has all of the following: state-of-the-art laboratories, CAD centre with advanced software, a department library, experienced and expert faculty members having doctoral degrees, outstanding research publications in peer reviewed International/National journals. The department's mission is to generate employable mechanical engineering graduates with knowledge, skills and ethics and provide them with the professional and soft skills necessary to lead a successful career and equip them with the confidence necessary to contribute positively to the society by performing in their respective chosen fields of endeavour.

PROGRAMME EVALUATION COMMITTEE (PEC)

PATRON:

Shri. S. Ravindran
Secretary

CHAIRPERSON:

Dr. D. Valavan
Principal

CO-CHAIRPERSON:

Dr. G. Jayaprakash
Professor & Head, Mechanical Engineering.

COORDINATOR:

Dr. N. Baskar
Professor, Mechanical Engineering

PEC MEMBER

Dr. C. Krishnakumar
Professor & Head, Department of Electrical and Electronics Engineering.

CO-COORDINATORS:

Dr. A. Mercy Vasan
Associate Professor, Mechanical Engineering
Dr. R. Rekha
Associate Professor, Mechanical Engineering

CONVENERS:

Dr. M. R. Anantha Padmanaban
Associate Professor, Mechanical Engineering
Dr. M. Ganesan
Associate Professor, Mechanical Engineering

ORGANIZERS:

Dr. G. Mahesh
Associate Professor, Mechanical Engineering
Mr. R. Suresh Babu
Assistant Professor, Mechanical Engineering
Mr. S. Sathyanarayanan
Assistant Professor, Mechanical Engineering

AICTE



Sponsored

One-week Short Term Training Program
on

**Rudiments and practices of
Computational Fluid Dynamics
in Thermo-fluid Analysis**

Phase I - 10.05.2021-15.05.2021

Phase II – 24.05.2021-29.05.2021



Organized by

Department of Mechanical Engineering
Accredited by NBA, New Delhi

SARANATHAN COLLEGE OF ENGINEERING

(Approved by AICTE, New Delhi and
Affiliated to Anna University, Chennai)
(Accredited by NAAC with A+ Grade)

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OBJECTIVES AND CONTEXT

- To provide a comprehensive training to engineers and researchers on application of CFD techniques over a broad range of applications like turbomachinery and multi-phase flows
- To familiarize the basic concepts, methods and mathematical equations controlling practical thermal and fluid flow phenomena
- To correlate theoretical and practical engineering usages of CFD through hands-on –training on various software packages
- To highlight the contemporary research trends in CFD and promote progressive research in product design and development

RELEVANCE

The short-term training programme is essential in the current scenario to facilitate researchers and engineers to adopt CFD as a standard practice in industry and research. With simulation techniques becoming a vital part of the design process in providing within the time constraints efficient solutions to thermal and fluid system, CFD has started playing a crucial role in product development cycle. The major obstacle, to the evolving of CFD from the stage of being a mere research tool to the stage of being used for real time applications in industries, is the lack of fundamental knowledge and high level of expertise in coding and software usage. This program aims to bridge that gap.

RESOURCE PERSONS

Experts from IITs, NITs, Anna University, DRDO, IGCAR, Industry, etc.

EXPECTED OUTCOMES

This program will enable the faculty, practising engineers and researchers

- ✓ To solve fundamental equations relating to fluid flow and heat transfer problems
- ✓ To acquire software computing skills in CFD and interpret results to make design decisions
- ✓ To forecast implications of design changes and optimize a design, based on CFD results, with an aim to create quality product development and to carry out virtual experimentation on complicated prototypes

TOPICS OF INTEREST

- Fundamental knowledge in theory and concepts of Computational Fluid Dynamics
- Hands on training on modern CFD software tools for solving Thermo-fluid problems
- Industrial visits to understand the significance of CFD applications in solving real time industrial flow problems

EXPECTED SKILLS AND SUGGESTED FURTHER ACTIONS

- Fundamental knowledge in theory and concepts of Computational Fluid Dynamics
- Industrial visits to understand the significance of CFD applications in solving real time industrial flow problems

COURSE DURATION

Each STTP is for a duration of 6 days and will be held online through Google meet. For an effective utilization of the program and to become eligible for the e-certificate attendance on all the days is important. Based on their convenience participants can choose to attend any one of the phases of STTP listed.

REGISTRATION

Registration is based on first come first served basis. Google Meet link will be provided by E-Mail, to the selected participants only.

NO REGISTRATION FEE.

Registration Link :

<https://forms.gle/NFg498upV8vgsxVTA>



CONDUCT OF TEST AND ISSUANCE OF CERTIFICATE

All the participants have to appear for a test at end of the program. E-Certificates will be issued only to those participants who have attended the program on all the days and have qualified in the evaluation test.

IMPORTANT DATES

Last date of Receipt Application: 04-05-2021
(Google form)

Intimation to Selected Participants: 05-05-2021
(Mail)

ADDRESS FOR CORRESPONDENCE

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SARANATHAN COLLEGE OF ENGINEERING

DEPARTMENT OF CHEMISTRY

A REPORT ON ONE WEEKON – LINE FDP ON RECENT AVENUES IN CHEMICAL SCIENCES

For the benefit of faculty members of the chemistry department in various colleges, a One-week (22nd to 28th June 2020) on-line Faculty Development Program titled “Recent Avenues in Chemical Sciences” was organized by the Department of Chemistry, Saranathan College of Engineering, Trichy. On the inaugural day, Dr. D. Valavan, Principal, Saranathan College of Engineering presided over the forenoon session. In his inaugural speech he stressed on the need and importance of FDP in the process of the faculty updating and enriching their subject knowledge and expertise in their respective fields. Dr. L. Muruganandam, Head, Department of Chemistry welcomed the gathering and introduced the resource person for the forenoon session, Dr. M. Jeganmohan, Associate Professor, Department of Chemistry, IIT-Madras, Chennai. In this session “Metal catalysed C-H alkenylation reactions” were discussed with vivid examples. The afternoon session was handled by Dr. Ch. Subramaniam, Professor, IIT-Hyderabad. He focused on “Photo electrochemical cells: Basics and recent advances”.

On the second day of the FDP, Dr. S. Velmathi, Professor & Head, Department of Chemistry, NIT, Trichy delivered a lecture on “Development of sensors for cyanide and toxic metal ions”. In the afternoon session Dr. T. Jeyakumar, Associate Professor, Department of Chemistry, Annamalai University, Chidambaram discussed “Persistent organic pollutants (POPs)”. The third day program began with the lecture of Dr. S. Nagarajan, Associate Professor, Department of Chemistry, NIT, Warangal on “Soft materials by molecular self-assembly”. Later in the day the lecture on “Designing of organic luminescent materials for electronic devices” was delivered by Dr. P. Venkatakrishnan, Associate Professor, Department of Chemistry, IIT-Madras, Chennai.

In the forenoon session of the fourth day Dr. V. M. Biju, Associate Professor, Department of Chemistry, NIT, Trichy delivered a lecture on “Design and development of electrochemical sensors”. The “biological and catalytic applications of Ruthenium arene complexes” were discussed by Dr. R. Karvembu, Professor, Department of Chemistry, NIT, Trichy in the afternoon session of the same day. On the fifth day of the FDP Dr. M. Sankar, Associate Professor, Department of Chemistry, IIT, Roorkee highlighted the “Synthesis and applications of functionalized porphyrinoids”. In the afternoon,

Dr.R.Mayilmurugan, Associate Professor, School of Chemistry, Madurai Kamaraj University, Madurai emphasized on the “Iron-based MRI contrast agents”.

The next day Dr.K.Srinivasan, Associate Professor, School of Chemistry, Bharathidasan University, Trichy discussed the “Synthesis of thiophenes from donor-acceptor cyclopropanes and mercaptoacetaldehyde”. Later Dr.V.Ramanathan, Associate Professor, Department of Chemistry, IIT(BHU), stole the session with his excellent lecture on “Evolving role of teachers in this era”. The FDP concluded with the lecture by Dr.M.Sankaralingam, Associate Professor, Department of Chemistry, NIT, Calicut on the topic “Selective oxygenation of cyclohexene by iron(V) oxo complexes”. Nearly 90 faculty members from various institutions spread across our nation participated and benefitted from this programme. In every session, the participants actively interacted with the resource persons. Feedback from participants as well as the resource persons was collected on the same day. This FDP successfully ended with vote of thanks by Dr.S.Priyarega, Assistant Professor, Department of Chemistry, Saranathan College of Engineering, Trichy.



Signature of HoD/ Chemistry

SARANATHAN COLLEGE OF ENGINEERING

TRICHY

DEPARTMENT OF MATHEMATICS

**REPORT ON THE TWO DAY ONLINE WORKSHOP ON DATA ANALYSIS USING
STATISTICAL PACKAGES**

To coincide with the National Statistics day (29th June), a two-day online workshop on Data Analysis using Statistical Packages was organised on 29th * 30th June 2020 by the Department of Mathematics. The workshop was scheduled in two sessions. One was on 29th forenoon from 10.30 AM to 11.30 AM and the other on 30th forenoon from 10.30 AM to 11.30 AM. The resource person for both the sessions was Dr. C. Vijayalakshmi, Associate Professor, Department of Statistics and Applied Mathematics, Central University of Tamil Nadu, Tiruvarur.

The First session started with the inaugural function. Dr. R. Neelambari, Associate Professor and Head of Mathematics department welcomed the gathering and introduced the Resource Person. The major takeaways of this session for the participants were the introduction to SPSS Packages and the elaboration of the operation of various tools in SPSS packages. The explanation with many examples added to the overall quality of delivery in the workshop. In the next session, the operations of various tools in R-Programming were elaborated.

Both the sessions went off very well. The Question and Answer session was also very effective and interactive. On both the days she clarified all the queries raised by the participants regarding the packages. With 33 participants registering from other countries (Iran, Iraq, Saudi Arabia, Oman, Jordan, Libya, Nigeria, Nepal) what was conceptualized as a National Workshop became truly International. 434 participants on the 1st day and 536 participants on the 2nd day attended the online workshop.

The workshop concluded with a vote of thanks proposed by Dr. D. Geetha, Asst. Prof. Mathematics department.



Signature of HoD/Mathematics

SARANATHAN COLLEGE OF ENGINEERING

TRICHY

DEPARTMENT OF MATHEMATICS

**REPORT ON THE FIVE-DAY ONLINE WORKSHOP ON “EMERGING TRENDS
IN MATHEMATICS IN MULTI-DISCIPLINARY DOMAIN”**

The Department of Mathematics has organised a Five-Day online FDP from 26th to 30th July 2020 on “Emerging Trends in Mathematics in Multi-Disciplinary Domain”. The FDP was scheduled from 10.30 AM to 11.30 AM each day.

The first session started with the inaugural function. Dr. R. Neelambari, Associate Professor and Head of Mathematics Department welcomed the gathering and introduced the Resource Person Dr. R. Ramanan, Joint Director of Collegiate of Education, Chennai Region, Chennai. The major takeaways of this session were the introduction to Structural Equation Modelling (SEM) using AMOS Packages. The explanation with illustrations added to the overall quality in delivery of the session.

On 27.07.2020, the second day session was handled by Dr. Joseph Varghese, Professor of Mathematics from Christ University, Bangalore. He gave a lecture on Graph Theory in Computer Application. He started his lecture by relating simple network problems to Graphs. He related many real time examples in a very factual and lucid manner.

Dr. Santhanu Prasad Datta, Asst. Professor of Mechanical Department from BITS Pilani handled the third session on 28.07.2020. He delivered a lecture on Perturbation Technique to Estimate the Heat Propagation through One Dimensional wall and also gave an insight to some mathematical models behind it.

Dr. R. Sundareswaran, Associate Professor, Department of Mathematics, SSN College Of Engineering, Chennai presented the fourth session on 29.07.2020. He gave a lecture on Domination Integrity and Efficient Fuzzy Graphs. In his lecture, he threw light on the new area of fuzzy graphs.

In the last session Dr. R. Sudhesh, Associate Professor, Department of Mathematics, Anna University BIT campus, Trichy, delivered a talk on 30.07.2020 on Introduction to Probability Distribution and Stochastic Differential Equation. He started from basic concepts of probability distribution and discussed about the stochastic differential equation.

Nearly 120 participants from various institutions spread across our nation actively participated and got benefitted through this programme.

The FDP was concluded with a vote of thanks proposed by Dr. D. Geetha, Asst. Prof. Mathematics department.



Signature of HoD/Mathematics



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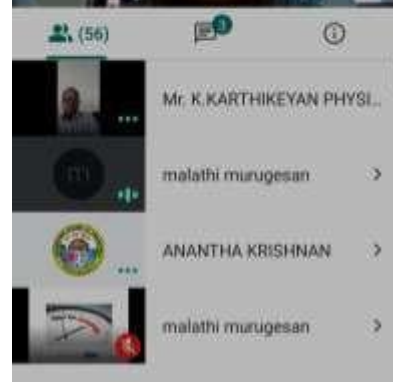
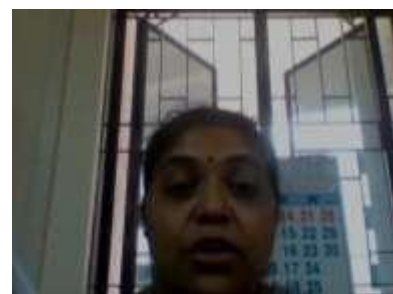
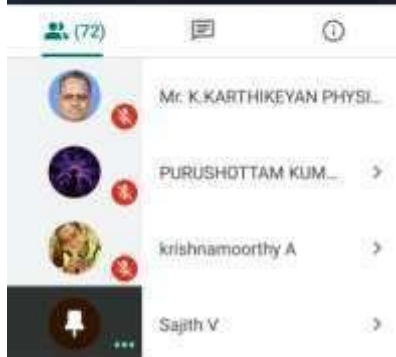
DEPARTMENT OF PHYSICS

A one day Faculty Development programme was organized on 23-07-2020 on

Recent Research in Modern Physics. The FDP comprised of two sessions.

In the Forenoon session, Dr. Sajith, V, Associate Professor & Head, School of Material Science and Engineering, NIT, Calicut was the Resource person. He delivered a lecture on the topic "Application of Nano fluids in industries". In his presentation, he detailed the concept of Particle Size distribution, Thermal Power plant-Coolant, Mini Emulsion polymerization and its benefits in real life applications.

In the afternoon session, Dr. Malathi. M, Professor of Physics, Centre for Crystal Growth, Vellore Institute of Technology, Vellore, Tamilnadu was the Resource person. She delivered a lecture on the topic "Role of Electromagnetic waves on Characterization of Materials". In her presentation, she gave an elaborate explanation on Electromagnetic waves and its interaction with materials especially UV, X-Ray, XRD, FTIR, Raman, Microwave and also on the importance of dielectric studies in the molecule. 72 participants from various colleges in and around Tamilnadu got benefitted from this programme



Signature of HoD/ Physics