

Department of Electronics and Communication Engineering

Report

On

**AICTE Margdarshan Online Faculty Development
Programme**

“Outcome Based Education and Research Methodologies”

21st Decemberto 27st December 2020

Hyderabad, India

Organized by

**GokarajuRangaraju Institute of Engineering and
Technology (Autonomous)**

Hyderabad, India

Submitted

by

Vijaya Bhasker Reddy, Assistant Professor

PAC CO-ORDINATOR

Department of Electronics and Communication Engineering

KGR CET


HOD

**DEPT. OF ELECTRONICS & COMMUNICATIONS ENGINEERING
K.G. REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
CHILKUR (V), MOINABAD, R.R. DIST. TS-501504**


PRINCIPAL

**Principal
KG Reddy College of Engineering & Technology
Chilkur (V) Moinabad (M)
R. R. Dist**

Objectives:

1. To Provide detailed information about OBE and its implementation
2. To create awareness on NIRF ranking.
3. To Classify research methods and processes.

Outcomes:

1. Implement OBE process within the department for good academic performance.
2. To Work with ranking system for accreditation
3. To Inculcate research culture among stake holders

Resource Persons:

Dr.M.G Sethuraman, Director R&D,Gandhigram

Dr. Praveen Jugge, Principal,GRIET

Prof D S Chalam BMS College of Engineering, Bangalore

Dr SujanDebnath, Curtin University, Malaysia

Dr TSudheer Kumar, IEEE, Vizag Bay Chapter

Dr B PhaneendraBabu, Professor, GRIET

Dr Swadesh Kumar Singh, Ex-IES, Ph.D-IIT Delhi

Dr P Ravindra Reddy, Professor, CBIT

Prof Sunil Pandey, IIT Delhi

Dr Manoj Kumar Gupta, Institute of Plasma Research, Gandhinagar

Prof P Gopala Krishna, Dean Publicity, GRIET

Dr C Lavanya, Dean FDP, GRIET

Mr. GyaneshTripathiIES, DLW Varanasi



GOKARAJU RANGARAJU

Institute of Engineering and Technology
(Autonomous)

AICTE Margdarshan Online FDP on

Outcome Based Education and Research Methodologies

21 – 27 Dec 2020

Sponsored by



All India Council for Technical Education



www.griet.ac.in

Resource Persons



Dr Sujan Debnath
Curtin University, Malaysia



Prof Sunil Pandey
IIT, Delhi



Dr Manoj Kumar Gupta
IPR, Gandhinagar



Prof D Seshachalam
BMS, Bangalore



Prof. M.G. Sethuraman
Director R&D, Gandhigram



Dr P Ravindra Reddy
Professor, CBIT



Dr T Sudheer Kumar
IEEE, Vizag Bay Chapter



Dr Praveen Juggu
Principal, GRIET



Dr S K Singh
Dean, R & C, GRIET



Prof P Gopala Krishna
Dean, Publicity, GRIET



Dr C Lavanya
Dean, FDP, GRIET



Dr B Phaneendra Babu
Professor, GRIET

Bachupally, Kukatpally, Hyderabad 500 090, Contact @ 9492924269

Program Schedule – AICTE Margdarshan Online FDP on Outcome Based Education and Research Methodologies

S No	Date	Time	Name of the Speaker	Topic/Remarks
1	21.12.2020 (Monday)	01:30PM-02:00 PM	Shri MG Sekharam, Dr J N Murthy Dr J Praveen, Dr KV'S Raju	Inauguration
2		02:00PM - 03:30PM	Dr M G Sethuraman, Director R&D,Gandhigram	Need for Outcome based Education
3		03:30PM - 05:00PM	Dr J Praveen, Principal, GRIET	Accreditation and Outcome Based Education
4	22.12.2020 (Tuesday)	02:00PM - 03:30PM	Prof D S Chalarn BMS College of Engineering, Bangalore	Writing PEOs and more insight to POs
5		03:30PM - 05:00PM	Dr Sujian Debnath, Curtin University, Malaysia	Bio composites in Research
6	23.12.2020 (Wednesday)	02:00PM - 03:30PM	Dr T Sudheer Kumar, IEE, Vizag Bay Chapter	Active Learning Strategies
7		03:30PM - 05:00PM	Dr B Phaneendra Babu, Professor, GRIET	Multidisciplinary Research - Challenges & Opportunities
8	24.12.2020 (Thursday)	02:00PM - 03:30PM	Dr Swadesh Kumar Singh, Ex-IES, Ph.D-IIT Delhi	Art: of Formulating Research Proposal
9		03:30PM - 05:00PM	Dr P Ravindra Reddy, Professor, CBIT	Role of Finite Elements in Research
10	26.12.2020 (Saturday)	02:00PM - 03:30PM	Prof Sunil Pandey, IIT Delhi	How to be Innovative in Research
11		03:30PM - 05:00PM	Dr Manoj Kumar Gupta Institute of Plasma Research, Gandhinagar	How to Start Research
12	27.12.2020 (Sunday)	02:00PM - 03:00PM	Prof P Gopala Krishna, Dean Publicity, GRIET	Achieving Academic Excellence – A case study of NIRF
13		03:00PM - 04:00PM	Dr C Lavanya, Dean FDP, GRIET	Assessment and Attainment of Program Outcomes
14		04:00PM - 05:00PM	Gyanesh Tripathi IES, DLW Varanasi	Research at Indian Railways

Register @ <https://forms.gle/ZQcMMr9t49j3w5dJA>

Convenor: Dr S K Singh Co Convenors: Dr C Lavanya & Prof P Gopala Krishna

Summary Report

on

AICTE Margdarshan Online Faculty Development Programme

For

“Outcome Based Education and Research Methodologies”

Day 1: 21st December 2020(1.30pm-2.00pm)

Inauguration(1.30pm-2.00pm)

The Programme began online on 21st December, 2020. The faculty from various colleges with their great enthusiasm reported themselves through online registration. Function was inaugurated by Shri MG Sekharam, Dr. J N Murthy, Dr J Praveen, Dr KVS Raju.

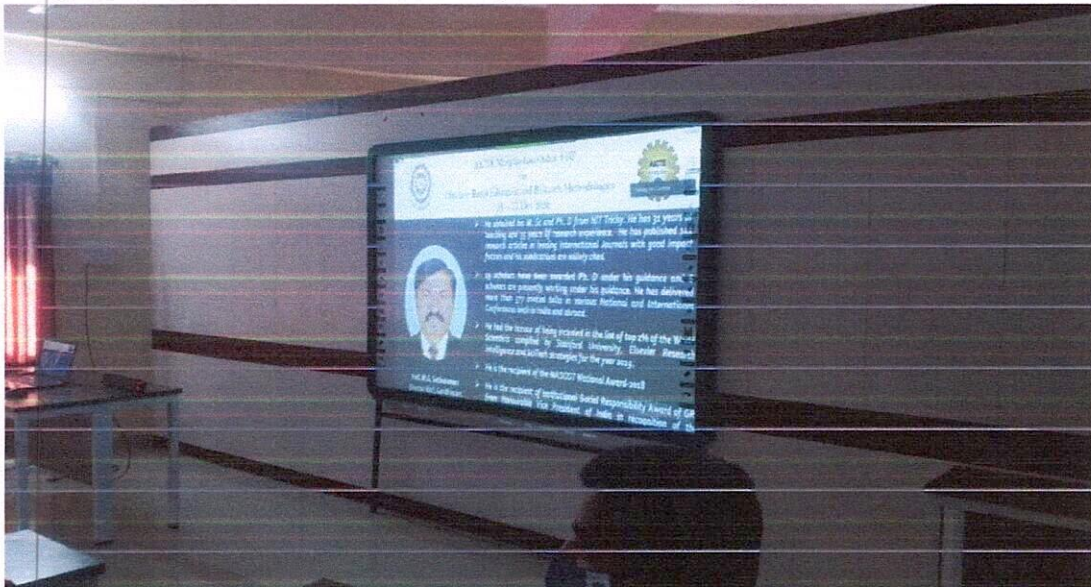
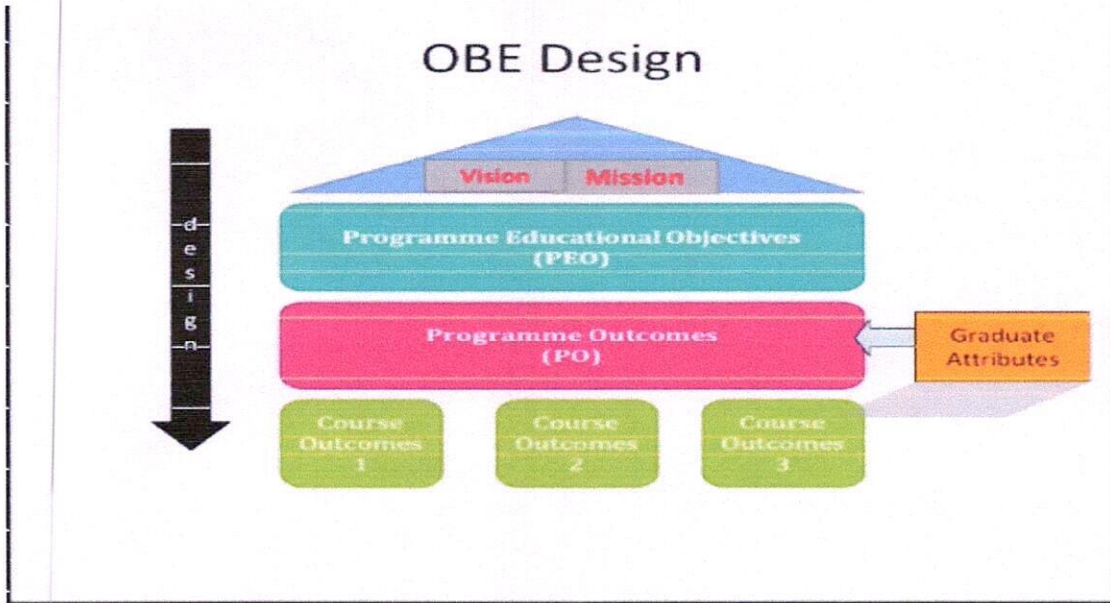


Fig: Inauguration function through online in the CEED Room

Day-1 Session-1(2pm-3.30pm)

The Session was started by **Dr.M.G Sethuraman**, Director R&D, Gandhigram and topic was Need for Outcome Based Education. He discussed about achieving excellence in higher education, Higher education today and he covered about nearly 30% of Indian youth unemployed. He focused on NAAC's metrics on outcomes, OBE Design, OBE Model.



OBE Model

- **Institute Level**
 - Vision and Mission of the Institution, Department
 - Framework for Curriculum – Number of Credits, Credit Distribution
- **Programme Level**
 - PEO - Program Educational Objectives (after 3-5 years of graduation)
 - PSO - Program Specific Outcomes (at the time of Graduation) - Graduate Attributes
 - Scheduling of Courses
- **Course Level**
 - Course Design
 - Course Outcomes (at the end of the Course)
 - Content Delivery
 - Theory, Practical, Project, Assignment, Tutorial, Seminar
- **Assessment**
 - In-class, Course, Programme Level (PSO, PEO) and Institute Levels
- **Faculty Development**
 - Faculty Core Competence and Teaching Competence
- **Continuous Improvement**
 - Feedback and Action Taken

Day-1 Session-2(3.30pm-5pm)

The Session was started by **Dr. Praveen Jugge**, Principal, GRIET and Topic was Accreditation and outcome based Education. He covered Innovative teaching methods for engineering education, Bloom's Taxonomy, Different types of teaching methods, digital learning platform (MOOCs), and technological pedagogy.

Outcome based education

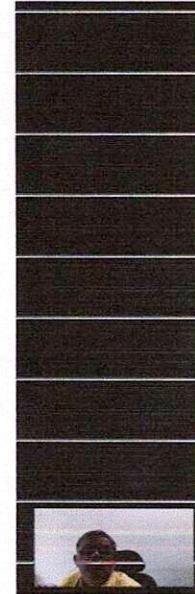


DAY 2:22.12.2020 (Tuesday)

The session was started by Prof D S Chalam BMS College of Engineering, Bangalore about Writing PEOs and more insight to Pos from 2.00pm to 3.30pm.

Blooms Taxonomy vs Program outcomes

Bloom levels		Program Outcomes
Understand	Knowledge	
Remember		
Apply		PO1
Analyze		PO2
Evaluate		PO3
Create	skill	PO4,PO5,PO11, PO10
	Attitude	PO6,PO7,PO8, PO9,PO12



Session-2: Bio composites in Research

Resource person:DrSujanDebnath, Curtin University, Malaysia

The session was started by DrSujanDebnath, Curtin University, Malaysia about Outcome Based Education in Research from 3.30pm to 5.00pm



Curtin University

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AICTE Margadarshan Online FDP on
Outcome Based Education and Research Methodologies

TOPIC: BIOCOMPOSITE ON RESEARCH

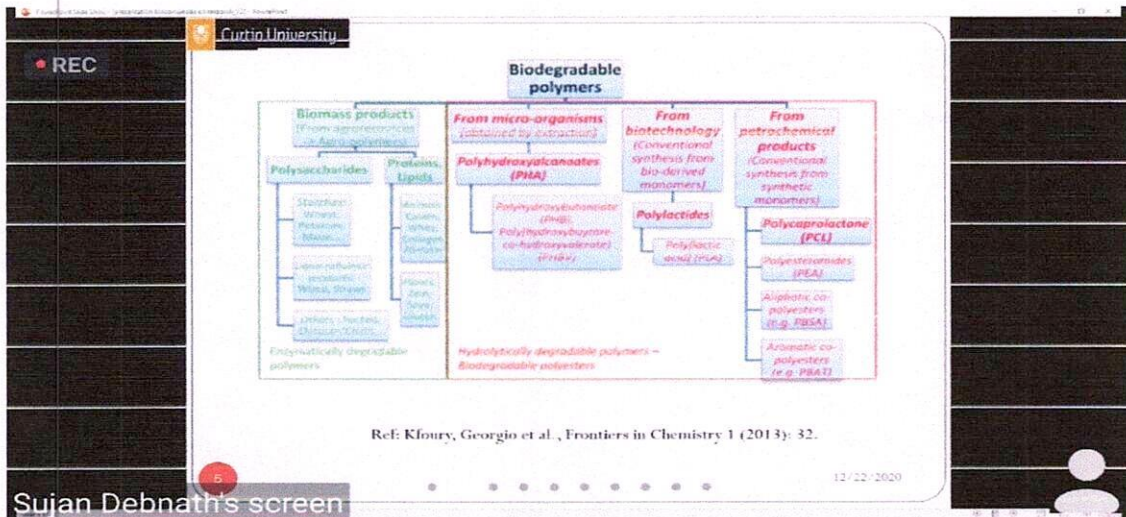
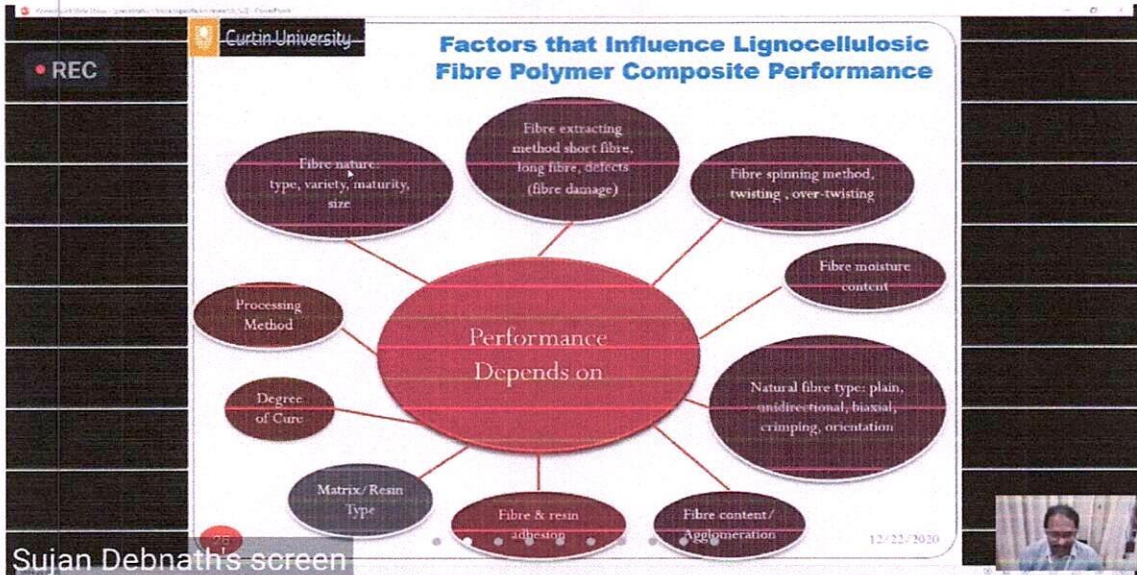
Invited Speaker (Resource Person): A.Prof. Dr. Sujan Debnath
Curtin University Malaysia, Department of Mechanical Engineering
Faculty of Engineering and Science, Malaysia

BE PART OF A GLOBAL UNIVERSITY

100% ISO 9001
12th in the world

Hemp Fiber → Non-Woven Mat → Fibered Cloth → Fibered Cloth → Hemp Fiber

25/12/2020



Bio-composite materials are produced with natural fibers or natural resins instead of synthesized fibers (carbon, glass, etc fibers) or resins (poly vinyl alcohol, epoxy, etc resins). The **bio-based** fibers such as jute, sisal, flax, hemp, bamboo, hair, wool, silk etc., are obtained from plants or animals.

DAY 3:23.12.2020 (Wednesday)

The session was started by Dr TSudheer Kumar, IEEE, Vizag Bay Chapter about Active Learning Strategies from 2.00pm to 3.30pm.

The session was started by Dr B Phaneendra Babu, Professor, GRIET about Multidisciplinary Research - Challenges & Opportunities from 3.30pm to 5.00pm

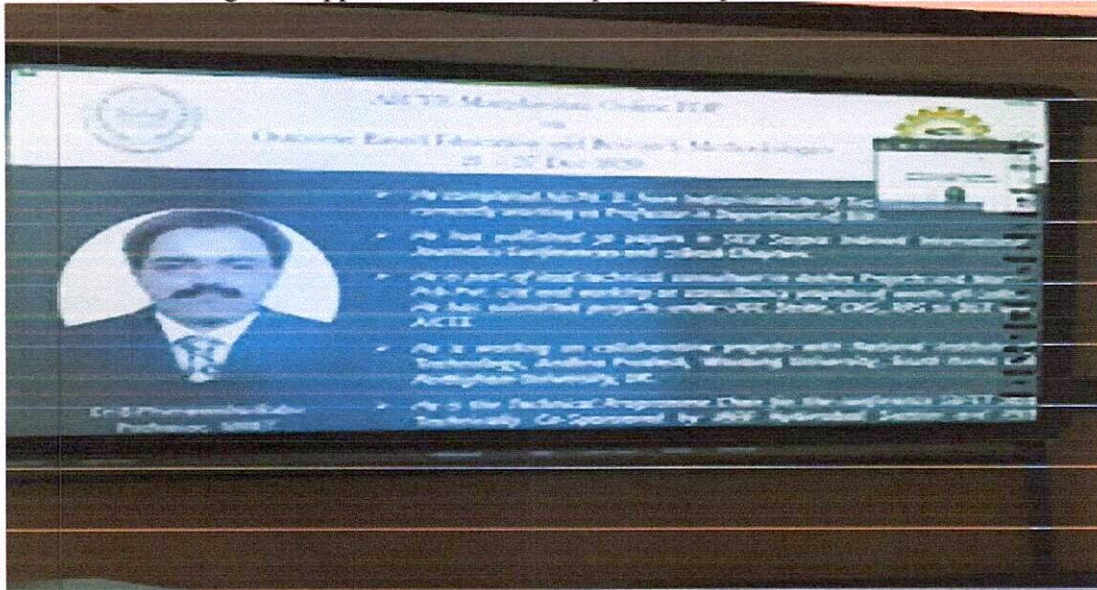


Fig: Speaker and his topic

The talk was on types of research and the difference between transdisciplinary, multidisciplinary and interdisciplinary research.

Multidisciplinary research is a technique of research in which the tools of different sciences and disciplines are utilized to find an explanation to the issue under study. 'Multidisciplinary research is needed to solve many, if not all, of the next decade's major research challenges.



Fig: Types of research



Fig: Participants listening to FDP

DAY 4:24.12.2020 (Thursday)

The session was started by Dr Swadesh Kumar Singh, Ex-IES, and Ph.D.-IIT Delhi about Art of Formulating Research Proposal from 2.00pm to 3.30pm.

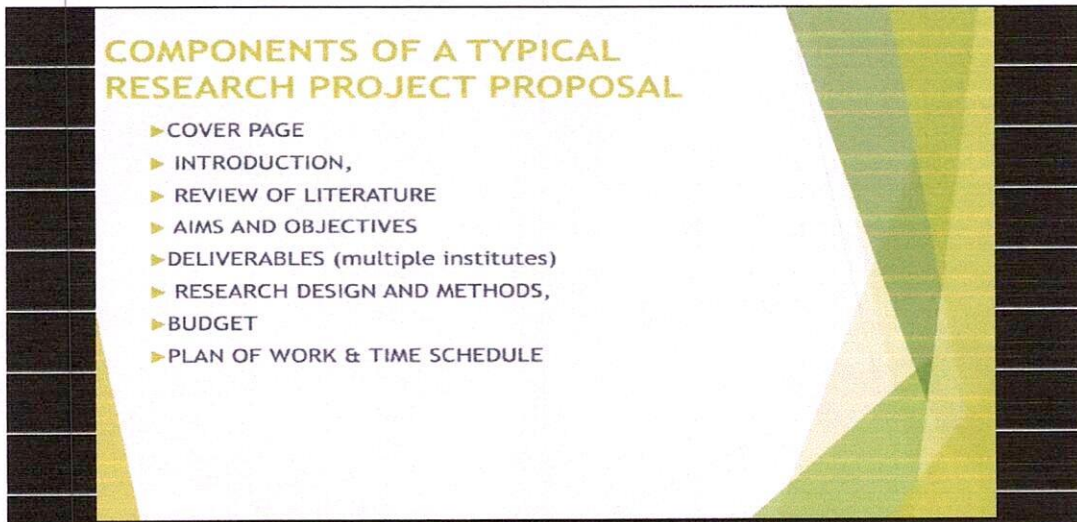


Fig: Explaining about Components of research proposal

- The session was started by Dr P Ravindra Reddy, Professor, and CBIT about Role of Finite Elements in Research from 3.30pm to 5.00pm.

Summary of Element Types

BEAM	PLANE	INFIN	SURE
CIRCU	PRETS	INTER	TARGE
COMBIN	REINF	LINK	TRANS
CONTAC	ROM	MASS	
CPT	SHELL	MATRIX	
FLUID	SOLID	MESH	
FOLLW	SOLSH	MPC	
HSFLD	SOURC	PIPE	


DAY 5:26.12.2020 (Saturday)

- The session was started by Prof Sunil Pandey, IIT Delhi about How to be Innovative in Research from 2.00pm to 3.30pm.

Aditya Tokamak

- Designed & built indigenously
- Operational since 1989
- Copper magnets and pulsed operation

Parameters:
 $R=0.75\text{ m}$, $a=0.25\text{ m}$, $B=1.5\text{ T}$,
 Plasma duration ~250 msec



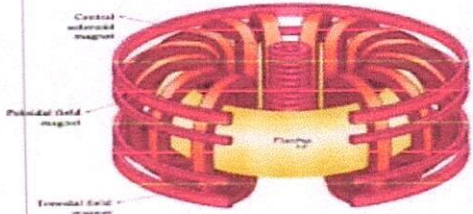
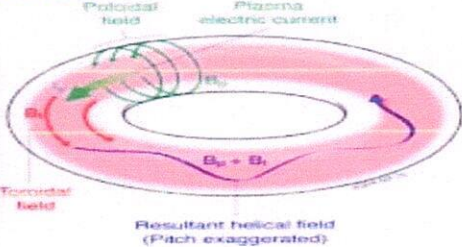
ADITYA TOKAMAK: A VIEW

- Indigenous development of many diagnostics
- Testing of RF heating & Current drive systems
- Experience, which went into SST1 design

27-12-2020 Manoj Kumar Gupta (GRIET)

Tokamak "A Machine for Fusion"

- Toroidal field: to keep charged particles moving along circular field lines.
- Poloidal field: to keep particles from drifting.
- Resulting magnetic field is HELICAL.

27-12-2020 Manoj Kumar Gupta (GRIET)

- The session was started by Dr Manoj Kumar Gupta Institute of Plasma Research, Gandhinagar about How to Start Research from 3.30pm to 5.00pm.

Institute for Plasma Research

- 1986: Emerged from Physical Research Laboratory, Ahmedabad
- Objective: To do research in nuclear fusion, basic and industrial application of plasmas
- 1989: "Aditya", India's 1st indigenous tokamak reactor becomes operational
- 1994: work starts on making "Steady State Superconducting Tokamak - 1" (SST-1)
- 1997: FCIPT created to transfer IPR's know in plasmas to benefit Indian industries
- 2005: India joins International Thermonuclear Experimental Reactor (ITER) program - IPR is the domestic agency


27-12-2020 Manoj Kumar Gupta (GRIET)

DAY 6:27.12.2020 (Sunday)


- The session was started by Prof P Gopala Krishna, Dean Publicity, GRIET about Achieving Academic Excellence –A case study of NIRF from 2.00pm to 3.30pm.

REC


NIRF Methodology



S.No	Parameter	Marks
1	Teaching Learning Resources: TLR	100
2	Research and Professional Practice: RPC	100
3	Graduate Outcomes: GO	100
4	Outreach and Inclusivity: OI	100
5	Perception: PR	100




Ministry of Human Resource
Development
Government of India

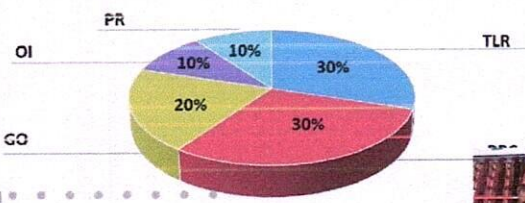



REC

NIRF Methodology Engineering Category



S.No	Parameter	Marks	Weightage
1	Teaching Learning Resources: TLR	100	30%
2	Research and Professional Practice: RPC	100	30%
3	Graduate Outcomes: GO	100	20%
4	Outreach and Inclusivity: OI	100	10%
5	Perception: PR	100	10%





Dean Publicity @ GRIET's screen

- The session was started by Dr C Lavanya, Dean FDP, GRIET about Assessment and Attainment of Program Outcomes from 3.30pm to 5.00pm.

2:24 PM ...20.3KB/s

Assessment of COs

REC

- Direct Assessment
 - Internal Examination
 - External Examination
- Indirect Assessment
 - Assignments
 - Teaching methodologies
 - Activities
 - Rubrics

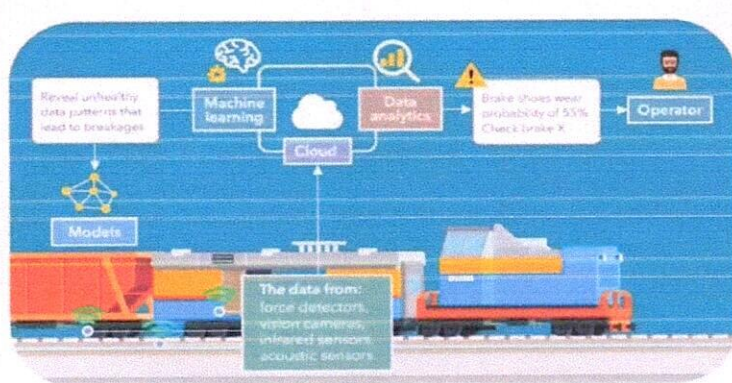
Dr C Lavanya's screen AICTE Margdarshan Online FDP 13

Session-3: Research at Indian Railways

Resource person:Gyanesh Tripathi IES, DLW Varanasi

4:56 PM 35.0KB/s

Condition Monitoring



Reveal unhealthily data patterns that lead to breakages

Machine learning

Data analytics

Brake shoes wear probability of 53%
Check brake X

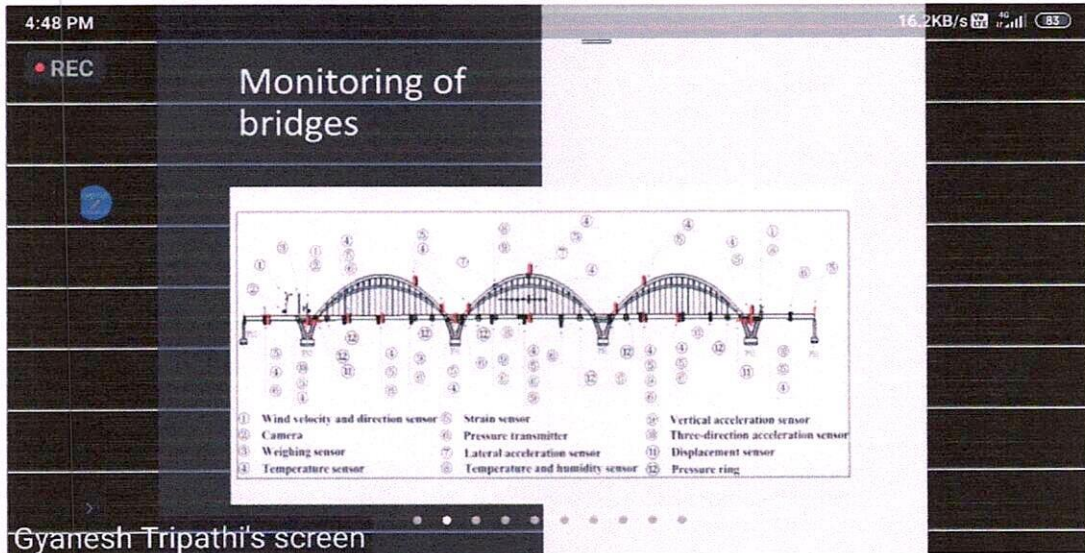
Operator

Cloud

Models

The data from:
large detectors
vision cameras
infrared sensors
acoustic sensors

Gyanesh Tripathi's screen



- The session was ended by Shri MG Sekharam, Dr J N Murthy, Dr J Praveen, Dr KVS Raju about Valedictory from 5.00pm to 5.30pm.