

### ACADEMIC YEAR 2022-2023

## 6.3.3 PROGRAMS ORGANIZED FOR THE STAFF MEMBERS

SNO	DEPARTMENT	PROGRAMS	BENEFICIARIES
bitte		ORGANIZED	COUNT
1.	Civil Engineering	01	06
2.	Computer Science Engineering	04	10
3.	Electronics and	04	11
	Communication Engineering		
4.	Electrical and Electronics	09	07
	Engineering		
5.	Mechanical Engineering	06	14
6.	Science and Humanities	03	11
7.	IQAC	03	50

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J. 100 29/5/2023

PRINCIPAL Kings College of Engineering, PUNALKULAM - 613 303



## ACADEMIC YEAR 2022-2023

## 6.3.3 PROGRAMS ORGANIZED FOR THE STAFF MEMBERS

SNo.	Department	Page Number
1.	Civil Engineering	1 -6
2.	Computer Science Engineering	7 – 31
3.	Electronics and Communication	32 - 46
	Engineering	
4.	Electrical and Electronics Engineering	47 – 79
5.	Mechanical Engineering	80 - 99
6.	Science and Humanities	100 - 122
7.	IQAC	123 - 130

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PRINCIPAL Kings College of Engineering, PUNALKULAM - 613 303

# DEPARTMENT OF CIVIL ENGINEERING ACADEMIC YEAR 2022-2023



### **DEPARTMENT OF CIVIL ENGINEERING**

ACADEMIC YEAR 2022-2023

# INTERNAL STAFF SEMINAR





#### DEPARTMENT OF CIVIL ENGINEERING

#### ACADEMIC YEAR 2022-2023

**INTERNAL STAFF SEMINAR SUMMARY** 

S.NO	DATE	TITLE	STAFF NAME	NO. OF PARTICIPANTS
1.	29.09.2022	Internal Seminar on "LIBS and PXRF validation for the removal of Pb by Bio CaCo <sub>3</sub> ".	Ms.S.Gayathri, AP/Civil	06

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HOD/CIVIL

HOD Department of Civil Engineering Kings College of Engineering, Punalkulam, Thanjavur - 613 303

5. 100 26/012 L PRINCIPAL

PRINCIPAL Kings College of Engineering PUNALKULAM - 613 303



DATE: 26.09.2022

This is to inform our department faculty that there will be a internal staff seminar. The details of the staff seminar are given below

Name of the faculty : Ms.S.Gayathri

Date : 29.09.2022

Venue : Smart classroom (Hall no 236)

Time : 12:30 PM

26 05 2022 DRC MEMBER

8 burenon 26/09/2022 HOD/CIVIL



29/09/2022

#### Background & Objective

Department of Civil Engineering in collaboration with Research and Development section had organized an Internal Seminar for the Department staff members for accessing online journals. The purpose of this seminar is to equip the faculty in new techniques through accessing online journals.

**INTERNAL STAFF SEMINAR - REPORT** 

#### Seminar Session

A Seminar was held in the Department of Civil Engineering on 29<sup>th</sup> Sep, 2022 at 3:00 P.M. The seminar was presided over by **Dr.R.Saravanan**, HoD. Department of Civil Engineering. All the faculties were present in the seminar. Ms.S.GAYATHRI/AP delivered her seminar talk on "LIBS and PXRF validation for the removal of Pb by bio-Caco3 nano particles from contaminated water." (SPRINGER – Journal of Civil Engineering).



Seminar talk by Ms.S.GAYATHRI, AP/CIVIL

- In this work, laser-induced breakdown spectroscopy (LIBS) was applied to qualitatively evaluate lead adsorbed from industrial wastewater by nano-CaCO3.
- Eggshell as a natural source of CaCO3 has been used as a sorbent owing to its low cost and unrivalled adsorption capacity to remove Pb from contaminated water.
- The structure and morphology of CaCO3 nano-powders were investigated using scanning electron microscopy (SEM), transmission electron microscope (TEM) and Fourier transforms infrared (FTIR).
- LIBS results were experimentally validated by the results obtained using portable X-ray fuorescence spectroscopy (pXRF) and energy dispersive X-ray (EDS), which confirmed the feasibility of using LIBS to detect traces of Pb ions, while the adsorption process is applied under governing parameters.
- Langmuir and Freundlich isotherm models were used to model the experimental data.
- The kinetics of adsorption mechanisms were studied using Lagergren's pseudo-first-ord and McKay and Ho's pseudo-second-order.
- The obtained results demonstrated that bio-CaCO3 nanoparticles could be used as an effective lead-sorbent from wastewater.
- Accordingly, it is possible to utilize this adsorption technique as a promising practical approach for the treatment of lead-contaminated industrial wastewater and its recirculation.

#### Outcome

The Seminar clearly highlighted the In this work, LIBS (a spectrochemical analytical technique) was exploited to monitor the removal of Pb (a toxic heavy metal) from contaminated water via bio-CaCO3nanoparticles. The economically natural source eggshell, was dried and ground to nanosize to be used as a discriminative sorbent to remove Pb from water. The effciency of eggshells in the adsorption of heavy metals is due to the presence CaCO3 as the main component, which has unrivaled adsorption capacity to remove heavy metals through ion exchange reactions with calcium ions. All LIBS results were confirmed using the pXRF and EDX techniques. Discussions were made among faculties in various new techniques. Staff members shared their views regarding seminar and gave their feedback.

From this paper I have understood the various new tests to for removal of Pb by bio-Caco3 nano particles from contaminated water.

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## **DEPARTMENT OF COMPUTER SCIENCE AND**

## ENGINEERING

## ACADEMIC YEAR 2022-23

# **INTERNAL STAFF SEMINAR**





## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

#### ACADEMIC YEAR 2022-2023

## 6.3.3 NUMBER OF PROFESSIONAL DEVELOPMENT /ADMINISTRATIVE TRAINING PROGRAMS ORGANIZED BY THE INSTITUTION FOR TEACHING AND NON-TEACHING STAFF DURING THE YEAR

#### INTERNAL STAFF SEMINAR SUMMARY

S.No	Date	Title	<b>Resource Person</b>	No. of Participants
	A	CADEMIC YEAR 2022 - 2023 OD	D SEMESTER	~
1.	09.09.2022	Comparison of Alternative Architecture for FOG Computing	Ms.P.Nalayini	12
2.	20.12.2022	Human Computer Interaction	Ms.S.Abikayil Aarthi	12
	A	CADEMIC YEAR 2022-2023 EVE	N SEMESTER	
3.	15.03.2023	Diabetes Prediction using Machine Learning Techniques	Ms.N.Dhamayandhi	09
4.	19.04.2023	Driver Assistant for the detection of drowsiness and emergency alert	Ms.B.Bavithra	08

S. Pur Coordinator 26/5/23

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H.O.D of Computer Science & Engineering KINGS COLLEGE OF ENGINEERING Punalkulam, Gandarvakottai (Tk), Pudukottai (Dt) - 613 303.

26/5/2023

Principal PRINCIPAL, Kings College of Engineering, PUNALKULAM - 613 303

# ACADEMIC YEAR 2022-23 ODD SEMESTER



## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING ACADEMIC YEAR 2022-23 (ODD SEM)

#### CIRCULAR

2.9.2022

Staff members are requested to attend the internal staff seminar .

Resource Person: Ms.P.Nalayini AP/CSE

Venue: 223 (Smart Class room)

Timing: 12.30 pm - 1.15 pm

S. Pur 219/22 Staff Seminar Incharge (Ms.S.Puvaneswari AP /CSE)

HOD/CSE 19/22



Date: 9.9.22

## Resource Person: Ms.P.Nalayini

S.NO	STAFF NAME	SIGNATURE
1.	Dr.S.M.Uma	S 871912
2.	K.Abhirami	Kidler
3.	S.Puvaneswari	SS. Pur 9/9/
4.	S.Rajarajan	1tht
5.	P.Nalayini	p. Nor
6.	R.Suganthalakshmi	Chener -
7.	M.Arun	10 997
8.	G.Chandrapraba	G. Ch
9.	S.Priyadharshini	8 eec
10.	N.Dhamayanthi	BSB gTg]
11.	S.Abikayil aarthi	a a la la
12.	S.Senthilnathan	S. Seuler
13.	B.Bavithra	8. Surt



#### **DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

#### ACADEMIC YEAR 2022 – 2023 ODD SEMESTER

INTERNAL STAFF SEMINAR REPORT

Department of Computer Science & Engineering and students branch of IEEE jointly organized an internal staff seminar on 9.9.2022 at smart classroom.

#### OBJECTIVE

The objective of this seminar is to gain insight knowledge about comparative study about fog computing architectures

#### **SESSION DETAILS**

#### Title: Comparison of Alternative Architecture for fog computing

Internal seminar for faculty of Computer Science Engineering department was conducted on 9.9.2022 from 12.30 P.M to 1.15 P.M in Smart Class room. Ms.P.Nalayini, AP/CSE delivered the lecture on the topic "Comparison of Alternative Architecture for fog computing". She explained the basics of fog computing and its different types of architectures such as hierarchical and flat types. she described about algorithms that can be used for creating fog computing systems that follow these architectures.

#### OUTCOME OF THE EVENT

- Got an idea about fog computing
- Understand the difference between flat and hierarchical architecture
- Assist the students to develop project in this domain
- · Assist the faculty members to do their research in this domain

#### **REFERENCE:**

[1]. **"Comparison of Alternative Architectures in Fog Computing"**, Vasileios Karagiannis, Stefan Schulte, 4th IEEE International Conference on Fog and Edge Computing (ICFEC 2020), pp. 1–10





Internal seminar session snapshot

S. Pw Co-ordinator (Ms.S.Puvaneswari AP / CSE)

HOD/CSE<sup>2/9/22</sup>

12/9/2022 1. 100 PRINCIPAL



#### CIRCULAR

16.12.2022

Faculty members are requested to attend the internal staff seminar.

Resource Person: Ms.S.Abikayil Aarthi, AP/CSE

Venue: 223 (Smart Class room)

Timing: 12.30 pm - 1.15 pm

S. Pur 16/12/22

Staff Seminar Incharge (Ms.S.Puvaneswari AP /CSE)

S16/12/22 HOD/CSE



#### Date: 20.12.22

Resource Person: Ms.S.Abikayil Aarthi

S.NO	STAFF NAME	SIGNATURE
1.	Dr.S.M.Uma	S Fren
2.	K.Abhirami	Kceller
3.	S.Puvaneswari	8 - Pur 201
4.	S.Rajarajan	12hz
5.	P.Nalayini	p.Noz
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7.	M.Arun	y for
8.	G.Chandrapraba	G.Ch
9.	S.Priyadharshini	Selec
10.	N.Dhamayanthi	Of Astor
11.	S.Abikayil aarthi	De
12.	S.Senthilnathan	S. Sent
13.	B.Bavithra	\$. good



Department of Computer Science & Engineering and students branch of IEEE jointly organized an internal staff seminar on 20.12.2022 at smart classroom.

#### **OBJECTIVE**

The objective of this seminar is to gain insight knowledge about human computer interaction using machine learning techniques

#### SESSION DETAILS

#### **Title: Human Computer Interaction**

Internal seminar for faculty of Computer Science Engineering department was conducted on 20.12.2022 from 12.30 P.M to 1.15 P.M in Smart Class room. Ms. S. Abikayil Aarthi, AP/CSE delivered the lecture on the topic "**Human Computer Interaction**". She compared computer with human and how the era of communication between human with computer created. She explained the hidden markov model's principles which is used to track the human emotions which depends on head gestures. She described about the types of input which is used for analyzing the human gestures which belongs to three inputs. She concluded that the existing inputs may be extended to capture the more emotions from the human.

#### **OUTCOME OF THE EVENT**

- Got an idea about human computer interaction
- Understand the techniques of machine learning
- Assist the students to develop project in this domain
- Assist the faculty members to do their research in this domain

#### **REFERENCE:**

[1]."3D Hand Gestures Segmentation and Optimized Classification Using Deep Learning", Fawad Salam Khan 1,2, (Member, Ieee), Mohd Norzali Haji Mohd 1, (Senior Member, Ieee), Dur Muhammad Soomro 1, Susama Bagchi 1, (Member, Ieee), And M. Danial Khan, IEEE Access, September 22, 2021,

[2]. "Machine Learning for Single and Complex 3D Head Gestures: Classification in Human-Computer Interaction", Dr. Amina Atiya Dawood, Balasem Alawi Hussain, Webology, Volume 19, Number 1, January, 2022



Internal seminar session snapshot

is Rur 21/12/22 **Co-ordinator** 

21/12/202 J.M PRINCIPAL

# ACADEMIC YEAR 2022-23 EVEN SEMESTER



#### DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING ACADEMIC YEAR 2022 – 2023 EVEN SEMESTER

#### **CIRCULAR**

7.3.2023

Staff members are requested to attend the internal staff seminar .

Resource Person: Ms.N.Dhamayandhi AP/CSE

Venue: 223 (Smart Class room)

Date:15.3.23

Timing: 12.30 pm - 1.15 pm

Staff Seminar Incharge (Ms.S.Puvaneswari AP /CSE)

07/3/23 HOD/CSE



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ACADEMIC YEAR 2022 - 2023 EVEN SEMESTER

INTERNAL STAFF SEMINAR FEEDBACK

Date of Event: 15.3.23

Resource Person: Ms.N.Dhamayandhi

#### Title: Diabetes Prediction using Machine Learning Techniques

S.NO	STAFF NAME	SIGNATURE
1.	Dr.S.M.Uma	S F1573
2.	K.Abhirami	Kcoller 15/3
3.	S.Puvaneswari	S. Pw 1513
4.	P.Nalayini	P.NZ
5.	R.Suganthalakshmi	Beet
6.	M.Arun	U Toring
7.	S.Priyadharshini	Speel
8.	S.Abikayil aarthi	15/3/23
9.	S.Senthilnathan	coletar. S.
10.	B.Bavithra	2. Sugar 04 23



ACADEMIC YEAR 2022 – 2023 EVEN SEMESTER INTERNAL STAFF SEMINAR REPORT

Department of Computer Science & Engineering organized an internal staff seminar on 15.03.23 at smart classroom.

#### OBJECTIVE

The objective of this seminar is to gain insight knowledge about Diabetes Prediction using Machine Learning Techniques.

#### SESSION DETAILS

Internal seminar for faculty of Computer Science Engineering department was conducted on 15.3.23 from 12.30 P.M to 1.15 P.M in Smart Class room. Ms.N.Dhamayandhi explained the basics of Diabetes Prediction using Machine Learning Techniques. In many research studies, well-known machine learning techniques, including the Naïve Bayes classifier, support vector machines, decision trees, random forests, K-nearest neighbors, and logistic regression, have been widely used in diabetes classification. In that paper, Naive Bayes, Logistic Regression, Random Forest, and Support Vector Machine techniques to predict diabetes disease. The proposed mechanism is implemented using Python. To analyse the proposed mechanism, a real dataset is collected from Kaggle. The paper described about Voice technology while the team at Klick Labs looked at a number of vocal features, like changes in pitch and intensity that can't be perceived by the human ear. Using signal processing, scientists were able to detect changes in the voice caused by Type 2 diabetes. **OUTCOME OF THE EVENT** 

- Got an idea about various types of machine learning techniques
- Assist the students to develop project in this domain
- Assist the faculty members to do their research in this domain

#### JOURNAL DETAILS:

 Diabetes Prediction Using Machine Learning" authored by A. Almahdawi, Z. S. Naama, and A. Al-Taie, 3rd Information Technology To Enhance e-learning and Other Application (IT-ELA) conference in Baghdad, Iraq. DOI: 10.1109/IT-ELA57378.2022.10107919.



Ms.N.Dhamayandhi shared their concepts of Diabetes Prediction using Machine Learning Techniques

& Ru 18/3[23 Co-ordinator (Ms.S.Puvaneswari AP / CSE)

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING ACADEMIC YEAR 2022 – 2023 EVEN SEMESTER

#### CIRCULAR

Staff members are requested to attend the internal staff seminar .

Resource Person: Ms.B.Bavithra AP/CSE

Venue: 223 (Smart Class room)

Date:19.4.23

Timing: 12.30 pm - 1.15 pm

Staff Seminar Incharge (Ms.S.Puvaneswari AP /CSE)

HOD/CSE

.2023



Date of Event: 19.4.23

Resource Person: Ms.B.Bavithra

Title: Driver Assistant for the detection of drowsiness and emergency alert

S.NO	STAFF NAME	SIGNATURE
1.	Dr.S.M.Uma	S J.19/4
2.	K.Abhirami	Kidlep.
3.	S.Puvaneswari	.S. Pur 19/4/23
4.	P.Nalayini	prove
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8.	N.Dhamayanthi	Ball 1914/22
9.	S.Abikayil aarthi	19/11/23
10.	S.Senthilnathan	



#### DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING ACADEMIC YEAR 2022 – 2023 EVEN SEMESTER INTERNAL STAFF SEMINAR REPORT

Department of Computer Science & Engineering organized an internal staff seminar on 19.04.2023 at smart classroom.

#### OBJECTIVE

The objective of this seminar is to gain insight knowledge about Driver Assistant for the detetion of drowsiness and emergency alert.

#### SESSION DETAILS

Internal seminar for faculty of Computer Science Engineering department was conducted on 19.04.23 from 12.30 P.M to 1.15 P.M in Smart Class room. Ms.B.Bavithra explained the basics of Driver Assistant, Driver assistance systems for the detection of drowsiness and emergency alert play a vital role in enhancing road safety by mitigating the risks associated with driver fatigue. With ongoing advancements in sensor technology and data processing algorithms, these systems are expected to become more sophisticated and widely adopted in the automotive industry, ultimately saving lives and reducing accidents on the roads. By monitoring various parameters, these systems can detect signs of fatigue and issue timely alerts to drivers, enabling them to take necessary actions.

#### **OUTCOME OF THE EVENT**

- Got an idea about smart driver assistance
- Assist the students to develop project in this domain
- Assist the faculty members to do their research in this domain

#### JOURNAL DETAIL:

"Driver Assistant for the detection of drowsiness and emergency alert",2<sup>nd</sup> National Conference on "Recent Advances in Communicative Eletronics – NCRACE 2023, March 2023



Ms.B.Bavithra shared their concepts of Driver Assistant

& . Kur 2104/23 **Co-ordinator** (Ms.S.Puvaneswari AP / CSE)

HOD/CSE

PRINCIPAL

## FEEDBACK



Date: 9.9.22

Resource Person: Ms.P.Nalayini

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3.	S. RAJARAJAN	NICE Session	LAL
A.	N. Dhaslay and hi	Good Session	RSR
5.	K-UShorani	Precentation, coverage Empressive	Kalleo
6.	B. Bowithra	Informative Session	8.200F
7.	G. Chandrapraba	Good Semion	G.Ch
8.	S. Abillayil South	Good Series	to
٩.	S. SENTHILNATHAN	Gread	S. Seuler
10.	S. Priyodharshini	Very respect for this ses.	an Spelel
11	R. Sagantha Lalk	. Interesting session	18 -
	0		T



Date: 20.12.22

Resource Person: Ms.S.Abikayil Aarthi

S.NO	STAFF NAME	COMMENTS	SIGNATURE
1.	N. Sharayaadhi	Very informative	QAB_
2.	S. Puvanes ward	Useful for Research work	X-Pur-J
3.	M. AROW	very useful session	ce gan
4.	S.RAJARAJAN	Useful informative	· Whit
5.	K. Abherain	Crood	Kaleo
b.	B. Bowithea	Highly usefuld	\$. Sutt
7	G. chandra	useful	G. Ch
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9.	S. pojyadharshini	Good serion	Spele
10.	P. Nalayini	Informative session	p. NCe
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## ACADEMIC YEAR 2022 – 2023 EVEN SEMESTER

INTERNAL STAFF SEMINAR FEEDBACK

### Date of Event: 15.3.23

Resource Person: Ms.N.Dhamayandhi

Title: Diabetes Prediction using Machine Learning Techniques

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ACADEMIC YEAR 2022 - 2023 EVEN SEMESTER

INTERNAL STAFF SEMINAR FEEDBACK

Date of Event: 19.4.23

**Resource Person: Ms.B.Bavithra** 

Title: Driver Assistant for the detection of drowsiness and emergency alert

S.No	Staff Name	Comments	Signature
ι.	S. Abi Kayil Aarthi	Highly Informative	2019/4/23
2.	N. Dhareagardhe	useful session	298 1914/12
3.	H. ARUN	Very informative.	6. 3 Jourin 1/23
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## DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

## ACADEMIC YEAR 2022-2023

# **Internal Staff Seminar**





## DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

### ACADEMIC YEAR 2022-23

## **INTERNAL STAFF SEMINAR- SUMMARY**

S.No	Date	Title of the Seminar	Name of the Staff	Number of Participants
1.	06.03.2023	Electro coagulation of car wash water Using various electrodes	Mr.S.Ramarajan, AP/ECE	13
2.	13.04.2023	5G Evolution: A View on 5G Cellular Technology	Mr.A.Herald, AP/ECE	10
3.	13.04.2023	IoT Based Smart Agriculture	Mr.R.Sathyaraj, AP/ECE	10
4.	20.04.2023	Gi-Fi (Next Generation of Wireless Technology)	Mrs.M.Muthulakshmi AP/ECE	12

21 A.He **STAFF INCHARGE** 

all more all HOD/ECE 26/5/23

HOD/ECE DOIS 10 9 H.O.D. ELECTRONICS AND COMMUNICATION ENGINEERING KINGS COLLEGE OF ENGINEERING PUNALKULAM - 613 303. GANDARYANDTIAI TALUK. PUDUKOTIAI DISTRICT

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#### DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

#### ACADEMIC YEAR 2022-23

#### **INTERNAL STAFF SEMINAR- CIRCULAR**

#### Date: 03-03-2023

This is to inform you that, the first internal staff seminar for the academic year 2022-23 even semester is scheduled on 06-03-2023 (Monday) at 12.30 pm. All the staff members are requested to attend the seminar.

Venue: ECE Smart Classroom.

The details of the seminar are as follows:

Name of the Resource person: Mr.S.Ramarajan, AP/ECE

Topic of the Seminar: Electro coagulation of car wash water using various electrodes

213/2 Staff Incharge

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HOD/ECE


#### DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

# Academic Year 2022-23(EVEN SEM) IEEE STUDENTS BRANCH STB 16621- March, 2023 INTERNAL STAFF TECHNICAL SEMINAR

#### 06.03.2023

#### Summary of the seminar:

Department of Electronics and Communication Engineering in association with IEEE student branch (16621) organized an Internal Seminar on **06.03.2023** for the teaching staffs of Department of ECE to provide a platform to get exposure in the field of recent trends in Electronics and Communication Engineering by accessing reputed online journals. **Mrs.N.Mangaiyarkarasi**, HOD/ECE welcomed the faculties. **Mr.S.Ramarajan**, Assistant Professor/ECE delivered a talk on "**Electro coagulation of car wash water Using various electrodes**". All the faculties were attended the seminar.

#### **Online Journal Paper Referred:**

Alita Vinod,Anjala Nazreen T A,Anshila A P,Haafidha,Sindhu V, Electro coagulation of Car Wash Water Using Various Electrode Materials, Journal of Water Resources and Pollution Studies (e-ISSN: 2581-5326), Vol. 7 No. 2 (2022).

#### Aim and the themes discussed:

► To reduce the polluted water from car wash service centres electrocoagulation process is introduced in order to treat the wash water for reuse.

This includes study to determine the efficiency of 2 different electrode combinations that is Ai and Fe-steel electrode and also to determine the effectiveness at various voltage ranges that is at 10v, 20V and 30V.

#### **Outcomes:**

- Attendees may gain a deeper understanding of the principles and processes involved in electrocoagulation, as well as the advantages and disadvantages of using this technology for treating car wash water.
- The seminar may explore local and National regulations related to the treatment of car wash water, helping attendees to better understand the environmental impact of car wash operations and the importance of responsible water management.
- Overall the seminar was helpful for the future researchers, who have the interest to work and make advancements in the field to gain insight into the topic.





Mr.S.Ramarajan Presenting the topic

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Staff in charge

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KINGS COLLEGE OF ENGINEERING PUNALKULAM - 613 303. GANDARVAROTTAL TALUK, PUDUKOTTAL DISTRICT





# DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

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# ACADEMIC YEAR 2022-23

# **INTERNAL STAFF SEMINAR- CIRCULAR**

# Date: 10-04-2023

This is to inform you that, the second internal staff seminar for the academic year 2022-23 even semester is scheduled on 13-04-2023 (Thursday) at 12.15 pm. All the staff members are requested to attend the seminar.

Venue: ECE Smart Classroom.

The details of the seminar are as follows:

Name of the Resource person: Mr.A.Herald, AP/ECE

Topic of the Seminar: 5G Evolution: A View on 5G Cellular Technology.

Staff Incharge

10/4/2 HOD/ECE



# DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING ACADEMIC YEAR 2022-23(EVEN SEM) <u>IEEE STUDENT BRANCH STB 16621- March, 2023</u> <u>INTERNAL STAFF TECHNICAL SEMINAR</u>

13.04.2023

# <u>Summary of the seminar:</u>

Department of Electronics and Communication Engineering in association with IEEE student branch (16621) organized an Internal staff technical Seminar on **13.04.2023**.

The main objective of this internal staff technical seminar is to:

- Provide a platform and to get exposure in the recent trends of Electronics and Communication Engineering.
- > Improve the performance of all the Staff members at all levels.
- Identify the persons in the department with the required potential and prepare them for higher positions in future.
- Prevent stagnation of faculty by exposing them to the latest concepts and techniques in their respective areas of specialization.

**Mrs.N.Mangaiyarkarasi**, HOD/ECE welcomed the gatherings. **Mr.A.Herald**, Assistant Professor/ECE delivered a lecture in the topic of "**5G Evolution: A View on 5G Cellular Technology**".

# **Online Journal Paper Referred:**

A.Ghosh, A. Maeder, M. Baker and D. Chandramouli, "5G Evolution: A View on 5G Cellular Technology Beyond 3GPP Release 15," in IEEE Access, vol. 7, pp. 127639-127651, 2019, doi: 10.1109/ACCESS.2019.2939938.

# Aim and the themes discussed:

This seminar focuses on the ongoing development and enhancement of the 5G system with the objective of delivering unparalleled connectivity to connect everyone, everything and everywhere. This seminar explores the potential impact of 5G and other advanced technologies on various industries. It highlights four key use-case archetypes enabled by 5G: enhanced mobile broadband, Internet of Things (IoT), mission-critical control, and fixed wireless access.

## Outcome:

- Attendees may gained knowledge on the technological advancements of 5G cellular technology, include faster speeds, reduced latency, increased capacity, IoT enablement, industry transformation, innovation, economic growth, improved network reliability and connectivity.
- The seminar may explore the potential to reshape the multiple sectors and unlock new possibilities for communication, collaboration, and technological innovation.
- Overall the seminar was helpful for the future researchers, who have the interest to work and make advancements in the field to gain insight into the topic.





# DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

# ACADEMIC YEAR 2022-23

# **INTERNAL STAFF SEMINAR- CIRCULAR**

# Date: 10-04-2023

This is to inform you that, the third internal staff seminar for the academic year 2022-23 even semester is scheduled on 13-04-2023 (Thursday) at 12.30 pm. All the staff members are requested to attend the seminar.

Venue: ECE Smart Classroom.

The details of the seminar are as follows:

Name of the Resource person: Mr.R.Sathyaraj, AP/ECE

Topic of the Seminar: IoT Based Smart Agriculture.

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# DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING Academic Year 2022-23(EVEN SEM) <u>IEEE STUDENTS BRANCH STB 16621- March, 2023</u> <u>INTERNAL STAFF TECHNICAL SEMINAR</u>

## 13.04.2023

#### <u>Summary of the seminar:</u>

Department of Electronics and Communication Engineering in association with IEEE student branch (16621) organized an Internal Seminar on **13.04.2023** for the teaching staff of Department of ECE to provide a platform to get exposure in recent trends in Electronics and Communication Engineering. **Mrs.N.Mangaiyarkarasi**, HOD/ECE welcomed the faculty members. **Mr.R.Sathyaraj**, Assistant Professor/ECE delivered a talk on "**IOT BASED SMART AGRICULTURE**".

## **Online Journal Paper Referred:**

G. Sushanth and S. Sujatha, "IOT Based Smart Agriculture System," 2018 International Conference on Wireless Communications, Signal Processing and Networking (WiSPNET), Chennai, India, 2018, pp. 1-4, doi: 10.1109/WiSPNET.2018.8538702

## Aim and the themes discussed:

- This seminar focuses on IoT-based smart agriculture to leverage the technology to enable more efficient, productive, and sustainable farming practices.
- This seminar explores the integration of IoT devices, data analytics, and automation, which empower farmers with real-time information and insights, enabling them to make data-driven decisions and optimize their operations for improved productivity and sustainability.

#### **Outcomes:**

- Attendees gained IoT-based smart agriculture of resource management, crop yield and quality, enhanced efficiency and productivity, data-driven decision making, realtime monitoring and alerts, enhanced livestock management, traceability, and quality assurance, as well as sustainable and environmentally friendly practices.
- The seminar explore of the advancement in agriculture, addressing the challenges and fostering for more efficient and sustainable farming industries.
- Overall the seminar was helpful for the future researchers, who have the interest to work and make advancements in the field to gain insight into the topic.







# DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Accredited Institution

# ACADEMIC YEAR 2022-23

## **INTERNAL STAFF SEMINAR- CIRCULAR**

# Date: 17-04-2023

This is to inform you that, the fourth internal staff seminar for the academic year 2022-23 even semester is scheduled on 20-04-2023 (Thursday) at 12.15 pm. All the staff members are requested to attend the seminar.

Venue: ECE Smart Classroom.

The details of the seminar are as follows:

Name of the Resource person: Mrs.M.Muthulakshmi, AP/ECE Topic of the Seminar: Gi-Fi (Next Generation of Wireless Technology).

Staff Incharge

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# DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING Academic Year 2022-23(EVEN SEM) <u>IEEE STUDENTS BRANCH STB 16621- March, 2023</u> <u>INTERNAL STAFF TECHNICAL SEMINAR</u>

## 20.04.2023

## Summary of the seminar:

Department of Electronics and Communication Engineering in association with IEEE student branch (16621) organized an Internal Seminar on **20.04.2023** for the teaching staffs of Department of ECE to provide a platform to get exposure in the field of recent trends in Electronics and Communication Engineering by accessing reputed online journals. **Mrs.N.Mangaiyarkarasi**, HOD/ECE welcomed the faculties. **Mrs.M.Muthulakshmi**, Assistant Professor/ECE delivered a talk on "**Gi-Fi(NEXT GENERATION OF WIRELESS TECHNOLOGY)**". All the faculties were attended the seminar.

## **Online Journal Paper Referred:**

Dhanalakshmi S, Karthik H, Snehashree S, Ajay Dharshan S " Gi-Fi Wireless Technology," 2022, IJRASET, ISSN: 2321-9653,Vol.10, https://doi.org/10.22214/ijraset.2022.47905.

## Aim and the themes discussed:

- ► Gi-Fi is the world's first transceiver integrated chip that operates at 60 GHz,which also wireless transfer of audio and video data at up to 5Gbps,ten times the current maximum wireless transfer.
- ► The seminar covered the following contents,
  - Current technologies.
  - Comparison of Bluetooth & Wifi
  - Introduction of Gi-Fi
  - Architecture of Gi-Fi
  - Application of Gi-Fi

#### **Outcomes:**

- Attendees gained a potential benefits of Gi-Fi technology, the actual realization and adoption of these outcomes depend on various factors, including infrastructure development, standardization, and market adoption.
- The seminar covered the Security and privacy concerns, compatibility with existing devices and infrastructure requirements would need to be addressed to fully realize the potential of Gi-Fi.

Pudukkottai, Tamil Nadu, India Block 2, Manamadurai - Tanjavur Rd, Tamil Nadu 613301, India Lat 10.64705° Long 79.048156° Google 20/04/23 12:09 PM GMT +05:30 GPS Map C Pudukkottai, Tamil Nadu, India Pudukkottai, Tamil Nadu, India Block 2, Manamadurai - Tanjavur Rd, Tamil Nadu 613301, Block 2, Manamadurai - Tanjavur Rd, Tamil Nadu 613301, India India Lat 10 64705° Lat 10.64705° Long 79.048156° 20/04/23 12:10 PM GMT +05:30 Long 79.048156° Google Google 20/04/23 12:15 PM GMT +05:30 Mrs.M.Muthulakshmi Presenting the topic 61 000 2023 Staff in charge 5.1 HOD Principal H.O.D. PRINCIPAL ELECTRONICS AND COMMUNICATION ENGINEE CHARGE Kings College of Engineering KINGS COLLEGE OF ENGINEEMING **PUNALKULAM - 613 303** 

PUNALKULAM - 613 303. GANDARVAKOTAI TALUK, PUDUKOTTAI DISTRICT

# DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING



# NUMBER OF PROFESSIONAL DEVELOPMENT / ADMINISTRATIVE

# TRAINING PROGRAMS ORGANIZED BY THE INSTITUTION FOR TEACHING AND NON TEACHING STAFF

# ACADEMIC YEAR 2022 - 2023

S.No	Dates (from to) (DD-MM-YYYY)	Title of the professional development program organized for teaching staff	No. of Participants	
	Academic Year 2022 – 2023 (Odd)			
1.	30.08.2022	Seminar on Renewable Energy Sources	9	
2.	13.10.2022	Seminar on Multi objective Based Optimal Planning of DG in Distribution Network	7	
3.	18.11.2022	Seminar on Recent Trends in Renewable Energy	7	
4.	24.11.2022	Seminar on Electronic Waste in India	5	
5.	24.11.2022	Seminar on SOC and SOH Estimation in Hybrid Electric Vehicles	7	
6.	24.11.2022	Seminar on Optimization Techniques-An Overview	6	
7.	25.11.2022	Seminar on Multilevel Inverters for Electric Vehicle Applications	6	
8.	30.11.2022	Seminar on Arc Flash Hazards and Electrical Safety	7	
Academic Year 2022 – 2023 (Even)				
9.	20.04.2023	Seminar on Distributed Power Quality Improvement in Residential Micro-grids	6	

HOD/EEE 26/5/27

Dr.A.ALBERT MARTIN RUBAN, ME., Ph.D., Head of the Department Department of Electrical and Electronics Engineering Kings College of Engineering Punalkulam Pudukkottai-613303 Principal PRINCIPAL

Kings College of Engineering. PUNALKULAM - 610 303







# DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING ACADEMIC YEAR 2022-23 ODD

Internal IEEE Seminar - Report

Title of the seminar	: "Renewable Energy Sources" for Renewable Energy Day
	Celebration
Date	: 30.08.2022
<b>Resource Person</b>	: Mr.J.Arokia Raj, AP/EEE, KCE
Beneficiaries	: EEE Faculty Members- 9
Venue	: EEE – Smart Classroom

On behalf of Department of EEE, IEEE Branch has organized Internal Seminar on "Renewable Energy Sources" for faculty members, Department of EEE on 30.08.2022. The main objective of the internal seminar is to provide exposure to various research areas to our faculty members.

## The following points were discussed during the session:

- > Renewable hybrid power architecture for microgrid Grid-interlinked microgrid
- ➢ AC microgrid
- AC/DC microgrid
- > Off-grid connected microgrid
- > Microgrid control schemes for hybrid Renewable energy
- > Architecture proposed for the photovoltaic- Microgrid hybrid biomass-solar
- Summary of the voltage control scheme

#### **Conclusions**:

Solar photovoltaic and wind energy are usually combined in a hybrid system, which essentially support each other. However, it becomes impossible to use this concept of renewable energy in a micro-grid because of inter- mittent temperature variability of its facilities. The voltage control and frequency control are included. Based on the evaluation, the reliability of voltage, frequency stability and control stability should be monitored using a consensus protocol.

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Snapshot from Seminar



## Feedback Analysis:



#### **References:**

[1] A Comprehensive Review of Microgrid Control Mechanism and Impact Assessment for Hybrid Renewable Energy Integration, June 17, 2021, date of current version June 28, 2021, Digital Object Identifier 10.1109/ACCESS.2021.3090266

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# DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING ACADEMIC YEAR 2022-23 ODD

Internal IEEE Faculty Seminar – Report

Title of the seminar	: "Multi-Objective Based Optimal Planning of DG in Distribution Network"
Date	: 13.10.2022
Resource Person	: Dr.R.Arulraj, AP/EEE, KCE
Beneficiaries	: EEE Faculty Members- 7
Venue	: EEE – Smart Classroom

On behalf of the Department of EEE, IEEE Branch organized an Internal Seminar on "Multi-Objective Based Optimal Planning of DG in Distribution Network" for faculty members of the EEE Department on 13.10.2022. The main objective of the internal seminar is to provide exposure to our faculty members on various research areas in multi-objective power system planning using evolutionary algorithms.

The following points were discussed during the session:

- The importance of multi-objective evolutionary algorithms in the field of Power System Engineering.
- The efficiency of the Multi-Objective Hybrid WIPSO (Weight Improved Particle Swarm Optimization) – GSA (Gravitational Search Algorithm) algorithm, a hybrid version of the WIPSO and GSA algorithms.
- Hybridization process of Multi-Objective Hybrid WIPSO-GSA Algorithm through merging the strength of social thinking in WIPSO with the strength of local search capability in GSA.
- The process of achieving a fine balance between exploration and exploitation abilities in the Multi-Objective Hybrid WIPSO-GSA Algorithm is explained.
- The weaknesses of the weighted sum method of multi-objective optimization are discussed, and how it is eliminated in the Pareto-based Multi-Objective Hybrid WIPSO-GSA Algorithm while solving large scale optimization problems is also presented.
- To provide deeper insight into the multi-objective optimization technique, the application of the Multi-Objective Hybrid WIPSO-GSA Algorithm in solving optimal Distributed Generation (DG) allocation problem considering different objectives are explained.

- A detailed explanation of the formulation of multiple objectives, such as minimization of total active power loss, minimization of total reactive power loss, and minimization of voltage deviation, along with various technical constraints involved in the multi-objective optimization process, is presented.
- The enhanced exploration and exploitation capabilities of the Multi-Objective Hybrid WIPSO-GSA Algorithm are described using necessary equations.
- Furthermore, the optimal DG planning problem using a neat flowchart to analyze the various computational steps involved in the optimization process of Multi-Objective Hybrid WIPSO-GSA Algorithm is explained.
- The simulation results and non-dominated pareto front of Multi-Objective Hybrid WIPSO-GSA Algorithm are explained to show the effectiveness of the solution technique in DG allocation problem.
- A detailed comparison report on the superiority of Multi-Objective Hybrid WIPSO-GSA Algorithm over other existing multi-objective optimization techniques in literature is presented.

#### **Conclusions:**

Evolutionary algorithms play a significant role in solving small and large-scale optimization problems in power engineering. Some problems need consideration of multiple objectives, which are conflicting in nature. Solving multiple objectives using the weighted sum method is always challenging since preallocating weights to different objective functions results in undesirable results. A Pareto-based Multi-Objective Hybrid WIPSO-GSA Algorithm can be used to overcome the drawbacks, as mentioned earlier, to solve small and large-scale optimization problems involving multiple conflicting objectives. The Multi-Objective Hybrid WIPSO-GSA Algorithm can also be used to solve the large-scale optimization problem in other domains of engineering in addition to power engineering.





#### Snapshot from Seminar

# Feedback Analysis:

30,00



#### **References:**

[1] R. Arulraj and N. Kumarappan, "Multi-Objective Hybrid WIPSO-GSA Algorithm Based DG and Capacitor Planning for Loss Reduction and Loadability Enhancement in Distribution System", In: Proc. IEEE 7<sup>th</sup> Int Conf on Computation of Power, Energy, Information and Communication, ICCPEIC'18, pp. 471-477, 2018, Chennai, India.

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Faculty In-Charge

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# DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING ACADEMIC YEAR 2022-230DD

Internal IEEE Faculty Seminar- Report

Title of the seminar	: "Recent Trends in Renewable Energy'
Date	: 18.11.2022
<b>Resource Person</b>	: Mr.J. Arokia Raj, AP/EEE, KCE
No. of Participants	: EEE Faculty Members- 7
Venue	:EEE – Smart Classroom

On behalf of the Department of EEE, IEEE Branch organized an Internal Seminar on "Recent Trends in Renewable Energy" for faculty members of the EEE Department on 18.11.2022. The main objective of the internal seminar is to provide exposure toour faculty memberson various research areas in Recent Trends in Renewable Energy.

The following points were discussed during the session:

- Need of Renewable Energy Sources
- Some examples of renewable energy sources
- Renewable energy resources in India
- Solar to thermal energy conversion
- Wind and solar capacity additions of 13.8 GW in the first eight months of 2021 were up 28% over the same period in 2020. Many cities, states, and utilities set ambitious clean energy goals, increasing renewable portfolio standards and enacting energy storage procurement mandates.
- Cheap electricity from renewable sources could provide 65 percent of the world's total electricity supply by 2030.
- An array of perovskite solar cell designs sit under bright light at high temperatures during an accelerated aging and testing process developed by Princeton Engineering researchers. The new testing approach marks a major step toward the commercialization of advanced solar cells.

#### **Conclusions:**

According to the IEA's World Energy Outlook and other research projects, solar and wind energy have continued to occupy the top spots in terms of the cheapest renewable energy sources. Both energy sources cost significantly less than fossil fuel alternatives and continue to become more affordable every year.



Snapshot from Seminar

# Feedback Analysis:



#### **References:**

[1]https://www.iea.org/reports/world-energy-outlook-2022

[2] Global trends in renewable energy development, 978-1-6654-0501-0/20/\$31.00 ©2020 IEEE, T. Kurbatova, T. Perederii

[3] X. Xua, Z. Weia, Q. Jib, C. Wanga, G. Gaod. Global renewable energy development: Influencing factors, trend predictions and countermeasures. Resources Policy, vol. 63, pp. 101470, 2019.<u>https://doi.org/10.1016/j.resourpol.2019.101470</u>.

Faculty In-Charge

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# DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING ACADEMIC YEAR 2022-23 ODD

Internal IEEE Faculty Seminar- Report

Title of the seminar	: "Electronic waste in India"
Date	: 24.11.2022
<b>Resource Person</b>	: Ms.C.Senthamilarasi, AP/EEE, KCE
Beneficiaries	: EEE Faculty Members- 5
Venue	:EEE – Smart Classroom

On behalf of the Department of EEE, IEEE Branch organized an Internal Seminar on "Electronic waste in India" for faculty members of the EEE Department on 24.11.2022. The main objective of the internal seminar is to provide exposure to our faculty members on thoughtful ecological and public health problem in India. The following points were discussed during the session:

- Increment of E-waste every year which makes it more difficult to manage and recycle.
- India is generating approx. 20 lakh tons of E-waste every year and tons of E-waste is illegally imported from other developed countries around the globe, the E-waste generation of India is increasing compound annual growth of 30% and India will generate 55 lakh tons of the electronic waste at the end of 2020.
- Recyclers often depend on basic recycling techniques that can release toxic pollutants into the environment area the release of toxic pollutions associated with crude e-waste recycling can have further irreversible effects, open burning and dismantling electronic equipment may cause environment problem during the recycling of E-waste phase if it is not properly treated.
- Cause of Electronic Waste: India now have approximate 167 million television sets (while 80 percent of households still have CRT (cathode ray tube), with 74 million of refrigerator and 813 million of mobile phones. Due to this the quantity of E-waste is increasing day by day.
- Classification of Electrical And Electronic Waste: All E-waste coming from industries, factories, education centers (school, colleges, etc.), homes are broadly classified in categories are Bulky household appliance, Minor household appliance, Information Technology and communication equipment, consumers, Light equipment, Tools, Monitoring instruments, Medical devices, Automatic dispenser.

- Composition of Electronic Waste: All equipment's are made up of different type of plastic and valuable materials. In general, complex electronic equipment can have up to 60 elements of periodic table, and most of them are technically recoverable. Some precious metals like gold, silver, copper, platinum, and palladium are also contained by a complex electronic circuit, but it also contains valuable heavy materials such as iron and aluminum, along with plastics that can be recycled.
- About 17% of all electrical and electronic equipment are made up of plastic. There are nearly 12 types of plastics that are used in electrical and electronic equipment, one particular type of plastic is HIPS (high impact polystyrene) contributes more than half of the total plastics used in electrical and electronic equipment, different type of plastic are used for different application such as PVC used as wire casing and HIPS is used in television sets for making the outer body of it.
- Hazardous Materials in Electronic Waste: Electrical and electronic product includes substances such as cadmium and lead in the circuit board. Cadmium in computer batteries, polychlorinated biphenyl (PCB) in older capacitor and transformer and brominated flame retardant on printed circuit board, plastics casings, cables and PVC insulation that releases highly toxic gasses when burned to retrieve copper from the wires. Many of these substances are carcinogenic and toxic. All these elements are hazardous to human and to nature.
- Various ways to Control Pollution due to E-Waste: The motive of circular economy is to produce no waste or pollution. Instead products, and materials are used, care for, repaired reused and recycle as much as possible. This is intended to be the preferred alternative to the dominant economic development of "take, make and dispose" the option to the close the loop and practice a circular economy ranges from smarter product design and use.

#### **Conclusions:**

India is producing a large amount of the electronic waste yearly and an unnamed amount of waste is imported from other developed countries. Most of the e- waste is recycled illegally with without any protection wear by labor due to which labour is in direct contact with the hazardous material in the electronic waste. The manufacturing of these devices and the use of raw materials that go into their production represent a huge source of personified energy, Reusing the precious metals and plastics in old cell phones alone instead of making or mining more of them would save as much energy as to glow lights in home to hundreds of days Tend the life of your electronics. Look for products labelled Energy Star or certified by the Electronic Product Environmental Assessment Tool (EPEAT). Give used electronic to social programs help sufferers of internal violence, children safety initiatives, ecological causes, and more. Recycle electronics and batteries in Ewaste recycling bins located around campus. Big electronics can go in the larger bins found in your building.

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#### **References:**

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- [2]FICCI, re-imaging india's M&E sector march-2018. https://www.ey.com/Publication/vwLUAssets/ey-re-imagining indias-me-sector-march-2018/%24File/ey-re-imagining-indias-me sector-march-2018.pdf
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**Faculty In-Charge** 

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#### DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING ACADEMIC YEAR 2022-23 ODD

Internal IEEE Faculty Seminar - Report

Title of the seminar	: "SOC and SOH Estimation in Hybrid Electric Vehicles"
Date	: 24.11.2022
<b>Resource Person</b>	:Mr.R.Sundaramoorthi, AP/EEE, KCE
Beneficiaries	: EEE Faculty Members- 7
Venue	: EEE – Smart Classroom

On behalf of the Department of EEE, IEEE Branch organized an Internal Seminar on **"SOC and SOH Estimation in Hybrid Electric Vehicles"** for faculty members of the EEE Department on 24.11.2022. The main objective of the internal seminar is to provide exposure to our faculty members on various research areas in Hybrid Electric Vehicles.

The following points were discussed during the session:

- Discussed about Battery stacks based on lithium-ion (Li-ion) cells are used in many applications such as hybrid electric vehicles (HEV), electric vehicles (EV), storage of renewable energy and energy storage on the grid for various purposes such as grid stability, peak shaving, and renewable energy time shifting.
- Highlighted important aspects such as state of charge (SOC) of the cells, which is defined as the available capacity (in Ah) and expressed as a percentage of its rated capacity. The SOC parameter can be viewed as a thermodynamic quantity enabling one to assess the potential energy of a battery.
- Since the determination of the SOC of a battery is a complex task depending on the battery type and on the application in which the battery is used, much development and research work has been done in recent years to improve SOC estimation accuracy.
- Accurate SOC estimation is one of the main tasks of battery management systems, which will help improve the system performance and reliability, and will also lengthen the lifetime of the battery.
- This article encompasses the design and development of a coulomb counting evaluation platform to be used for SOC and SOH measurement for a typical energy storage module, which in this case is a 24 V module, typically comprising seven or eight Li-ion cells.

- The evaluation platform is composed of a hardware system including an MCU and required interfaces and peripherals, embedded software for the SOC and SOH algorithm implementation, and a PC-based application software as a user interface for system configuration.
- Regarding SOC and SOH estimation methods, three approaches are mainly being used: a coulomb counting method, voltage method, and Kalman filter method. These methods can be applied for all battery systems, especially HEV, EV, and PV.
- A detailed explanation about the operational efficiency of a battery can be evaluated by the coulombic efficiency, which is defined as the ratio of the number of charges that can be extracted from the battery during discharging, compared to the number of charges that enter the battery during charging.
- It is noted that the coefficients of the charging and discharging efficiencies are obtained from the average values of several tested batteries.
- The SOC values obtained by enhanced coulomb counting algorithm simulation are compared to the experimental SOC values deducted from the charging and discharging curves, which are given by battery data sheets.
- The charging and discharging curves can also be reproduced using the Simulink model of MATLAB (MathWorks model), which implements a generic dynamic model parametrized to represent most popular types of rechargeable batteries—in particular, Li-ion batteries.

#### Conclusions:

It is concluded that, algorithmSOC and SOH play a significant role in solving small and large-scale optimization problems in Hybrid Electric vehicles.Here results shows that the experimental and estimated SOC using the enhanced coulomb counting algorithm for a complete charging stage calculated. The maximal obtained error between experimental and estimated values is of about 3.5% at the end of the charging stage. After a SOH reevaluation, the error will be considerably reduced Result curves represented the experimental SOC and the estimated SOC, obtained by an enhanced coulomb counting. The enhanced coulomb counting algorithm is also evaluated for charging and discharging stages together, which can reproduce the real behavior of a battery pack. the experimental and simulated SOC as a function of time for the CC and CV stages of charging mode. The maximal estimation error that can be obtained in the end of algorithm execution before reevaluating the SOH value is less than 2% for the CC stage and less than 1% for the CV stage. It is noted that the estimation error increases with the algorithm runtime and before the SOH reevaluation when the battery is fully charged.

- The evaluation platform is composed of a hardware system including an MCU and required interfaces and peripherals, embedded software for the SOC and SOH algorithm implementation, and a PC-based application software as a user interface for system configuration.
- Regarding SOC and SOH estimation methods, three approaches are mainly being used: a coulomb counting method, voltage method, and Kalman filter method. These methods can be applied for all battery systems, especially HEV, EV, and PV.
- A detailed explanation about the operational efficiency of a battery can be evaluated by the coulombic efficiency, which is defined as the ratio of the number of charges that can be extracted from the battery during discharging, compared to the number of charges that enter the battery during charging.
- It is noted that the coefficients of the charging and discharging efficiencies are obtained from the average values of several tested batteries.
- The SOC values obtained by enhanced coulomb counting algorithm simulation are compared to the experimental SOC values deducted from the charging and discharging curves, which are given by battery data sheets.
- The charging and discharging curves can also be reproduced using the Simulink model of MATLAB (MathWorks model), which implements a generic dynamic model parametrized to represent most popular types of rechargeable batteries—in particular, Li-ion batteries.

## **Conclusions:**

It is concluded that, algorithmSOC and SOH play a significant role in solving small and large-scale optimization problems in Hybrid Electric vehicles.Here results shows that the experimental and estimated SOC using the enhanced coulomb counting algorithm for a complete charging stage calculated. The maximal obtained error between experimental and estimated values is of about 3.5% at the end of the charging stage. After a SOH reevaluation, the error will be considerably reduced Result curves represented the experimental SOC and the estimated SOC, obtained by an enhanced coulomb counting. The enhanced coulomb counting algorithm is also evaluated for charging and discharging stages together, which can reproduce the real behavior of a battery pack. the experimental and simulated SOC as a function of time for the CC and CV stages of charging mode. The maximal estimation error that can be obtained in the end of algorithm execution before reevaluating the SOH value is less than 2% for the CC stage and less than 1% for the CV stage. It is noted that the estimation error increases with the algorithm runtime and before the SOH reevaluation when the battery is fully charged.

#### **Snapshot from Seminar**



Feedback Analysis:



#### **References:**

[1]Martín Murnane Solar PV Systems, Analog Devices, Inc. Adel Ghazel Chief Technology Officer, EBSYS Technology Inc./WEVIOO GroupA Closer Look at State of Charge (SOC) and State of Health (SOH) Estimation Techniques for Batteries.( TECHNICAL ARTICLE).

[2] Yanbo chee, Yushu Liu, Ze Cheng "SOC and SOH Identification Method of Li-Ion Battery Based on SWPSO-DRNN" IEEE Journal of Emerging and Selected Topics in Power Electronics. (Volume: 9, Issue: 4, August 2021)

[3] Mehdi Gholizadeh, Alireza Yazdizadeh "SOC and SOH Estimation for a Lithium-Ion Battery Using a Novel Adaptive Observer Based Approach" 2020 28th Iranian Conference on Electrical Engineering (ICEE). (Volume: 9, Issue: 4, August 2021)

Faculty In-Charge 0/11/2022 HOD/EEE 30/11/22

J. 130/1120

Principal







## DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING ACADEMIC YEAR 2022-23 /ODD Internal IEEE Faculty Seminar- Report

Title of the seminar	: Optimization Techniques-An Overview
Date	: 24.11.2022
<b>Resource Person</b>	: Ms.A.Prabha, AP/EEE, KCE
Beneficiaries	: EEE Faculty Members- 6
Venue	FFF - Smart Classroom

On behalf of the Department of EEE, IEEE Branch organized an Internal Seminar on "Optimization Techniques-An Overview" for faculty members of the EEE Department on 24.11.2022. The primary goal of the internal seminar is to confront our faculty members to various areas of research in optimization methods for power systems.

The discussion during the session covered the following topics:

- Power system optimization problems are challenging to solve because of how big and complex power systems are. Because of this, methods for solving these problems should be a hot area of research.
- An overview of significant mathematical optimization techniques was presented in this session. approaches to unrestricted optimization Various types of programming are covered, including nonlinear programming (NLP), linear programming (LP), quadratic programming (QP), generalised reduced gradient method, Newton method, network flow programming (NFP), mixed-integer programming (MIP), interior point (IP) methods, and artificial intelligence (AI) techniques like artificial neural networks (ANN), fuzzy logic, genetic algorithms (GA), particle swarm optimization (PSO), tabu search (TS) algorithm, etc. and hybrid artificial intelligent techniques.
- Applications for optimization techniques have also been covered.
- In the end, classification, application area, observation, conclusion, and suggestions for further research were covered.

#### Advantages:

Artificial intelligent methods applicable for smart grid because of it's modernity.

Genetic algorithm needs only rough information of the objective function and places no restriction such as differentiability and convexity on the objective function. Genetic algorithm works with a set of solutions from one generation to the next, and not a single solution, thus making it less likely to converge on local minima.

Fuzzy logic is more accurately represents the operational constraints of power systems and fuzzified constraints are softer than traditional constraints.

Ant Colony Search technique has been mainly used in finding the shortest route for transmission network.

The advantages of simulated annealing are, general applicability to deal with arbitrary systems and cost functions its ability to refine optimal solution, and its simplicity of implementation even for complex problems.

#### **Disadvantages:**

- Poor computation of the Ant Colony Search is the main drawback of this technique.
- The major drawback of simulated annealing is repeated annealing. Genetic algorithm method is requires tremendously high time.

#### **Conclusions:**

The planning and operation of power systems raises a number of significant decision-making issues, which are typically characterised as large-scale, nonlinear, mixed-integer continuous, non-convex stochastic, or robust optimization problems. Numerous researchers use various optimization techniques, but the problem has not yet been resolved. Using artificial intelligence techniques is preferable to using conventional methods, but hybrid artificial intelligence optimization techniques are still incomparable for problems involving power system optimization. In general, this session shows which optimization methods are suitable for issues with the power system like profit, quality, and efficiency.



# Ms.A.Prabha is discussing about Intelligent algorithms with the faculty members

Genetic algorithm works with a set of solutions from one generation to the next, and not a single solution, thus making it less likely to converge on local minima.

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The advantages of simulated annealing are, general applicability to deal with arbitrary systems and cost functions its ability to refine optimal solution, and its simplicity of implementation even for complex problems.

#### **Disadvantages:**

- Poor computation of the Ant Colony Search is the main drawback of this technique.
- The major drawback of simulated annealing is repeated annealing. Genetic algorithm method is requires tremendously high time.

#### **Conclusions:**

The planning and operation of power systems raises a number of significant decision-making issues, which are typically characterised as large-scale, nonlinear, mixed-integer continuous, non-convex stochastic, or robust optimization problems. Numerous researchers use various optimization techniques, but the problem has not yet been resolved. Using artificial intelligence techniques is preferable to using conventional methods, but hybrid artificial intelligence optimization techniques are still incomparable for problems involving power system optimization. In general, this session shows which optimization methods are suitable for issues with the power system like profit, quality, and efficiency.



Ms.A.Prabha is discussing about Intelligent algorithms with the faculty members



Ms.A.Prabha is explaining the computation techniques of Optimization



#### Feedback Analysis:

#### **References:**

[1]Kwang Lee, and Elsharkawi. (2008). modern heuristic optimization techniques., Wiley.

[2] Debirupa Hore, NM.Lokhande (2013). Computational Analysis of Different Artificial Intelligence Based Optimization Techniques for Optimal Power Flow and Economic Load Dispatch Problem, Inational Journal of Computers & Technology, Volume 4, Jan -Feb.

[3] Keyan Liu, Wanxing Sheng; Yunhua Li,(2006). Research on Reactive Power Optimization based on Adaptive Genetic Simulated Annealing Algorithm, International Conference on Power System Technology, Chongqing, pp: 1 - 6.

[4] Jingui Lu, Li Zhang; Hong Yang, (2010). Combining strategy of genetic algorithm and particle swarm algorithm for reactive power optimization.

[5] H. Cao et al.. (2016). Economic dispatch of micro-grid based on improved particleswarm optimization algorithm, 2016 North American Power Symposium (NAPS), Denver, CO, pp. 1-6.

[6] B. Das and T. K. Sengupta. (2015). Economic load dispatch using PSO and TLBO," Michael Faraday IET International Summit 2015, Kolkata,, pp. 212-219.

Faculty In-Charge

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Principal



#### DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING ACADEMIC YEAR 2022-23 ODD SEMESTER

**Internal IEEE Faculty Seminar Report** 

Title of the seminar	: Multilevel Inverters for Electric Vehicle Applications
Date	: 25.11.2022
<b>Resource Person</b>	: Dr.P.Narasimman, AP/EEE, KCE
Beneficiaries	: EEE Faculty Members- 6
Venue	: EEE – Smart Classroom

On behalf of the Department of EEE and IEEE Branch organized an Internal Seminar on "Multilevel Inverters for Electric Vehicle Applications" for the faculty members of EEE Department on 25.11.2022. The main objective of the internal seminar is to provide an exposure to our faculty members on various research areas in multilevel inverters for electric vehicle applications.

The following points were discussed during the session:

- The development of electric and hybrid-electric vehicles will offer many new opportunities and challenges to the power electronics industry, especially in the development of the main traction motor drive.
- > Multilevel inverters are used in electric vehicle (EV) and hybrid-electric vehicle (HEV) motor drives.
- Advantages of Diode-clamped and cascaded H-bridge multilevel inverters are:
  - (a) It can generate near-sinusoidal voltages with only fundamental frequency switching.
  - (b) They have almost no electromagnetic interference (EMI) and common mode voltage and
  - (c) It make an EV more accessible safer and open wiring possible for most of an EV's power system.
- The system configuration of an EV motor drive uses cascade multilevel inverter. In the motoring mode, power flows from the batteries through the cascade inverters to the motor. In the charging mode, the cascade converters act as rectifiers, and power flows from the charger (ac source) to the batteries.
#### Photos:





#### **Feedback Analysis:**



#### **References:**

- 1. P. Omer, J. Kumar, and B. S. Surjan, "A review on reduced switch count multilevel inverter topologies," IEEE Access, vol. 8, pp. 22281\_22302, 2020.
- C. Dhanamjayulu, S. R. Khasim, S. Padmanaban, G. Arunkumar, J. B. Holm-Nielsen, and F. Blaabjerg, "Design and implementation of multilevel inverters for fuel cell energy conversion system," IEEE Access, vol. 8, pp. 183690\_183707, 2020, doi: 10.1109/ACCESS.2020.3029153.
- 3. C. Dhanamjayulu and S. Meikandasivam, "Implementation and comparison of symmetric and asymmetric multilevel inverters for dynamic loads," IEEE Access, vol. 6, pp. 738\_746, 2018.
- 4. C. Dhanamjayulu and S. Meikandasivam, "Performance verification of symmetric hybridized cascaded multilevel inverter with reduced number of switches," in Proc. Innov. Power Adv. Comput. Technol. (i-PACT), Vellore, India, Apr. 2017, pp. 1\_5.
- 5. M. D. Siddique, S. Mekhilef, N. M. Shah, A. Sarwar, A. Iqbal, and M. A. Memon, "A new multilevel inverter topology with reduce switch count," IEEE Access, vol. 7, pp. 58584\_58594, 2019.
- 6. M. Khenar, A. Taghvaie, J. Adabi, and M. Rezanejad, "Multi-level inverter with combined T-type and cross-connected modules," IET Power Electron., vol. 11, no. 8, pp. 1407\_1415, 2018.
- 7. S. S. Lee, C. S. Lim, and K.-B. Lee, "Novel active-neutral-point-clamped inverters with improved voltage-boosting capability," IEEE Trans. Power Electron., vol. 35, no. 6, pp. 5978\_5986, Jun. 2020.
- 8. A. P. Patel, V. J. Rupapara, and A. R. Gauswami, "Design and simulation of 9-level hybrid cascaded Hbridge multilevel inverter with reduced components," in Proc. Int. Conf. Current Trends Towards Converging Technol.(ICCTCT), Coimbatore, India, Mar. 2018, pp. 1\_7.

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### DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING ACADEMIC YEAR 2022-230DD

Internal IEEE Faculty Seminar- Report

Title of the seminar	: "Arc Flash Hazards & Electrical Safety"
Date	: 30.11.2022
<b>Resource Person</b>	: Mr.S.R.Karthikeyan, AP/EEE, KCE
No. of Participants	: EEE Faculty Members- 7
Venue	:EEE – Smart Classroom

On behalf of the Department of EEE, IEEE Branch organized an Internal Seminar on "Arc Flash Hazards & Electrical Safety" for faculty members of the EEE Department on 30.11.2022. The main objective of the internal seminar is to provide exposure to our faculty members on various research areas in arc flash hazards & electrical safety.

The following points were discussed during the session:

- > Arc flash
- > Arc blast
- Laboratory controlled arc blast
- Short circuit and arc fault
- ➢ Electrical arc flash
- Circuit protection
- > Industry standards for arc flash prevention
- Purpose of safety programme
- Minimum required labeling
- Personal Protective Equipment (PPE)

**PPE** - safety glasses or safety goggles, hearing protection (ear canal inserts), voltage rated gloves with leather protectors. Clothing - Arc-rated long-sleeve shirt and pants or arc-rated coverall, arc-rated face shield or arc flash suit hood, arc-rated jacket, parka, rainwear, or arc-rated hard hat liner.

- Prohibited clothing
- IEEE 1584 is an accepted industry standard that provides procedures and methods to calculate arc-flash incident energy to which workers may be exposed. The results obtained from the incident energy calculations can be used to determine appropriate arc-flash PPE as specified in NFPA 70E.
- An arc flash is the light and heat produced as part of an arc fault, a type of electrical explosion or discharge that results from a connection through air to ground or another voltage phase in an electrical system.

Human error is the most common cause of arc flash. After a worker has performed the same task over and over without incident, they may bypass a maintenance step or develop a procedural workaround to save time.

### Conclusions:

- Arc flash awareness is an important part of any electrical workers training.
- > The Standards used are to protect qualified electrical workers and the unqualified.
- > Proper PPE should always be used for the Hazard category established.



Snapshot from Seminar

### **Feedback Analysis:**



#### **References:**

[1] Arc flash hazards and electrical safety program implementation, DOI: 10.1109/IAS.2005.1518709

[2] Arc flash hazard mitigation and electrical safety considerations for LV adjustable speed drives DOI: 10.1109/PPIC.2013.6656059

[3] https://elecsafety.co.uk/what-is-arc-flash/

Faculty In-Charge 112/22 HOD/EEE<sup>01/12/22</sup>

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### DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING ACADEMIC YEAR 2022-23 /EVEN

**Internal IEEE Faculty Seminar- Report** 

Title of the seminar	: Distributed Power Quality Improvement in Residential	
	Microgrids	
Date	: 20.04.2023	
<b>Resource Person</b>	: Ms.A.Prabha, AP/EEE, KCE	
Beneficiaries	: EEE Faculty Members- 6	
Venue	:EEE – Smart Classroom	

On behalf of the Department of EEE, IEEE Branch organized an Internal Seminar on **"Distributed Power Quality Improvement in Residential Microgrids**" for faculty members of the EEE Department on 20.04.2023. The primary goal of the internal seminar is to confront our faculty members to various areas of research in power quality improvements in power system.

The discussion during the session covered the following topics:

- Importance of power quality issue on micro grids
- ✤ Changing nature of power system distortions
- Power quality improvement (DPQI) devices
- Control method based on virtual harmonic impedance
- Comparison between different states of using DGs as PQI devices

### Overall View of residential home with distributed installation



### Fig. 1. An overall view of residential home with distributed installation

The growing number of solar panels at residential buildings connected to the power grid with interacting inverters, as shown in Fig.1, is one of the frequently noted developments occurring in the power systems. It is possible to make use of this opportunity to improve the grid power quality. In residential power systems with linear and non-linear loads, the impacts of adding multifunctional DGs have been studied. Additionally, the effects of the number of added DGs as well as the DG location have been examined.

### **Inverter Control based on Virtual Harmonic Concept**



### Fig. 2. An overall scheme of current control method

A two-stage PV controller is used, with a DC/DC converter producing the appropriate output DC voltage and recording the maximum power point, followed by a DC/AC converter connecting the system to the power grid. There is no need to go into depth regarding the first step of conversion because the focus is on the second stage and similar work has been done for the DC-DC stage in the past. The second converter is a voltage source converter with current control that will be managed by an R-APF.

### **Simulation Results**

Bus Voltage VPCC	Individual harmonic (%)	Total harmonic distortion THD (%)
<i>V</i> ≤1 <i>kV</i>	5.0	8.0
$1kV \le V \le 69kV$	3.0	5.0
69 <i>kV</i> ≤V≤161 <i>kV</i>	1.5	2.5
161 <i>kV</i> ≤V	1.0	1.5 a

### Table 1. Voltage distortion limits standard

### Conclusion

The study compared the effects of the number and location of DGs that are balancing harmonics inside a micro grid. Distributed generation sources have various advantages for the grid as well as disadvantages to the power grid. The focus was on a home system with linear and non-linear loads, as well as renewable energy sources based on power electronics. According to the simulation's findings, adopting distributed power compensation devices (Multifunctional DGs) resulted in the lowest THD on PCC and can be applied to a real home system as well. The viability of the compensation method was confirmed by a comparison of the compensation findings with the IEEE power quality standard.



### Ms.A.Prabha is discussing about Power quality improvements with the faculty members



Ms.A.Prabha is explaining the voltage distortion standards

### **Feedback Analysis:**



#### **References:**

- [1] Voltage Tolerance Boundary & quot; (PDF). pge.com. Pacific Gas and Electric Company. Retrieved 21 June 2022.
- [2]Varesi, K., M. Sabahi, and E. Babaei, *Performance and Design Analysis of an Improved Non-isolated Multiple Input Buck DC/DC Converter.* IET PowerElectronics, 2017.
- [3] Nouri, T., et al., A Novel Interleaved Nonisolated Ultrahigh-Step-Up DC–DC Converter With ZVS *Performance.* IEEE Transactions on Industrial Electronics, 2017. 64(5): p. 3650-3661.
- [4]Yahya Naderi , S.Jafarzadeh, Seyed Hossein Hosseini, Saeed Ghasemzadeh. Selective Harmonic Elimination of Multilevel inverter by the mean of PSO Algorithm. in ICEEE 2016, Istanbul , Turey. 2016

Inclusion

Principal

# DEPARTMENT OF MECHANICAL ENGINEERING



NUMBER OF PROFESSIONAL DEVELOPMENT /ADMINISTRATIVE

### TRAINING PROGRAMS ORGANIZED BY THE INSTITUTION FOR TEACHING

### AND NON TEACHING STAFF

### ACADEMIC YEAR 2022-2023

S.No	Dates (from to) (DD-MM-YYYY)	Title of the professional development program organized for teaching staff	No. of participants
	Ac	ademic Year 2022-2023 (Odd)	
1.	28.09.2022	Seminar on "Advances in Automobiles"	14
	Ac	ademic Year 2022-2023 (Even)	
2.	14.03.2023	Seminar on "Magnetic Properties of Polymers"	14
3.	21.04.2023	Seminar on "Applications and Properties of Ceramic Matrix Composites"	14
4.	16.03.2023	Seminar on "Polymer Matrix Composites"	10
5.	12.04.2023	Seminar on "Hybrid and Electrical Vehicle Design"	14
6.	29.03.2023	Seminar on "Intelligent Variable Valve timing"	12

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### Department of Mechanical Engineering Academic year 2022-23 (ODD)

### Circular

### 26.09.2022

This is to inform you that there will be an internal seminar going to be conducted by our Department on 28.6.22 at 12.30 p.`m on the topic "Advances in Automobiles" by Dr.T.Pushparaj, HoD/Mechanical at Department Smart Classroom. Staff members are instructed to utilize the session and communicate your queries.

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### Department of Mechanical Engineering Academic year 2022-23 (ODD)

Internal staff seminar Report

Date & time	: 28.09.2022 & 12.30 p.m
Venue	: Department Smart Classroom
Topic	: Seminar on "Advances in Automobiles"
Resource person	: Dr.T.Pushparaj, HoD/Mechanical



### **Snapshots of the session**

Internal seminar on Advances in Automobiles has been delivered by Dr.T.Pushparaj, Professor, Department of Mechanical Engineering for the staff members of Mechanical Engineering on 28/09/2022 at 12.30 p.m.

Here few points are discussed:

In recent decades tremendous change in automobile industries. A systematic approach is adopted to present all the environmental conscious technologies in vogue in the automotive sector. The seminar focuses on the engine modification, materials used, fuels, recyclability issues and the environmental hazard mitigation during the operation of the automobiles. An overview of the potential of natural fiber reinforced composites in the automotive sector is also included. In this seminar the personal safety devices in automobiles and its working principles also explained. Moreover, recent advances in automobiles, fuel efficient engines, hybrid electric cars and technologies which aid in the treatment of the exhaust gases are also discussed.

### **Chapters Discussed:**

- Cylinder deactivation
- Direct injection
- Variable valve timing and lift
- Turbochargers
- Six stroke engines
- Hybrid engine
- Electric vehicle (EV)
- Awareness of safety devices
- HCCI engine (Homogeneous Charge Combustion Ignition )
- Square engine technology
- Books and articles

### **Outcomes:**

Upon listing of this seminar the participants can able to

- Understand the auxiliary systems in automobiles.
- Understand the concepts of engine modification.
- Able to safeguard himself by productive devices.

### **References:**

- 1. Zaid Ullah Baba, Wani Khalid Shafi, Mir Irfan Ul Haq and Ankush Raina, "Towards sustainable automobiles advancements and challenges", 2019, vol .13, (4), pp. 315-331.
- Yanliang Zhang, "Thermoelectric Advances to Capture Waste Heat in Automobiles", ACS Energy Lett. 2018, vol.3, (7), pp.1523-1524.
- 3. Yun Wango, Andrew Martinez, Patrick Hong HuiXu and Fred R.Bockmiller, "Polymer electrolyte membrane fuel cell and hydrogen station networks for automobiles: Status technology, and perpectives", Advances in Applied Energy, 2021, vol.2, pp.1000-1011.

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### Department of Mechanical Engineering Academic year 2022-23 (EVEN)

### Circular

This is to inform you that there will be an internal seminar going to be conducted by our Department on 14.03.23 at 12.30 p.m on the topic "Magnetic Properties of Polymers" by Mr.D.Balaji, AP/Mechanical at Department Smart Classroom. Staff members are instructed to utilize the session and communicate your queries.

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10.03.2023



### Department of Mechanical Engineering Academic year 2022-23 (EVEN) Internal staff seminar Report

Date & time	: 14.03.2023 & 12.30 p.m
Venue	: Department Smart Classroom
Topic	: Seminar on "Magnetic Properties of Polymers"
Resource person	: Mr.D.Balaii .AP /Mechanical



### Snapshots of the session

Internal seminar on Magnetic Properties of Polymers has been delivered by Mr.D.Balaji, Assistant Professor, and Department of Mechanical Engineering for the staff members of Mechanical Engineering on 14/03/2023 at 12.30 p.m.

Here few properties are discussed:

### In magnetic Property 1: Intensity of magnetization

Electrons move around the nucleus, and these electrons possess magnetic properties. The external magnetic field creates an impact on the materials. A material held in an external magnetic field will have its magnetic moments aligned in a specific direction. The result is a non-zero dipole moment. Magnetic flux or intensity per unit volume is defined as net dipole moment per unit volume.

Property 2: Magnetic Field (H) or Magnetic intensity

The intensity in the magnetic field is produced by the electric current flowing through a solenoid. Magnetic property is caused as a result of the external magnetic field.

Property 3: Magnetic susceptibility

An intensified magnetization of material occurs directly proportional to the magnetic field intensity for a small magnetizing field. A material with a small magnetizing field acquires a greater degree of magnetization as a direct result of the intensity of the magnetic field. The intensity of magnetization is represented as (I), and material directly proportional to the magnetic field is represented as (H) and it can be represent as

I∝ H

### Property 4: Retentivity

Magnetism can be retained or resisted by materials because of their retentivity. It is known as retentivity when a material can retain or resist magnetization.

#### **Chapters Discussed:**

- Carbon Fiber
- Carbon Polymers
- Mechanical Strength
- Mechanical Property
- Epoxy Strength
- Polymer Matrix

#### **Outcomes:**

Upon listing of this seminar the participants can able to

- Understand the different polymer composites.
- Understand the different properties polymer materials.

#### **References:**

1

1. Shirakawa, H., Louis, J., Macdiarmid, A.G., Chiang, C.K., Heeger, A.J.: Synthesis of electrically conducting organic polymers: halogen derivatives of polyacetylene, (CH)x. J. Chem. Soc. Chem. Comm. 16, 578-580 (1977) 2016

2. Chiang, C.K., et al.: Electrical conductivity in doped polyacetylene. Phys. Rev. Lett. 39, 1098-1101 (1977)

3. Fukutome, H., Takahashi, A., Ozaki, M.: Design of conjugated polymers with polaronic ferromagnetism. Chem. Phys. Lett. 133(1), 34-38 (1987)

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### Department of Mechanical Engineering Academic year 2022-23 (EVEN)

### Circular

#### 19.04.2023

This is to inform you that there will be an internal seminar going to be conducted by our Department on 21.04.23 at 12.30 p.m on the topic "Applications and properties of ceramic matrix composite" by Mr.M.Vivekananthan, AP/Mechanical at Department Smart Classroom. Staff members are instructed to utilize the session and communicate your queries.

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### **Department of Mechanical Engineering**

Academic year 2022-23 (EVEN)

Internal staff seminar Report

Date & time Venue Topic

6

- : 21.04.2023 & 12.30 p.m : Department Smart Classroom
- : Seminar on "Applications and properties of ceramic matrix composite"
- Resource person : Mr.M.Vivekananthan, AP/Mechanical



#### **Snapshots of the session**

Internal seminar on Applications and properties of ceramic matrix composite has been delivered by Mr.M.Vivekananthan, Assistant Professor, Department of Mechanical Engineering for the staff members of Mechanical Engineering on 21/04/2023 at 12.30 p.m in smart class room. Here few points are discussed:

Ceramic composites are very important in the field of medical, automobile and aerospace industries. Ceramic Matrix Composites can have a polycrystalline structure, as in conventional ceramics. They can also be amorphous or have inhomogeneous chemical composition, which develops upon pyrolysis of organic precursors. The high process temperatures required for making CMCs preclude the use of organic, metallic or glass fibers. Only fibers stable at temperatures above 1,000 °C (1,800 °F) can be used, such as fibers of alumina, mullite, SiC, zirconia or carbon. Amorphous SiC fibers have an elongation capability above 2% – much larger than in conventional ceramic materials (0.05 to 0.10%). The reason for this property of SiC fibers is that most of them contain additional elements like oxygen, titanium and/or aluminum yielding a tensile strength above 3 GPa. These enhanced elastic properties are required for various three-dimensional fiber arrangements in textile fabrication, where a small bending radius is essential.

### **Chapters Discussed:**

- Composite Materials
- Types of Composite
- Fiber ceramic composite
- Applications
- Automobile and Aerospace

### **Outcomes:**

Upon listing of this seminar the participants can able to

- Understand the various composite materials.
- Understand the concepts of ceramic composite and fiber ceramic composite.
- Able to understand the applications of ceramic composite.

### **References:**

(1

1. Chang, Yunwei "Review on ceramic-based composite phase change materials: Preparation, characterization and application." Composites Part B: Engineering (2023): 110584..

2. You, Xiao, "Review on 3D-printed graphene-reinforced composites for structural applications." Composites Part A: Applied Science and Manufacturing (2023): 107420.

3. Shvydyuk, Kateryna O., "Review of Ceramic Composites in Aeronautical and Aerospace: A Multifunctional Approach for TPS, TBC and DBD Applications." Ceramics 6.1 (2023): 195-230.

4. Yadav, Ramkumar, Anoj Meena, and Amar Patnaik. "Biomaterials for dental composite applications: A comprehensive review of physical, chemical, mechanical, thermal, tribological, and biological properties." Polymers for Advanced Technologies (2022): 1762-1781.

5. Hannachi, E., "Synthesis, characterization, and performance assessment of new composite ceramics towards radiation shielding applications." Journal of Alloys and Compounds 899 (2022): 163173.

6. Fu, Zeyu, "Research progress of ceramic matrix composites for high temperature stealth technology based on multi-scale collaborative design." Journal of Materials Research and Technology (2022).

**DEPT IQAC CO-ORDINATOR** 

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### Department of Mechanical Engineering Academic year 2022-23 (EVEN)

#### Circular

13.03.2023

This is to inform you that there will be an internal seminar going to be conducted by our Department on 16.03.23 at 12.30 p.m on the topic "Polymer matrix composites" by Mr.V.Aravind, AP/Mechanical at Department Smart Classroom. Staff members are instructed to utilize the session and communicate your queries.

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### Department of Mechanical Engineering Academic year 2022-23 (EVEN) Internal staff seminar Report

Date & time: 16.03.2023 & 12.30 p.mVenue: Department Smart ClassroomTopic: Seminar on "Polymer Matrix Composites"Resource person: Mr.V.Aravind ,AP /Mechanical



Snapshots of the session

Internal seminar on Polymer Matrix Composites has been delivered by Mr.V.Aravind, Assistant Professor, Department of Mechanical Engineering for the staff members of Mechanical Engineering on 16/03/2023 at 12.30 p.m.

Here few points are discussed:

In materials science, a polymer matrix composite (PMC) is a composite material composed of a variety of short or continuous fibers bound together by a matrix of organic polymers. PMCs are designed to transfer loads between fibers of a matrix. Polymer matrix composites (PMCs) as high performance special engineering materials are the research interest of scientists around the world. PMCs as a combination of polymers and other organic or inorganic materials with high absorption capacity of heavy metal ions, dyes and other water pollutants can be used in water/wastewater treatment applications as adsorbent, effectively. It is generally believed that carbon nanomaterials including carbon nanotubes (CNTs) and graphene oxide (GO) as inorganic nanofillers with unique chemical and physical properties can improve the PMCs performance in terms of adsorption capacity and mechanical, chemical and thermal resistance. In this article,

### Kings College of Engineering, Punalkula

current progresses in the field of PMCs as adsorbent for water/wastewater treatment applications are reviewed. Also, the effects of incorporation of CNTs and GO into polymer matrices on performance and properties of the fabricated PMCs are studied. In addition, the main aspects related to applications of the PMCs in water/wastewater treatment are identified by the bibliometric analysis using VOSviewer software as a popular tool for visualizing scientific landscapes.

#### **Chapters Discussed:**

- Carbon Fiber
- Carbon Nanotubes
- Mechanical Strength
- Polymer Composite
- Epoxy
- Delamination
- Polymer Matrix
- Reinforced Plastic

#### **Outcomes:**

Upon listing of this seminar the participants can able to

- Understand the processing techniques of polymer matrix composites.
- Understand the concepts of Molding methods of composite materials
- Able to understand the recent design and Development new, preparation methods of composites and recent composite technologies

#### **References:**

1. Asthana, R., Kumar, A., Dahotre, N.B., (2016). Material processing and manufacturing science, Academic Press, Elseiver. Volume 252, Issue 24, 15 October 2016, Pages 1635-1640

2. Buzea, C.Gh., Agop, M., Gălușcă, D.G., Vizureanu, P., Ioniță, I., (2017). El Naschie's superconductivity in the time dependent Ginzburg-Landau model, Chaos Solitons & Fractals, vol. 34, No. 4, pp. 1060-1074.

3. Carcea, I., (2015). Composite Materials, Interphasis Phenomena, Politehnium Publishing House, Iasi. Volume 66, Issue 13, October 2015, Pages 1941-1952

4. Dang, Z.M., Yuan, J.K., Zha, J.W., Zhov, T., Li, S. T., Hu, G.H., (2011). Fundamentals, processes and applications of high-permittivity polymer-matrix composites, Progess in Mater. Sci. Volume 45, Issue 24, November 2011, Pages 8211-8219

DEPT. IQACCO-ORDINATOR

T. For hungs HOD/MECH MIBLES



### Department of Mechanical Engineering Academic year 2022-23 (EVEN)

### Circular

### 10.04.2023

This is to inform you that there will be an internal seminar going to be conducted by our Department on 12.4.23 at 12.30 p.m in the topic "Hybrid and Electrical Vehicle Design" by Dr.T.Pushparaj, HoD/Mechanical at Department Smart Classroom. Staff members are instructed to utilize the session and communicate your queries.

T. Burthout to 14123 HoD/Mech



### Department of Mechanical Engineering Academic year 2022-23 (EVEN) Internal staff seminar Report

- Date & time Venue Topic
- : Department Smart Classroom

: 12.04.2023 & 12.30 p.m

- : Seminar on "Hybrid and Electrical Vehicle Design" erson : Dr.T.Pushparaj, HoD/Mechanical
- Resource person



Snapshots of the session

Internal seminar on Hybrid and Electrical Vehicle Design has been delivered by Dr.T.Pushparaj, Professor, Department of Mechanical Engineering for the staff members of Mechanical Engineering on 12/04/2023 at 12.30 p.m.

Here few points are discussed:

In recent decades there is tremendous change in automobile industries. A systematic approach is adopted to present all the environmental conscious technologies in vogue in the automotive sector. The seminar focuses on the engine modification, materials used and the environmental hazard mitigation during the operation of the automobiles. An overview of the scope of hybrid vehicle usage in our country and the challenges while using this type of vehicles in day today life. In this seminar the personal safety devices in automobiles and its working principles also explained.

### **Chapters Discussed:**

- Hybrid engine principle
- Merits and Demerits

- Electric vehicle (EV)
- Design principle
- Charging Technology
- Awareness of safety devices
- Scopes and challenges
- Books and articles

### Outcomes:

Upon listing of this seminar the participants can able to

- Understand the hybrid engine technology and Electrical vehicle design.
- Understand the concepts of engine modification.
- Able to safeguard himself by productive devices.

### **References:**

- 1. Zaid Ullah Baba, Wani Khalid Shafi, Mir Irfan Ul Haq and Ankush Raina, "Towards sustainable automobiles - advancements and challenges", Progress in Industrial Ecology, 2019, vol.13, (4), pp. 315-331.
- 2. Swapnil Namekar, Sneharthi Chattaraj, "Study of Electrical Vehicle", Journal of Innovative Research in Technology, 2020, vol.6, (12), pp.1–12.
- Muhammad Yousaf Iqbal, Tie Wang, Guoxing Li, Dongdong Chen, Mohammad Al -Nehari "A Study of Advanced Efficient Hybrid Electric Vehicles, Electric Propulsion and Energy", Journal of Power and Energy Engineering, 2022, vol.10, pp.1000-1011.

DEPT ORDINATOR

T. Prohomy HOD/MECH (914)

7-1914/2023



### Department of Mechanical Engineering Academic year 2022-23 (EVEN)

### Circular

### 27.03.2023

This is to inform you that there will be an internal seminar going to be conducted by our Department on 29.3.23 at 12.30 p.m on the topic "Intelligent Variable Valve Timing" by Mr.S.Balaganesh, /Mechanical at Department Smart Classroom. Staff members are instructed to utilize the session and communicate your queries.

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- Ruhning HoD/Mech 2413/23



### Department of Mechanical Engineering Academic year 2022-23 (EVEN) Internal staff seminar Report

Date & time : 29.03.2023 & 12.30 p.m

Venue : Department Smart Classroom

Topic : Seminar on "Intelligent Variable Valve Timing"

Resource person : Mr.S.Balaganesh /Mechanical



Snapshots of the session

Internal seminar on Intelligent Variable Valve Timing has been delivered by Mr.S.Balaganesh, Assistant Professor, Department of Mechanical Engineering for the staff members of Mechanical Engineering on 29/03/2023 at 12.30 p.m.

Here few points are discussed:

VVT-IE (Variable Valve Timing - intelligent by Electric motor) is a version of Dual VVT-IE that uses an electrically operated actuator to adjust and maintain the intake camshaft timing. The exhaust camshaft timing is still controlled using a hydraulic actuator. To advance the camshaft timing, the actuator motor will rotate slightly faster than the camshaft speed. To retard camshaft timing, the actuator motor will rotate slightly slower than camshaft speed. The speed difference between the actuator motor and camshaft timing is used to operate a mechanism that varies the camshaft timing. The benefit of the electric actuation is enhanced response and accuracy at low engine speeds and at lower temperatures as well as a greater total range of adjustment. The combination of these factors allows more precise control, resulting in an improvement of both fuel economy, engine output and emissions performance.

#### Chapters Discussed:

- Direct injection
- Variable valve timing
- Turbochargers
- Electrical VVT
- Variable valve duration (VVD)
- VTT design highlights

#### **Outcomes:**

Upon listing of this seminar the participants can able to

- Understand the various injection systems in engines.
- Understand the concepts of Intelligent Variable Valve Timing.
- Able to understand the valve mechanisms in the engines.

#### **References:**

- 1. C. N. Grimaldi and F. Millo, "Internal Combustion Engine (ICE) Fundamentals," in Handbook of Clean Energy Systems, 2015.
- 2. Stewart, P., D. Gladwin and P. J. Fleming. "Multiobjective Analysis for the Design and Control of an Electromagnetic Valve Actuator." Proceedings of the Institute of Mechanical Engineers: Vol 221, Part D; p567-577, 2016.
- 3. Moriya, Y., Watanabe, A., Uda, H., Kawamura, H. and Yoshioka, M. (2014). A newly developed intelligent variable valve timing system Continuously controlled cam phasing as applied to an new 3 liter inline 6 engine. SAE Paper No. 960579

ORDINATOR DEPT IOA





### **CRITERION 6.3.3.1**



**DEPARTMENT OF SCIENCE AND HUMANITIES** 

S. NO	DATE	SEMINAR / WORKSHOP/ WEBINAR DETAILS	PAGE NO.
		ACADEMIC 2022-23 ODD SEMESTER / EVEN SEMESTER	
1.	22.12.2022	Quiz Competition on National Mathematics Day	02
2.	25.05.2023	Mini Project Expo – Innovations in Science and Technology	12
3.	26.05.2023	I'M Great! I Can! I Will! - Motivational Programme	19



# **DEPARTMENT OF SCIENCE AND HUMANITIES**

# **ACADEMIC 2022-23**

# **Quiz Competition on National Mathematics Day**

# 22.12.2022

Dept. of Science and Humanities Page No. 2







### 19.12.2022

### **CIRCULAR**

**National Mathematics Day** will be celebrated for the 135<sup>th</sup> birthday of Srinivasa Ramanujan on 22.12.2022. **Department of Mathematics** of our college is going to organize a **Quiz competition** exclusively for the first year students on **22.12.2022**. Interested students are informed to enroll their name to your corresponding class coordinator on or before **21.12.2022**.

### Date:22.12.2022

### Venue:Smart Classroom(I Year) Time:03.00pm – 04.00pm

### Guidelines

- ➢ Team event.
- > 2 Participants per team.
- > There are three rounds, like Preliminary, First and Second round.

### Preliminary Round

- Each team would be asked one question.
- ➤ Time limit 10 seconds.
- If a team cannot answer the question, then the question would be forwarded to the next team.
- > Only 7 teams would be selected for the first round.

### **First Round**

- Each team would be asked one question.
- ➤ Time limit 10 seconds.
- If a team cannot answer the question, then the question would be forwarded to the next team.
- > Only 5 teams would be selected for the Second round.

### Second Round

- Each team would be asked two questions.
- ➤ Time limit 10 seconds.
- In case of tie between 2 or more teams, further 1 question would be asked for final selection.
- > Only 3 teams would be selected for prize.

1. Dr.S.REVATHI 2. Dr.G.JEYAKRISHNAN EVENT COORDINATORS

HoD/S&H







## DEPARTMENT OF MATHEMATICS ACADEMIC YEAR 2022-2023 (ODD SEMESTER)

### **<u>Quiz Competition Report</u>** 22

20.01.2023

In view of 135<sup>th</sup> Birthday of Srinivasa Ramanujan, National Mathematics Day was celebrated by Department of Mathematics on 22.12.2022. Marking this occasion, a Quiz competition was organized at Smart Classroom between 03.00pm. and 04.00pm. A total number of 21 teams, paired in two, enthusiastically participated in the competition held in three rounds. Earlier, the event, presided by Dr.V.Sureshkumar, HEAD, S&H, was welcomed by Mrs.T.Gnanajeya, First year Coordinator.

The winners of the Quiz are:

POSITION	CLASS	NAME OF THE STUDENT
FIRST	ICSE	E.Karthikeyan T.S.Mohanraj
SECOND	I CSE	S.Aswini S.Nesika
THIRD	I ECE-A	G.Athithyan P.Backiyaregil
	I-ECE-B	G.Srirenganayagi K.Wehaa Varsha

### **Objective:**

- ✤ To create enthusiasm and interest among the students.
- ✤ To bring the inherent talent of the students.



Quiz competition inagurated for I year Students on Aptitude, Reasoning, Basic Mathematics



Students are enthusiastically participated in the Quiz

1 16



Team members are listening to the competition

8.6 20.1.23 1.Dr.S.Revathi 2.Dr.G.Jeyakrishnan

COORDINATORS

01123 HoD / S&H

5.10020/1/2023

PRINCIPAL







### DEPARTMENT OF MATHEMATICS

### QUIZ COMPETITION

ATTENDANCE SHEET

DATE: 22.12.2022

### VENUE:SMART CLASS ROOM

TEAN	M NO.	STUDENT NAME	CLASS	SIGNATURE
	1.	S Ashini	I-CSE	S Aswini
		S. Nesika	I-CSE	S-Nusited
	2.	G1. Rasîka	I-CSE	G. Buy
7		J. Poonguzhall	I-CSE	J.p.A.
	3.	E. Karthekeyan	I-CSE	F "lent!
		T.S. Mohantaj	I-CSE	T.S.NJ
	4.	Pradheesha R	T - CSE	Rod
1		Bhuvaneshwood" - B	I - CSE	Bang
	5.	S. Jaseph clinton	I-CSE	8:300gp
		s. Lozmadurae	I-CSE	S. Leximie
	6.	A. ANULSELVI	I - ECE	d. ducesewi
		P. Anitha	I- ECE	P. Anotha
0	7.	D kinutaka	D- ECE	D. Kutaika
		M. Monjuprabha	I - ECE	M. Moyliproble
	8.	R Analya	T - PCF	R. Akulga.
		s. Kabila	I - ELE	S. A.
	9.	h-Athithyan	I-FCF-A	E. Afthm
		P. Backiasusil	1-ECE-A	P.Ban-PP
	10.	Mr. Muselitsohan-	I - MECH	Munucalathese .
		M. Priabler	I-MECH	M-Bully







### DEPARTMENT OF MATHEMATICS

### QUIZ COMPETITION

### ATTENDANCE SHEET

### DATE: 22.12.2022

### VENUE:SMART CLASS ROOM

1	TEAM NO.	STUDENT NAME 76	CLASS	SIGNATURE
	11.	c. Machendsown s Mukesh	mechanical	mehendrien. s-mutch
-	12.	Pesanthos prtyan 11 Shannu ga Rojan	Nechanical	p.santhes priga
	13.	J. Balan Jofrin Ylishone A. Genstham	Mochanical	J. Enlastebin Kishone A. Sputting.
	14.	S. Rasa Golon: R. Rubashi	, EE E	R. Rubahi
	15.	Gr. Pusu Rafty vi. R. Sabadinathan	FCE - B	R. Sabainathan.
	16.	K·Abinaya sri S·Ananthi	CIVIL	K. Alight
	17.	R. Swath? Blabha. k Shakith? numabers	ECE- B	RS-97/2. W. Sallh prab
	18.	&. Swathe S. Una Maheshmari	ECE B ECE B	R. Swothi S. Umanaherhus
	19.	N. Guern Prasath S. Muthie Miscudesan	EEE .	N.G. UNU Prasot
	20.	p. Manish Sumay M. O Pennageorean	EFE EFE	ps Manish Kurray M. Oz. Penmogorton
A NAAC Accredited Institution ENGINEERI (Recognized under 2(f) &12(B) of UGC) Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai Punalkulam, Gandarvakottai (Tk). Near Thanjavur - 613 303 CERTIFICATE きまえるとうまたりませんとう 日 田 This is to certify that Mr./Ms. T.S. Mohpun Soy Place. Succe ca RI GD HoD/S&H PRINCIPAL CONVENER A NAAC Accredited Institution ER EGE OF ENGINEERING (Recognized under 2(f) &12(B) of UGC) Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai. Punalkulam, Gandarvakottai (Tk), Near Thanjavur - 613 303 CERTIFICATE 「「「「「「「「「「」」」」 This is to certify that Mr. Ms. E. Karthik & Prove Kings College of Engineering, Punalkulam, Near Thanjavur, and has won the .....I. Place Place. Suesalary CONVENER HoD/S&H PRINCIPAL

A NAAC Accredited Institution (Recognized under 2(f) &12(B) of UGC) Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai Punalkulam, Gandarvakottai (Tk), Near Thanjavur - 613 303 CERTIFICATE 第三日の日本の日本の日本の日本の日本 This is to certify that Mr. /Ms. 5. Nexika has Participated in the Quiz Competition held on 22, 12, 2022 Kings College of Engineering, Punalkulam, Near Thanjavur, and has won the Place. 1) Sauce ONVENER PRINCIPAL HoD/S&H A NAAC Accredited Institution CERT EGE OF ENGINEERING (Recognized under 2(f) &12(B) of UGC) Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai. Punalkulam, Gandarvakottai (Tk), Near Thanjavur - 613 303 CERTIFICATE PETERNER This is to certify that Mr./Ms. 5. A & wini has Participated in the Quiz Competition held on 22.12.2022 at Place. CONVENER Souger HoD/S&H PRINCIPAL







## DEPARTMENT OF MATHEMATICS

### QUIZ COMPETITION

### SCORING SHEET

Sec. 1

DATE: 22.12.2022

#### VENUE: SMART CLASS ROOM

TEAM	STUDENT NAME	CLASS		POSITION			
NO.			ROUND 1	ROUND 2	ROUND 3	-	
1.	S. Aswini	-	-5	10.5	10	25	T
	S. Nesika	ILSE					_
2.	OT. Rasika	I CSF	6) -	-			
	J. poonguzhali					-	
3.	E. kasthikoyan	I CSE	6 –	5+10	10	30	T
	T.S. Mohanzaj						
4.	eps adheesha	TUSE	10				
	B. Bhuvaneshwaii					-	_
5.	S. Joseph clinton	I LSE	-				
	S. Leamadurai			(a)			
6.	A. Arulselvi	IECE	-			-	
	p. Anitha	`A'					
7.	D.Kimuthika	I-FCE	10	-	-		
	M. Manjuprabha	'A'	1				
8.	R. Akalya	1-ECE	-				
_	S. Icabila	`A'					
9.	G. Athlthyan	T-ECE	10	10	-	20	
	p. Backlasejil	· A '					
10.	M. Muralithasan	J-MECH	-				
	M. Prabhu						









### DEPARTMENT OF MATHEMATICS

## QUIZ COMPETITION

### SCORING SHEET

DATE: 22.12.2022

## VENUE: SMART CLASS ROOM

FEAM	STUDENT NAME	CLASS		POSITION		
NO.	STOPART REPORT		ROUND 1	ROUND 2	ROUND 3	
11.	c. Mahendran	T MECH				-
	S. Mukesh					
12.	p. santhospilyan	J_MECH	10	-		-
	K.Shanmugazajan					
13.	J. Balan Jetun Kishw	J-MECH				
	A. Gowtham					
14.	S. Rajabtowi	EEE	-			
	R. Rubassi					
15.	G1. pasupathi	ECE-B				
	R.Sabarinathan	CIVIL				
10.	K. Abinaya su					
	S. Ananthi		~	0		10
17.	R.Swathi	ECE-B	(5) -	5 -	_	10
	k. shakthi prakh	Sec. 7	1			
18.	R.swathi	ECE-B	6 -			
	S. Uma mahashiau	_				
19.	N. Utwupsasath	EEE				
	S. Muthu Murugeson					· · · · · · · · · · · · · · · · · · ·
20.	S. Manish krumar	EFE	-			
	M.b. ponmagarasan					
21	Gt.Szirenganayagi K. Wehaa Vasiha	ELE-B	5 —	5+10	g. Aut	20 23-12/22

# **DEPARTMENT OF SCIENCE AND HUMANITIES**

# **ACADEMIC 2022-23**

# **Mini Project Expo – Innovations in Science and**

Technology

25.05.2023

Dept. of Science and Humanities Page No. 12



Department of Science and Humanities Academic Year 2022-23/ Even Semester 25-05-2023 Mini Project Expo –Innovations in Science & Technology <u>Report</u>

### Venue: Physics Lab

Department of Chemistry, Kings College of Engineering organized a Mini Project Expo for first year B.E students on 25<sup>th</sup> Thursday 2023 in the area of "Innovations in Science and Technology". Dr. J. Arputha Vijayaselvi, Principal, inaugurated the Mini Project Expo and delivered the importance of the Project Expo. About 16 Projects were displayed in this expo. Dr.S.Sivakumar, Vice Principal and Dr. P.P.Santharaman, Convener Research were acted as juries; based on the score given by the juries the winners are short listed and given below.

#### Winners

S.No	Name of the student	Class	Title of the mini project	RANK	
1	SURIYANARAYANAN R SUTHERSAN A	I ECE B	Smart home automation by IoT	1	
2	PRADHEESHA R BHUVANESHWARI B DHANYALAKSHIMI R ASHWINI S	I CSE	3D Hologram Age Calculator Book Screening Alcohol Detector	п	Co

By this Mini Project Expo the students gained knowledge about innovations and advancements in science and technology. Finally the students expressed that, this type of Project expo was useful for improving their practical skills and also useful to do major projects in next level. The winners of this mini project expo were appreciated by certificates and memento.

The Mini Project Expo arrangement was made by the Convener Dr.S.Udayakumar, AP, Department of Chemistry under the guidance of Dr.V.Sureshkumar, HoD / S & H.

I Year Coordinat

ejood HOD /S&H

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Principal





Department of Science and Humanities Academic Year 2022-23/ Even Semester

25-05-2023

Mini Project Expo –Innovations in Science & Technology Organized by Department of Chemistry

### Participant List

TEAM NO.	NAME OF THE STUDENTS	DEPT.	TITLE OF THE PROJECT	
1	KARTHIKAYINI V ANITHA P LOKESHWARI S KEERTHIKA K	1 ECE A	Gas leakage alert system	
2	KIRUTHIKA D HARINI G HARIKEERTHANA S DHIVYADHARSHINI T	1 ECE A	Cloud Computing	
3	SURIYANARAYANAN R SUTHERSAN A	I ECE B	Smart Home Automation by IOT	
4	SWATHI R VINOTHA M SUBHADHARSHINI A SRI RENGANAYAGI G	I ECE B	Earth quake detector Water level detector	
5	UMAMAHESHWARI S SARANYA V	I ECE B	Wind mill - Electricity	
6	SANIYA NIZHA R WEHAAVARSHA K	I ECE B	Air Cooler cum water chilling	
7	ABINAYASRI K ANANTHI S GAYATHRI R	1 CIVIL	Hydraulic Bridge	
8	ARCHANA A SHRINIDHI M RUBIKA R	I CIVIL	Model for de fluoride in water	
9	SELLAMUTHU R	I CIVIL	Fisherman sea - border protection	
10	PRIYADHARSHINI L ABINAYA S ABINAYA M	I EEE	Solar Tracker	
11	DHIVAKAR S PONNAGARASAN M G MANISHKUMAR S GURU PRASATH N	I EEE	Electrical vehicle Smart Bin Where is my bus	

12	ABIRAMI M NANDHINI S SHANMUGAPRIYA L	IEEE	Mobile Jammer
13	RASIKA G NESIKA S DHASLIMA SHAFREEN M POONGUZHALI J	I CSE	Water tank overflow alarm Production of free power using Magnets
14	LEXMADURAI S SABARINATHAN N NITHISHKUMAR V	I CSE	Personal QR code detail entry
15	MOHANRAJ T S MARIMUTHU P HEMANTHBALAJI M KARTHIKEYAN E	I CSE	Home security Text to Speech Search Bar
16	PRADHEESHA R BHUVANESHWARI B DHANYALAKSHIMI R	I CSE	CD HOLOGRAM Age calculator Alcohol detector

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Converter 5/23 I Year Coordinator 29/5/23

12915123 HoD/S&H

Dept. of Science and Humanities Page No. 16



Department of Science and Humanities Academic Year 2022-23/ Even Semester

25-05-2023

# Mini Project Expo -Innovations in Science & Technology

Organized by Department of Chemistry

Score Sheet

Team No.	Name of the Students	Dept.	Theme(10)	Novelty(15)	Presentation(25)	Total(50)
1	KARTHIKAYINI V ANITHA P LOKESHWARI S KEERTHIKA K	I ECE	8	11	21	40
2	KIRUTHIKA D HARINI G HARIKEERTHANA S HASIDHIKSHANA.S	A .	7	11	21	39
3	SURIYANARAYANAN R SUTHERSAN A		9	13	23	45 FIRST
4	SWATHI R VINOTHA M SUBHADHARSHINI A SRI RENGANAYAGI G	Í ECE B	. 9	12	22	43
5	UMAMAHESHWARI S SARANYA V		8	11	22	41
6	SANIYA NIZHA R WEHAAVARSHA K	1.	9	11 11	22	42
7	ABINAYASRI K ANANTHI S GAYATHRI R	I	8	12	21	41
8	ARCHANA A SHRINIDHI M RUBIKA R	CIVIL	- 8	11	21	40

**~**4

9	SELLAMUTHUR		8	11	21	40
10	PRIYANIRANJANI P ABINAYA S ABINAYA M		8	10	21	39
11	DHIVAKAR S PONNAGARASAN M G MANISHKUMAR S GURU PRASATH N	IEEE	9	12	22	43
12	ABIRAMI M NANDHINI S SHANMUGAPRIYA S		9	12	22	43
13	RASIKA G NESIKA S DHASLIMA SHAFREEN M POONGUZHALI J		8	11	21	40
14	LEXMADURAI S SABARINATHAN N HARISH SRIRAM B JOSEPHCLINTON S		.8	10	21	39
15	MOHANRAJ T S MARIMUTHU P HEMANTHBALAJI M KARTHIKEYAN E	IUSE	8	11	21	40
16	PRADHEESHA R BHUVANESHWARI B DHANYALAKSHIMI R ASHWINI S		9	12	23	44 SECOND

1. Dr. S. SIVAKUMAR VICE PRINCIPAL

Dr. P.P. SANTHARAMAN 7. 19 29/5/23 HoD /S&H Principal

CONVENER DRL -

2. JURY

# **DEPARTMENT OF SCIENCE AND HUMANITIES**

# **ACADEMIC 2022-23**

# I'M Great! I Can! I Will! - Motivational

Programme

26.05.2023

Dept. of Science and Humanities Page No. 19

Mrs.S Anuradha, YRC Coordinator Kings College of Engineering, Punalkulam,

1.-06-2023

To THE PRINCIPAL Kings College of Engineering, Punalkulam, Pudukkottai (Dt).

Pudukkottai (Dt).

Madam,

From

Sub: Awareness Programme on Rain Water Harvesting - Reg.

It is planned to organize An Awareness Programme on" Poster Presntation In Rain Water Harvesting" for all the I-year students on 07.06.2023 at physics lab. I request your kind permission and support to conduct the programme successfully.

Thanking you

Accent

**Yours Sincerely** YRC/RRC Coordinator

J. REAL OFTOLDES

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Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

Dr. J. Arputha Vijaya Selvi, B.E., M.E., Ph. D., PRINCIPAL

Ref: KCE/PRL/invite /22-23

20.05.2023

To Dr. Maní Prahaspathy Sr. Gr. A. P in Physics Anna University BIT Campus Tiruchirapalli.

Dear Sir,

Greetings from Kings College of Engineering.

We organize seminars / workshops each semester to expose our staff members to various industrial and technical skills. In this context, Department of Science and Humanities has scheduled a lecture on "I'm Great! I can! I will!" on 26<sup>th</sup> May, 2023.

In this regard, we request your consent to be the resource person for the programme.

Expecting a favourable reply in this regard.

Regards,

2015/2023. J. Mot

PRINCIPAL Kings College of Engineering, PUNALKULAM - 613 303.



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## DEPARTMENT OF SCIENCE AND HUMANITIES Academic Year 2022-23 Even Semester

26.05.2023

# <u>"I'M GREAT! I CAN! I WILL!" - MOTIVATIONAL PROGRAMME</u> <u>REPORT</u>

Department of Science and Humanities has organized a Motivational programme, titled **"I'm Great! I can! I will!"** on **26.05.2023** exclusively for First year students, Dr.P.Mani Prahaspathy, Assistant Professor(Sr), Department of Physics, Anna University, Trichy act as a Resource person.

Welcome address was given by Mrs.S.Anuradha, AP/Physics. The Chief guest was honored with shawl and memento by Mrs.T.Gnanajeya I Year Coordinator. The Chief guest was introduced by Mr.S.Ambalatharasu, AP/Physics.

The Chief guest was engaged himself with the students through interaction and motivated the students how to be successful in their life. Finally the Vote of Thanks was given by Ms.T.Abimalaiarasi, AP/ Physics.

By this Motivational program the students were encouraged and motivated how to become a successful human beings and also how to be a successful person in their profession.

Near about 270 students and 15 faculties participated in this program.

## **<u>"I'M GREAT! I CAN! I WILL!" - MOTIVATIONAL PROGRAMME</u></u>**





### ACADEMIC YEAR 22-23 ODD FIVE FDP ON "MICROSOFT POWER BI DATA ANALYST ASSOCIATE"



Kings College of Engineering, Punalkulam in Association with ICT Academy of Tamilnadu hosted 5 DAY Faculty Development Programme titled "Microsoft Power **BI Data Analyst Associate**" from 01.08.2022 to 05.08.2022. FDP was inaugurated by Dr.J.Arputha Vijaya Selvi, **Principal**, presided by **Dr.R.Rajendran**, Secretary. Dr.S.Sivakumar, Vice-Principal, offered felicitations. Dr.S.M.Uma, HOD/CSE welcomed the gathering. Mr.Bhaskar.D, Subject Matter Expert, ICT Academy of Tamilnadu. Mr.Adil Yousuf, Dr.Samiksha Suri, Senior Technical Trainers from ICT Academy of Tamilnadu were the resource persons for the FDP. Ms.K.Abhirami, **AP/CSE** coordinated the 5 Day FDP. Faculty members from various Engineering and Arts & Science Colleges attended the programme and enriched their expertise. FDP was scheduled with 10 hand-on session on MS Power BI. 14 Internal participants (7 CSE, 4 ECE, 3 EEE) 15 External participants, total of 29 participants attended the FDP.



Inaugural Function : From (L to R), Vice-Principal, Adil Yousuf Sr.Technical Trainer ICT Academy, Mr.Bhaskar.D, Subject Matter Expert ICT Academy, Dr.R.Rajendran, Secretary, Dr.J.Arputha Vijaya Selvi, Principal, Dr.Samiksha Suri, Sr.Technical Trainer ICT Academy, Mr.Kaliraj, Coordinator, ICT Academy



Dignitaries and Participants during Inaugural Function



Dr.S.M.Uma, HoD/CSE, Welcoming the participants



Inaugural Address by Dr.J.Arputha Vijaya Selvi, Principal



Presidential Address by Dr.R.Rajendran Secretary



Felicitation by Dr.S.Sivakumar, Vice-Principal



Guest Introduction by Coordinator Ms.K.Abhirami. AP/CSE

Valedictory function was held on 05.08.2022 at Pallava Hall by 3.30pm. Participants from various colleges shared their feedback about the programme. Resource persons of the FDP insisted upon disseminating the skills gained among students and also thanked the institution for the support provided.



Feedback by Participant



Feedback by Participant



View of FDP Lab Sessions







Academic Year 2022-23 (ODD Sem)

09.08.2022

### Report on OBE Awareness Session for newly inducted faculty members

**Awareness session on "Outcome Based Education"** was organized on 08.08.2022 at Pallava Hall by 2.30pm. Newly Inducted faculty members from all the departments attended the session. Session was handled by K.Abhirami, IQAC Coordinator. During the session, members were briefed about the significance of OBE, mapping of Course outcome with Programme Outcome, Identification of Correlation matrix for courses, mapping of CO with Programme specific outcome with suitable illustration.



Stating the importance of planning for appropriate Teaching-Learning-Assessment approaches to facilitate OBE, members were guided for raising the standard in the process. Also, Bloom Taxonomy based assessment process was also elaborated with assessment sample paper. Highlights on regulations 2021 was also made during the session. ICT enabled learning approaches, tools approaches was demonstrated. Virtual lab sessions demonstration was given. Student centric learning, interactive teaching-learning approaches was insisted. Participants were elaborated on CO attainment and mapping of CO with PO using sample course plan and related documents.



### ACADEMIC YEAR 2022-23 INTERNAL QUALITY ASSURANCE CELL

15.12.2022

### NBA MOCK AUDIT REPORT

NBA Mock Visit under NIT, Trichy AICTE Margdarshan Scheme was organized on 14.12.2022. Team lead by Dr.G.Lakshmi Narayanan, Professor, Dept. of ECE, Chairman of the Mock Audit committee, Coordinated by Dr.N.Sivakumaran, Professor, Dept. of ICE.

**Dr.J.Arputha Vijaya Selvi, Principal** made overall presentation between 10.45am to 12.00noon. Followed by Principal presentation, Programmewise presentation, file verifications, Facilities verifications were made by the expert members. Committee Chairman visited Central facilities, T&P Department, S&H Department.

### **Mock Audit Team members**

1.Dr.G.Lakshmi Narayanan, Professor, Dept. of ECE - Chairman
2.Dr.N.Sivakumaran, Professor, Dept. of ICE
3.Dr.M.Venkatakirthiga, Professor, Dept. of EEE
4.Dr M Brindha, Associate Professor, Dept of CSE
5.Dr.T.Ramesh, Associate Professor, Dept. of Mechanical Engineering
6.Dr.N.SivaShanmugam, Associate Professor, Dept. of Mechanical Engineering
7.Dr. RK Kavitha, Assistant Professor, Dept. of ECE
8.Dr.R.Thilagavathy, Assistant Professor, Dept. of ECE

Recommendations & Suggestions made by the expert team are:

### Infrastructural & facility

### **Overall Campus Infrastructure and Facilities of the Institute is good.**

• Fund to be allotted for regular maintenance & calibration of equipments.

### **Promotion of Research & Development**

- **Seed money towards faculty research** initiatives shall be made by the Management. Yearly Research grant in budget to be made.
- **Establishment of High-end labs** in collaboration with industries. Undergo research works utilizing the facility and publish articles.
- Yearly activities & interactions with Industries that have signed MoU & Linkages should be ensured.

### **Teaching-Learning-Assessment**

- Overall Teaching Learning practices of the institute is Good.
- Greater focus of OBE to be made.

- As per the credit of the course, Time-table hour allocation was represented. (To achieve the course hour requirement 60 hours for 4 credit course, 45 hours for 3 credit course and available academic days, current allocation of hour are made). It was also mentioned that slots are completely packed.
- Content Beyond Syllabus for a course can be taught by other faculty (a Specialized member) as applicable.
- 8<sup>th</sup> Hour (Last hour) can be allotted for promotional activities to encourage students.
- Objective of offering Value addition initiatives were appreciated.

### • Feedback from stakeholders

- To conduct course-end survey at the end of every semester about CO attainment
- To conduct Programme exit survey at the end of eight semester about PEO , PSO attainment.
- To conduct PEO attainment survey from Recruiter, Alumni
- Choices in Value Addition Course, Value Added courses can be made.

### General

- Student-Faculty-Ratio is found Good.
- Students are to be given Hardcopy of syllabus, Time-table.
- Alumni contribution towards establishment of labs are to be made. Alumni support to be sought for placements.
- Support from Alumni for Start-up establishments shall be made.
- Utilization of Library facility other than exclusive library slot are to be encouraged. Audio-Visual facility to be established at Library.
- Maintenance of website with updated content was appreciated.

### **Exit Meeting Recommendations**

### **Mechanical Department**

- NBA categorywise files are to be organized.
- Lab Maintenance & equipment calibration are to be strengthened. Labs are to be oriented for enhanced learning.
- Filewise suggestions were made during department visit by the expert.

### **ECE Department**

- Department presentation was good. Criterionwise organization shall be made.
- CO-PO-PEO attainment aspects are to be strengthened.
- Updation of Vision, Mission statement was recommended
- Updation of equipments was insisted
- Emergency exit and electrical cable wiring changes at lab was strongly insisted for electrical safety.
- Display of emergency contact details are to be posted.

### **CSE Department**

- Presentation content covering all activities are good. Reorganization shall be made.
- Vision, Mission statement are to be refined
- CO-PO-PEO attainment aspects are to be strengthened
- Alumni support towards curriculum analysis, placement can be strengthened
- Components of CO, PEO attainment in survey was insisted
- Value Addition initiatives are given extensively. Faculty members workload in this direction is one reason for lesser efforts towards publication.
- Ph.D enrolment and completion to be promoted. Faculty pursuing Ph.D can be given lesser workload.
- Upgradation of System to high-end configuration was insisted. Regular updation of systems was also insisted.

Team appreciated the overall activities of the institute. Principal presentation covering exhaustive activities of the institute was appreciated. Dr.S.Sivakumar, Vice-Principal proposed Vote of Thanks at the end of the session. Team extended their continual support for NBA accreditation initiatives.

### **Programme Flyer**



Hearty Welcome to the NITT Expert Team



NITT expert members, Vice-Principal, Principal during opening session

Presentation by Principal during opening session



Audit Committee Chairman with VP, Librarian during Central Library visit



ECE Expert team interaction with ECE HoD and Staff members



Audit Committee Chairman visiting Chemistry Lab facility



CSE Expert team interaction with CSE HoD and Staff members



Exit Meeting



NITT team interacting with Secretary



NITT team and KCE team