



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

Internal Seminar – Report

Title of the seminar	: “Types of Fuel Cells Based on Materials as the Power Sources”
Date	: 17.11.2022
Resource Person	: Dr.R.Arulraj, AP/EEE, KCE
Beneficiaries	: IV-EEE & III-EEE - 50
Venue	: III-EEE – Classroom

The Department of EEE organized an Internal Seminar on “Types of Fuel Cells Based on Materials as the Power Sources” for third and final year EEE students on 17.11.2022. The main objective of the internal seminar is:

- To impart knowledge to students on the basics of different types of Fuel Cells
- To provide adequate knowledge on methodologies involved in Fuel Cell technology and its applications in different domains of Engineering.
- To facilitate the use of Fuel Cell in their final year projects and seminar presentations.

The following points were discussed during the session:

- The introduction and need for Fuel Cells.
- The currently available fuels and the scope for future fuels are discussed.
- The history of Fuel Cells.
- The key drivers influencing Fuel Cell based power generation.
- The various sources of Hydrogen.
- The construction and operation of Fuel Cells.
- The various advantages of Fuel Cells.
- The different generations of Fuel Cells and their operation.
- The block diagram and working principle of future generation Fuel Cells.
- Application of different Fuel Cell types as the power sources includes:
 - ✓ Phosphoric Acid Fuel Cells (PAFCs)
 - ✓ Polymer Electrolyte Membrane Fuel Cells (PEMFCs)
 - ✓ Direct Methanol Fuel Cells (DMFCs)
 - ✓ Alkaline Fuel Cells (AFCs)
 - ✓ Solid Oxide Fuel Cells (SOFCs) and Molten Carbonate Fuel Cells (MCFCs)
- The future applications of Fuel Cells.

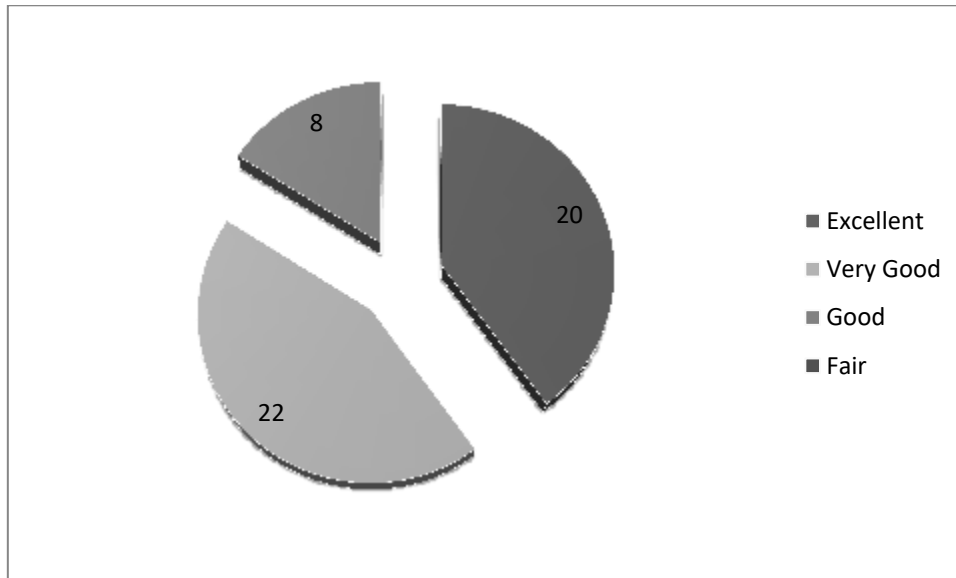
Outcome:

- Students can realize the impact of different fuel types on the environment.
- Students can understand the concepts and operation of Fuel Cell technologies, their applications, and their advantages over conventional power generation technologies.
- Students can select Fuel Cells for their project work, paper publication, conference presentation, and PCE activities.



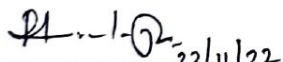
Snapshot from Seminar

Feedback Analysis:

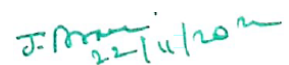


References:

- [1] Lixin Fan, Zhengkai Tu, Siew Hwa Chan, Recent development of hydrogen and fuel cell technologies: A review, Energy Reports, Volume 7, Pages 8421-8446, 2021.
- [2] S. Mekhilef, R. Saidur, A. Safari, Comparative study of different fuel cell technologies, Renewable and Sustainable Energy Reviews, Volume 16, Issue 1, Pages 981-989, 2012.
- [3] M. L. Perry and T. F. Fuller, A Historical Perspective of Fuel Cell Technology in the 20th Century, Journal of The Electrochemical Society, Vol.149, No.7, 2002.
- [4] G.J.K. Acres, Recent advances in fuel cell technology and its applications, Journal of Power Sources, Volume 100, Issues 1-2, Pages 60-66, 2001.
- [5] Steele, B., Heinzl, A. Materials for fuel-cell technologies. Nature 414, 345-352 (2001).


22/11/22
Faculty In-Charge


22/11/22
HOD/EEE


22/11/2022
Principal