Loyola-ICAM College of Engineering and Technology (LICET)
Department of Electrical and Electronics Engineering
Electrical Engineers League (EEL)
Under
AICTE – Scheme for Promoting Interests, Creativity and Ethics among Students (SPICES)

Event Report

Category: **Industrial Visit**

Details of the Industry: **National Institute of Ocean Technology, Pallikaranai, Chennai**

Date: 17-06-2022

Venue: Seminar Hall & Test Facilities, NIOT

Details of Participants

- Total No. of Participants: 55
- I EEE (Batch: 2021 – 2025) : 55
- III EEE (Batch: 2020 – 2024): NIL
- IV EEE (Batch: 2019 – 2023): NIL
- Ms. L. Ramya Hyacinth & Ms. A. R. Danila Shirly, Assistant Professors

Technological/ Academic/ Other Benefits generated by conducting the event with respect to:

(a) the institution	• Networking & building brand recognition - promote the institution and help people connect with our brand • Learn from experts in the field and establish the institution as a thought-leader and go-to educational resource in the process
(b) the faculty	• Strengthen faculty community and thereby build relationships with each other • Make face-to-face connections
(c) Students	• To stay on top of current trends, especially with technology causing rapid change across industries. • Academic engagement/ engagement in scholarly activities
(d) Industry/ Society	• Clarifying the image of the avenues of development in the near future • Contributing to make the literacy rate rise higher thereby helping build a more educated, empowered and aware society

Proceedings of the event

Category: Industrial Visit

Report on Visit to National Institute of Ocean Technology, Pallikaranai, Chennai

Date: 17-06-2022 Time: 10:00 am to 01:30 pm Venue: Seminar Hall & Test Facilities, NIOT

Audience: I EEE (Batch: 2021 – 2025)

National Institute of Ocean Technology is a unit under Ministry of Earth Sciences, Government of India. It has developed expertise in the field of Ocean Acoustics and development of acoustic systems for ocean applications. They also work in developing systems for ambient noise measurements in Indian deep and coastal waters and Polar regions, and underwater acoustic systems for source localization and strategic applications. In addition, they also maintain an NABL (National Accreditation Board for Testing and Calibration Laboratories) accredited Acoustic Test Facility (ATF) for testing and calibration of underwater acoustic transducers.

The facilities visited during the visit were focusing on:

- Autonomous Ambient Noise Measurement System (ANMS) for polar region and long term measurements in the Arctic
- Deep water noise measurements over long term for oceanographic as well as strategic applications
- Enhancement of Vector sensor array as an autonomous system towards surveillance applications and
- Upgradation and maintenance of ATF.

Ambient Noise Measurement System (ANMS) for polar region and Arctic measurements:

The first autonomous Ambient Noise Measurement System (ANMS)for polar region was developed and deployed successfully along with IndARC mooring in July 2015 at Kongsfjorden Svalbard, Arctic with the support of OOS NIOT and NCPOR. The system is retrieved and redeployed in summer every year and four years data have already been obtained. ANMS was successfully deployed as an independent mooring in 2018.

Development of Deep-Water Ambient Noise Measurement System (DANMS) and measurements in deep waters:

The objective is to record time series of ambient noise data in deep sea Indian ocean region particularly to gain knowledge on noise variability and noise field in deep water, for acoustic oceanographic and strategic applications. A deep-water system was acquired and deployed as part of OMNI buoy of OOS, in Arabian sea and one year data obtained. Further indigenous development of DANMS has been accomplished. The system was tested and deployed successfully in Arabian sea and Bay of Bengal.

Vector Sensor Array (VSA) enhancements towards coastal surveillance applications:

A vector sensor measures the acoustic particle velocity besides acoustic pressure, using which underwater acoustic source can be localized by determining its range and direction of arrival. A vector sensor consisting of an

accelerometer and an acoustic pressure sensor, has been developed and a three-element vector sensor array (VSA) has been further developed for underwater source localization in shallow waters of open ocean, towards surveillance applications. It was first tested in the Idukki Lake successfully. Further it was deployed in shallow waters off Chennai and retrieved successfully. Algorithm for Direction of Arrival (DoA) estimation has been developed, tested and compared with field measurements.

Upgradation and Maintenance of Acoustic Test Facility (ATF):

The Acoustic Test Facility (ATF) established in the year 2002 caters to the needs of underwater acoustic measurements, underwater electroacoustic transducer calibration and testing in the range 100Hz to 500kHz by NIOT, R&D and industrial organizations and academic institutes.

On the whole, the visit was very informative as the students had an opportunity to visit the state-of-art facilities available at NIOT. The visit made students understand the systematic approach used in realizing processes and transducers used for various applications. Being the first industrial visit of the class, students had a very memorable learning experience.

Relevant Courses in the current semester

Sensors and Transducers

- Applications

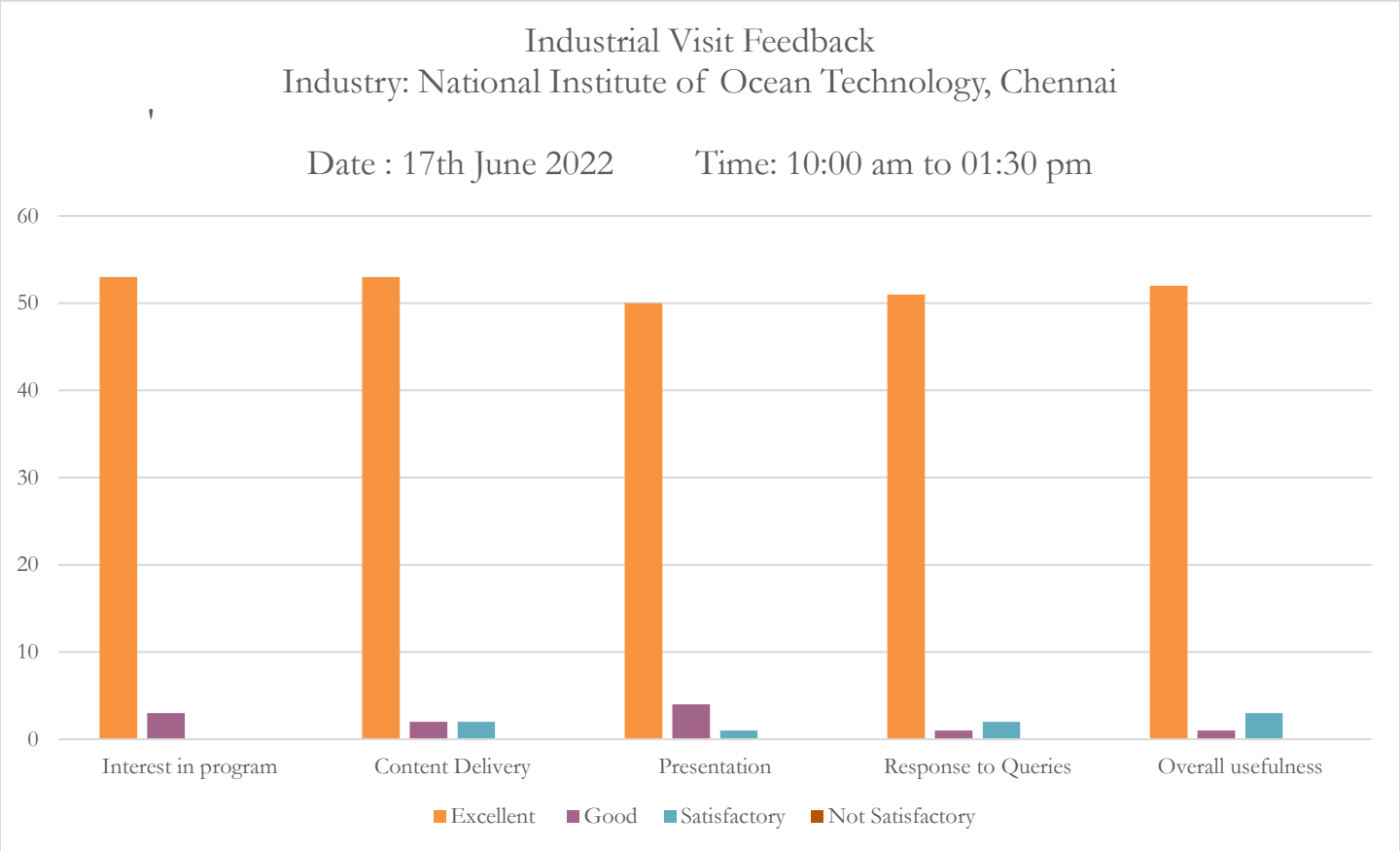
Electric Circuits

- Applications

Relevant Program Outcomes

- PO5 – Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
- PO6 – The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- PO7 – Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and the need for sustainable development.
- PO8 – Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- PO12 – Life-long learning: Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Feedback


Industrial Visit Feedback
Industry: National Institute of Ocean Technology, Chennai
Date : 17th June 2022
Time: 10:00 am to 01:30 pm
60
50
40
30
20
10
0
Interest in program
Content Delivery
Presentation
Response to Queries
Overall usefulness
Excellent
Good
Satisfactory
Not Satisfactory