Department of Electronics and Communication Engineering

Report on the Industrial Visit

Industrial Visit was arranged by Department of Electronics and Communication Engineering, S.E.A College of Engineering and Technology, Bangalore on 04th December, 2023 for pre final year students. The Students visited Semiconductor Technology & Applied Research Centre (STARC), Bangalore. Nearly 25 students participated in the industrial visit accompanied by two faculty members. The Industrial visit inauguration was presided by Dr.Bhagavanth K Deshpande, Director, SEACET, Dr.B.Venkatanarayana, Principal, SEACET and Dr. Pradeep Kumar N.S., HOD, ECE, SEACET. Along with the other department Heads and ECE department faulty members. After the ceremony students started to visit by 1:00 pm in college bus.

Objective of the Industrial Visit:

- To understand the role of DRDO-SITAR in enhancing the defence capabilities of the nation
- To observe the state-of-the-art facilities and infrastructure available at the establishment.
- To gain knowledge in Semiconductor Fabrication and Testing.

Resource Person of the Industrial Visit:

Resource Person of the Industrial Visit was Er.S.Selvaraj, Manager, SITAR, Bangalore.

About Resource Person:

Leading MEMS design team

* MEMS accelerometer design using Coventorware design tool

Definig process flow for the MEMS design

Responsible process integration of accelerometer at SITAR fab

* MEMS pressure sensor design using Coventorware design tool

Defining process flow

Responsible for process integration for MEMS pressure sensor at SITAR fan

* Currently desiging MEMS gyroscope

About the STARC (SITAR):

SITAR society was formed with an objective of design and development of strategic and security systems required mainly for DRDO. The Society has two production units - Semiconductor Technology & Applied Research Centre (STARC) at Bangalore and Gallium Arsenide Enabling Technology Centre (GAETEC) at Hyderabad.

Semiconductor Technology and Applied Research Centre (STARC), a Unit of SITAR Society is a dedicated MEMS (microelectromechanical systems) foundry for the production of MEMS sensors for strategic applications. STARC serves its DRDO/ Defence customers from a 23-acre campus with a 16000 sq.ft. clean room area in Bangalore. STARC has a MEMS manufacturing facility for 6" (150 mm) wafers. STARC Foundry offers the flexibility to use substrate materials like silicon, SOI, glass, quartz and CMOS-wafers. STARC offers services with high quality and reliability, advanced process development, prototyping and low volume manufacturing. STARC is an ISO 9001:2015 certified company.

STARC is a 1 micron digital CMOS, DLM and MIL qualified fab with capability to process 150 mm wafers. MEMS Fabrication Facility also was established in 2012 and MEMS Packaging & Testing Facility have been added in 2017.

GAETEC has absorbed process technology developed at SSPL and has been producing MMICs with 0.7-micron gate length MESFETs (G7a) and 0.5micron gate length MESFETs (G5A) in GaAs Fab.

Insights from Industrial visit:

Resource Person from SITAR have welcomed our students and given the brief introduction about the vision and mission of the STARC and the MEMS technology and its fabrication. Later students were segregated into two batches and exposed to the areas of MEMS fabrication unit, Testing Unit & as well as Assembly Processing Units.

The STARC - MEMS Fabrication Facility is equipped with Twenty-eight fabrication equipment and eight characterization equipment of MI Lqualified, capable of handling 6” wafers for one-micron process technology.

Our students were taken into all fabrication processing units by the respective Engineers and given clear explanations about the complete flow of MEMS devices for one – micron technology. The unit has a thick film line and IC assembly, which supports the FAB to a limited extent. Digital ASIC’s, Discrete devices for niche applications, Read Out ICs (ROICs) for MEMS sensors and Drive electronics for Micro-actuators are fabricated in CMOSFAB.

This unit is geared up for producing MEMS devices as per the requirement of the customers for various applications such as Bolometer, Optical waveguide, RF MEMS, Pressure sensors, Dual-axis Pressure transducers, and many more.

The students highly gained the knowledge about MEMS fabrication from Wafer to Assembly processing and packaging, which includes various flow of fabrication process such as Oxide growth, Thermal diffusion, Ionim plantation, Deposition, Etching, Epitaxial etc.

Snapshots from Industrial Visit are presented below.


BE
Industrial Visit to
GPS Map Camera
Bengaluru, Karnataka, India
South East Asian College Engineering & Management, Basavanapura Rd, Lourdu Nagar, Virgonagar, Krishnarajapura, Bengaluru, Karnataka 560049, India
Lat 13.009483°
Long 77.715404°
04/12/23 01:07 PM GMT +05:30
Google


STARC
GPS Map Camera
Bengaluru, Karnataka, India
Bengaluru, 2P58+667, Bethel Nagar, Krishnarajapura, Bengaluru, Karnataka 560049, India
Lat 13.008134°
Long 77.715698°
04/12/23 01:35 PM GMT +05:30
Google

The industrial visit was concluded by 4.30pm and students returned back to college by 5.00pm. Feedback form was collected at the end from the students. The industrial visit was highly informative and thus provided valuable awareness and insights on the various aspects.

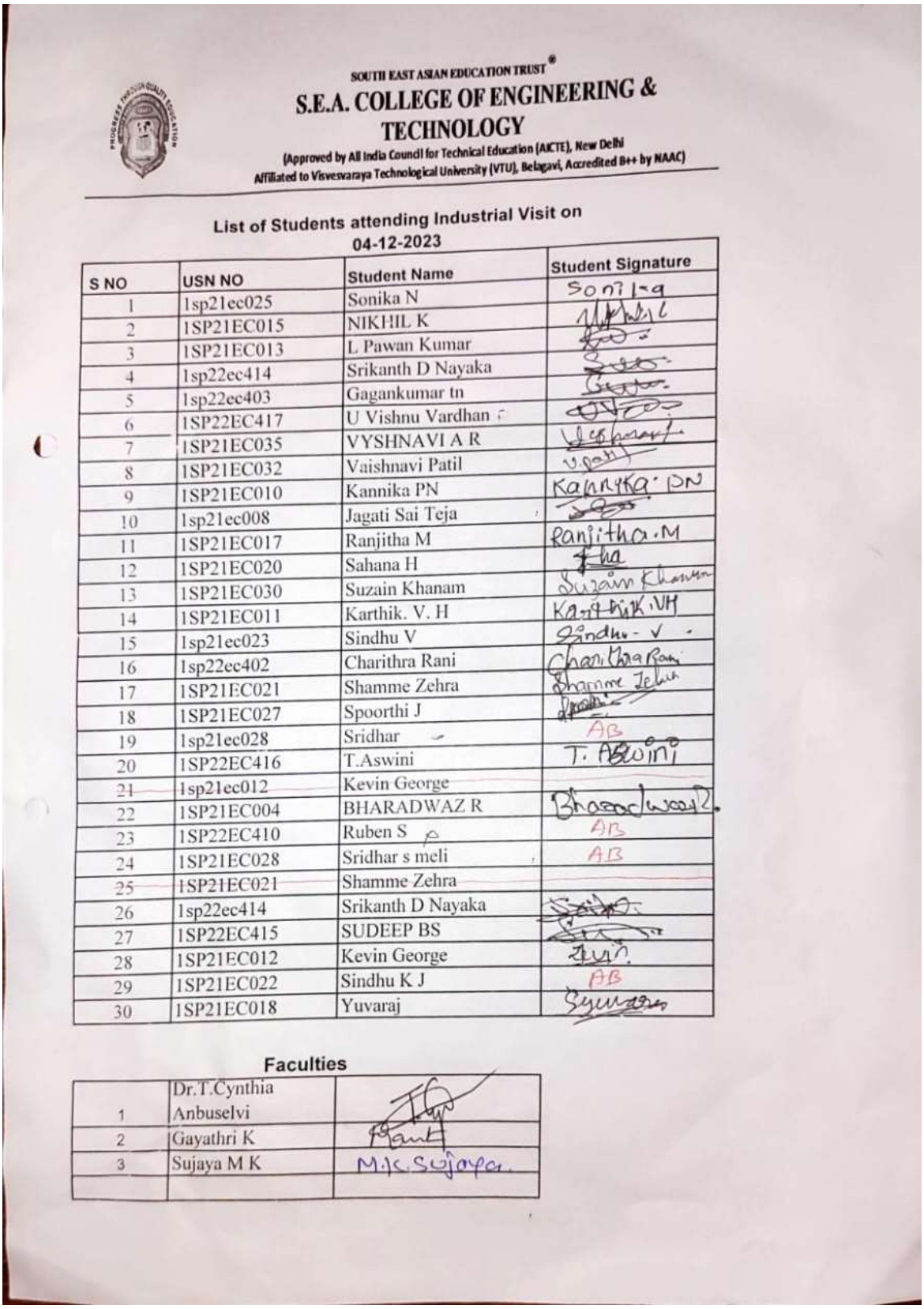
Industrial Visit Outcome:

- Students learnt about MEMS Fabrication designing and Testing.
- Students gathered information about various opportunities in the semiconductor field.

Students Name list – Industrial Visit:

Sl. No	USN	NAME OF THE STUDENT
1.	1SP21EC004	BHARADWAZ R
2.	1SP21EC008	JAGATI SAI TEJA
3.	1SP21EC009	JALANI K S
4.	1SP21EC010	KANNIKA P N
5.	1SP21EC011	KARTHIK V H
6.	1SP21EC012	KEVIN GEORGE D
7.	1SP21EC013	L PAWAN KUMAR
8.	1SP21EC015	NIKHIL K
9.	1SP21EC017	RANJITHA M
10.	1SP21EC018	S YUVARAJ
11.	1SP21EC020	SAHANA H
12.	1SP21EC021	SHAMME ZEHRA
13.	1SP21EC023	SINDHU V
14.	1SP21EC025	SONIKA N
15.	1SP21EC027	SPOORTHI J
16.	1SP21EC030	SUZAIN KHANUM
17.	1SP21EC031	THIRTAKUMAR H B
18.	1SP21EC032	VAISHNAVI PATIL
19.	1SP21EC035	VYSHNAVI A R
20.	1SP22EC402	Bhimagundam Charithra Rani
21.	1SP22EC403	Gagankumar T N
22.	1SP22EC405	Kanne Manikanta
23.	1SP22EC415	Sudeep B S
24.	1SP22EC416	Thugu Aswini
25.	1SP22EC417	U.Vishnuvardhan

Attendance Sheet (Scanned):



SOUTH EAST ASIAN EDUCATION TRUST®

S.E.A. COLLEGE OF ENGINEERING & TECHNOLOGY

(Approved by All India Council for Technical Education (AICTE), New Delhi
Affiliated to Visvesvaraya Technological University (VTU), Belagavi, Accredited B++ by NAAC)

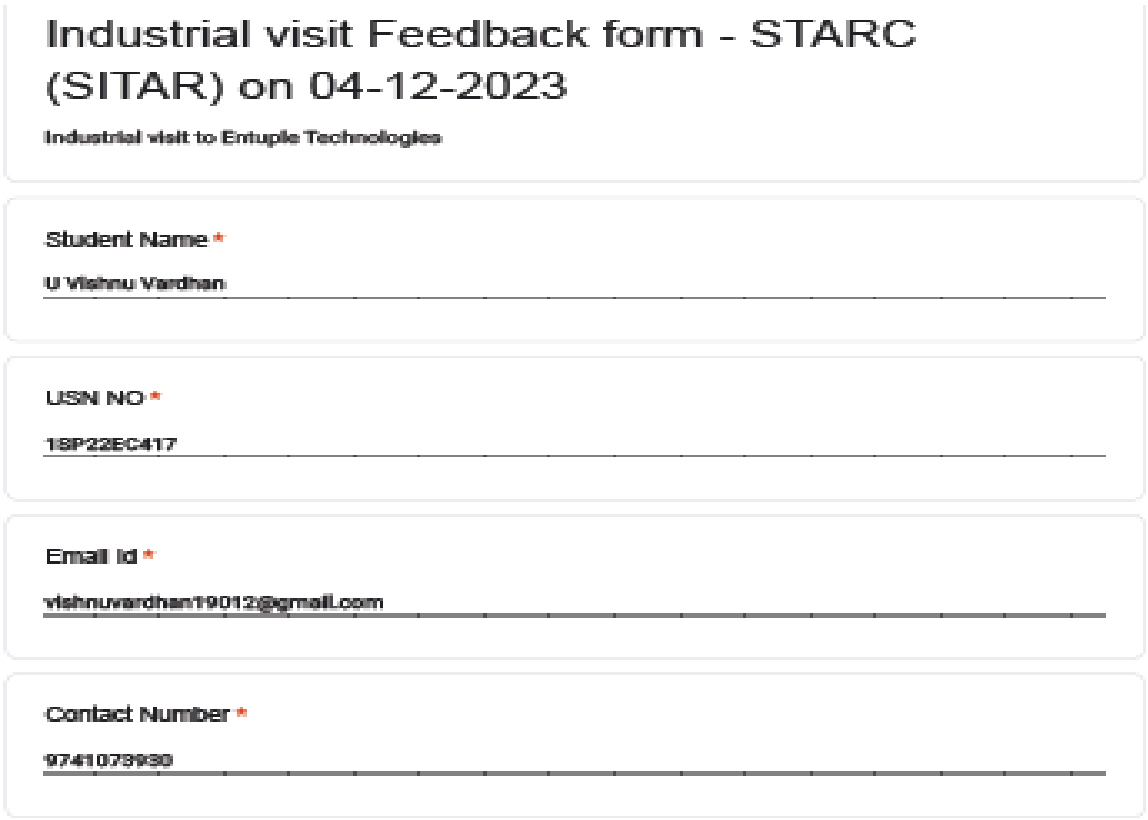
List of Students attending Industrial Visit on 04-12-2023

S NO	USN NO	Student Name	Student Signature
1	1sp21ec025	Sonika N	Sonika-N
2	1SP21EC015	NIKHIL K	
3	1SP21EC013	L Pawan Kumar	
4	1sp22ec414	Srikanth D Nayaka	
5	1sp22ec403	Gagankumar tn	
6	1SP22EC417	U Vishnu Vardhan	
7	1SP21EC035	VYSHNAVI A R	
8	1SP21EC032	Vaishnavi Patil	
9	1SP21EC010	Kannika PN	Kannika. PN
10	1sp21ec008	Jagati Sai Teja	
11	1SP21EC017	Ranjitha M	Ranjitha.M
12	1SP21EC020	Sahana H	
13	1SP21EC030	Suzain Khanam	Suzain Khanam
14	1SP21EC011	Karthik. V. H	Karthik.VH
15	1sp21ec023	Sindhu V	Sindhu - V
16	1sp22ec402	Charithra Rani	Charithra Rani
17	1SP21EC021	Shamme Zehra	Shamme Zehra
18	1SP21EC027	Spoorthi J	
19	1sp21ec028	Sridhar	AB
20	1SP22EC416	T.Aswini	T. Aswini
21	1sp21ec012	Kevin George	
22	1SP21EC004	BHARADWAZ R	Bharadwaz R.
23	1SP22EC410	Ruben S	AB
24	1SP21EC028	Sridhar s meli	AB
25	1SP21EC021	Shamme Zehra	
26	1sp22ec414	Srikanth D Nayaka	
27	1SP22EC415	SUDEEP BS	
28	1SP21EC012	Kevin George	
29	1SP21EC022	Sindhu K J	AB
30	1SP21EC018	Yuvaraj	

Faculties

1	Dr.T.Cynthia Anbuselvi	
2	Gayathri K	
3	Sujaya M K	M.K. Sujaya.

Feedback Form Sample (Google Form):



Industrial visit Feedback form - STARC (SITAR) on 04-12-2023

Industrial visit to Entuple Technologies

Student Name *

U Vishnu Vardhan

USN NO *

1SP22EC417

Email Id *

vishnuvardhan19012@gmail.com

Contact Number *

9741078930

Industrial Visit was technology oriented? *

- (●) Strongly Agree
- ( ) Agree
- ( ) Neither agree nor disagree
- ( ) Disagree
- ( ) Strongly disagree

Industrial Visit is relevant to Engineering course. *

- (●) Strongly Agree
- ( ) Agree
- ( ) Neither agree nor disagree
- ( ) Disagree
- ( ) Strongly disagree

Enhancement in technical skills *

- ( ) Strongly Agree
- (●) Agree
- ( ) Neither agree nor disagree
- ( ) Disagree
- ( ) Strongly disagree

Industrial Visit was applicable to my future needs *

- ○ Strongly Agree
- ◉ Agree
- ○ Neither agree nor disagree
- ○ Disagree
- ○ Strongly disagree

Industrial Visit was well placed within the allotted time *

- ◉ Strongly Agree
- ○ Agree
- ○ Neither agree nor disagree
- ○ Disagree
- ○ Strongly disagree

Resource Person discussed about technical subject during the visit *

- ◉ Strongly Agree
- ○ Agree
- ○ Neither agree nor disagree
- ○ Disagree
- ○ Strongly disagree

Resource Person was responsive to student questions during the visit. *

- ◉ Strongly Agree
- ○ Agree
- ○ Neither agree nor disagree
- ○ Disagree
- ○ Strongly disagree

I would be interested in attending such visits in future *

- ◉ Strongly Agree
- ○ Agree
- ○ Neither agree nor disagree
- ○ Disagree
- ○ Strongly disagree