Date: 10/10/2023
Location: MA101
Organizer: Circuitology Club
Speaker: Yesha Katheriya
Topic: VLSI Road map and Fundamental Concepts

Event Overview:
The event was a knowledge-sharing session focused on the VLSI (Very Large Scale Integration) domain, conducted by Yesha Katheriya. The session aimed to provide a clear understanding of the VLSI road map and foundational concepts such as CMOS, NMOS, Doping, and other related topics. The session was highly informative and catered to individuals interested in semiconductor technology and VLSI design.

Outcome:
PO1 (Engineering Knowledge): Participants apply fundamental engineering concepts across various domains, such as software development, hardware design,
and emerging technologies.
PO2 (Problem Analysis): The activity involves identifying and analyzing real-world technical challenges, encouraging innovative problem-solving approaches.
PO6 (The Engineer and Society): TechVibe 1.0 promotes awareness of how technology impacts society, encouraging ethical and responsible innovation.
PO9 (Individual and Teamwork): Participants collaborate in teams to ideate, develop, and present technical solutions, fostering teamwork and leadership skills.
PO10 (Communication): The event enhances participants' ability to communicate technical ideas effectively through presentations, reports, and discussions.
PO12 (Life-long Learning): Exposure to new technologies and industry trends fosters continuous learning and adaptability in an evolving technological landscape.
PSO1: The activity enables graduates to apply their technical knowledge to real-world industry problems, particularly in areas such as software development, embedded systems, and IoT,
enhancing their problem-solving and analytical skills.

Key Highlights of the Session:

Introduction to VLSI:
Yesha began the session by explaining the significance of VLSI in modern electronics. She highlighted how VLSI technology enables the integration of millions of transistors on a single chip, paving the way for advancements in computing, communication, and consumer electronics.

VLSI Roadmap:
The speaker provided an overview of the VLSI roadmap, discussing the evolution of semiconductor technology over the decades. She touched upon Moore's Law and its impact on transistor scaling, as well as the challenges faced in achieving further miniaturization.

CMOS and NMOS:
Yesha explained the fundamental building blocks of VLSI design, focusing on CMOS (Complementary Metal-Oxide-Semiconductor) and NMOS (N-type Metal-Oxide-Semiconductor) technologies. She elaborated on their working principles, advantages, and applications in digital and analog circuits.

Doping Process:
The concept of doping in semiconductors was discussed in detail. Yesha explained how doping alters the electrical properties of silicon by introducing impurities to create P-type and N-type materials. This process is crucial for forming transistors and other semiconductor devices.

Fabrication Techniques:
The session also covered key fabrication techniques used in VLSI, such as photolithography, etching, and deposition. Yesha emphasized the importance of these processes in creating intricate patterns on silicon wafers.

Challenges and Future Trends:
Yesha concluded the session by discussing the challenges in the VLSI industry, including power consumption, heat dissipation, and manufacturing costs. She also shared insights into emerging trends like FinFETs, 3D ICs, and the role of

AI in VLSI design.

Audience Engagement:
The session was interactive, with participants actively asking questions and seeking clarifications on topics like transistor scaling, doping concentrations, and the future of VLSI technology. Yesha addressed all queries with detailed explanations, making the session engaging and insightful.

Key Takeaways:
Understanding the VLSI road map is essential for staying updated with advancements in semiconductor technology.
CMOS and NMOS are foundational technologies in VLSI design, each with its unique advantages.
Doping is a critical process that enables the creation of P-type and N-type materials, forming the basis of semiconductor devices.
The VLSI industry faces several challenges, but innovations like FinFETs and 3D ICs are driving the future of the field.

Highlights

Attendee's

Gr. No.	Enrolment No.	Name of Participants
119487	92200133027	RISHIT KAMLESHBHAI RATHOD
120294	92200133048	UMUTONI JUSTINE
119585	92200133024	SHANTANUSINH CHANDRASINH PARMAR
119311	92200133019	NIDHI SUBHASHBHAI DATTANI
119694	92200133036	HARSHIL PIYUSHBHAI VADHER
119144	92200133016	MALHARKRISHNA SAHILKRISHNA SHAH
118173	92200133010	VASU ATULBHAI PARSANIYA
119296	92200133018	VRAJKUMAR KANTILAL NANDWANA
119704	92200133038	RAJVI ROHITBHAI DAVE
118613	92200133014	HENCY HITESHBHAI DEPANI
119437	92200133023	FENIL JIGNESHBHAI VADHER
119563	92200133031	KIRTAN AJAYBHAI MAKWANA
118565	92200133013	RAJNIKANT UDAYBHAI HIRAPARA
119990	92200133015	MAHESHWARIBEN DIPAKBHAI BHADRESHWARA
119680	92200133035	KRISHNA HARESHBHAI DIXIT
119774	92200133040	JAY TUSHIT MANGUKIYA
119402	92200133022	KRISH KIRTIBHAI MAMTORA
116118	92200133002	HARSH MANISHBHAI DOSHI
119737	92200133039	BHUMIKA MOHANBHAI MAKWANA
117709	92200133007	VISHVARAJSINH JITENDRASINH PARMAR
117229	92200133005	SHYAMA PRAKASH VAGADIA
119394	92200133021	VIDYA BHARTI SINHA
119893	92200133044	AKASH JAGABHAI CHUDASAMA
117715	92200133008	ISHIKA KIRIT SHETH
117890	92200133009	ACHYUT KARSHANBHAI

		SANGANI
119561	92200133030	ARYAN DILIPBHAI LANGHANOJA
119990	92200133015	MAHESHWARIBEN DIPAKBHAI BHADRESHWARA
116617	92200133003	PRASHANT GOPALBHAI SARVAIYA
119920	92200133045	NAKIBINGE GAVIN
119459	92200133025	UMANG KETANBHAI HIRANI
119625	92200133034	DIYA RAJESHBHAI KANERIYA

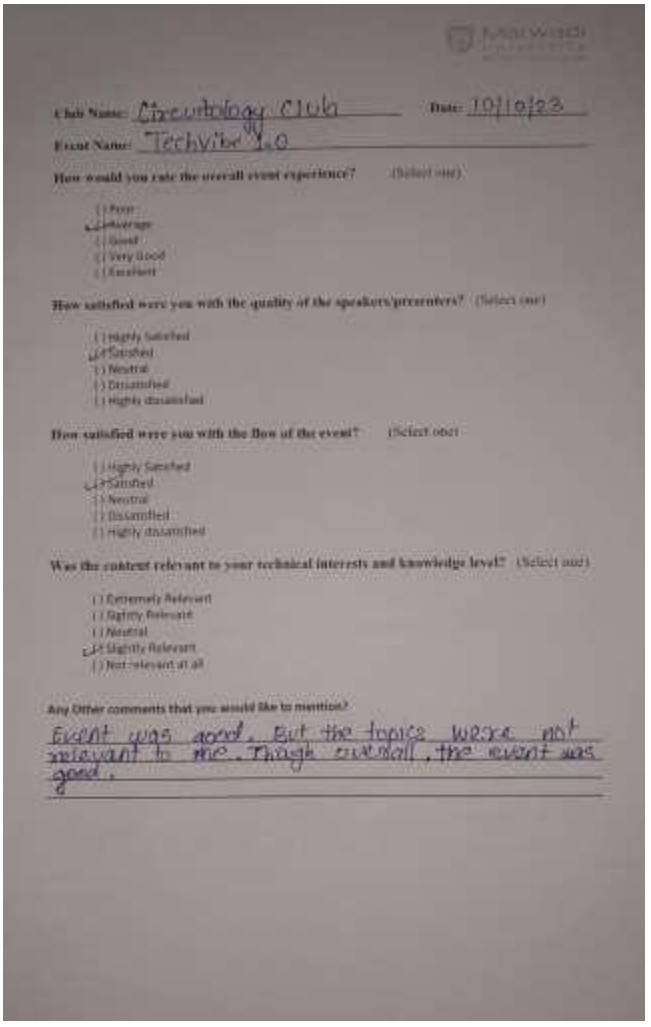
121695	92301733027	VIRAJ PRAKASHBHAI VAGHASIYA
121144	92301733026	GEORGE THOMAS
120696	92301733005	HELENA AFONSO CHONGO
122731	92301733054	NIKHILKUMAR JAYESHBHAI BHANDERI
120945	92301733024	ISHA DEVENDRABHAI SAVALIYA
122354	92301733042	ANSH VIPUL RAYTHATHA
122640	92301733051	TANVI BATUKBHAI KAKADIYA
122500	92301733049	SHIVANI SURYANARAYANA AMBATI
121771	92301733029	BHARGAV MAHESHBHAI LIMBANI
122779	92301733056	BUGGITTINA SHIVA KUMAR
122428	92301733045	HITARTHI MANOJBHAI PANSURIYA
122710	92301733053	ROHAN PRAVINBHAI MAKWANA
120680	92301733002	DINESH KAMLESH KEVALRAMANI
120691	92301733004	DUCLAS ARGENTINA FRANCISCO MATSINHE

CIRCUITOLOGY CLUB

Marwadi University
Marwadi Chandarana Group

NAAC A+

Feedback



Club Name: Circuitology Club Date: 10/10/23

Event Name: TechVibe 1.0

How would you rate the overall event experience? (Select one)

( ) Poor
(✓) Average
( ) Good
( ) Very Good
( ) Excellent

How satisfied were you with the quality of the speakers/presenters? (Select one)

( ) Highly Satisfied
(✓) Satisfied
( ) Neutral
( ) Dissatisfied
( ) Highly dissatisfied

How satisfied were you with the flow of the event? (Select one)

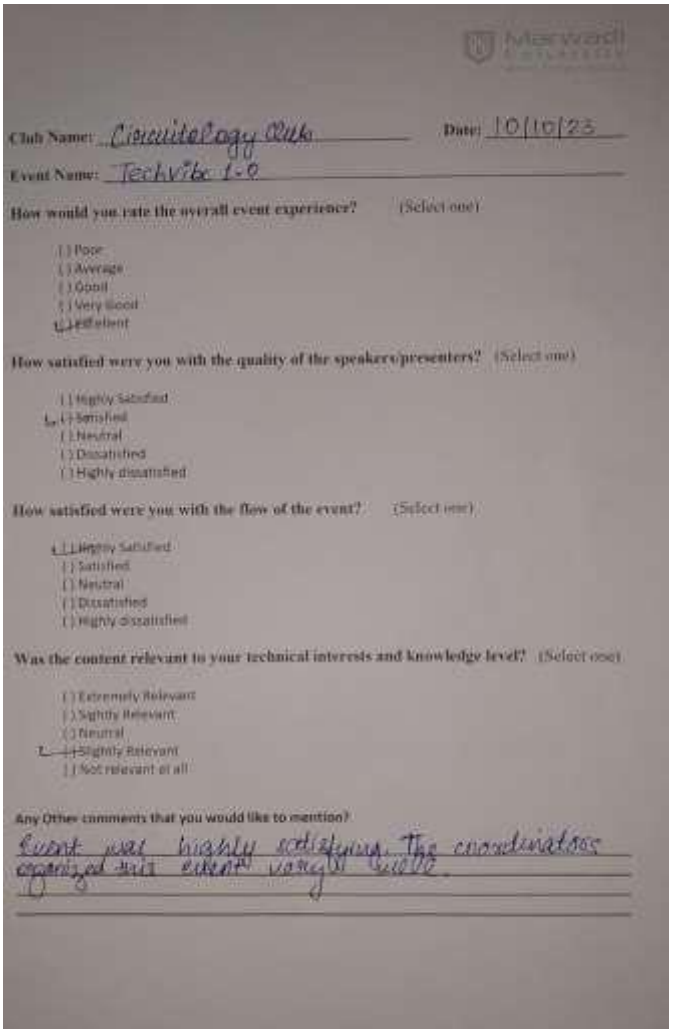
( ) Highly Satisfied
(✓) Satisfied
( ) Neutral
( ) Dissatisfied
( ) Highly dissatisfied

Was the content relevant to your technical interests and knowledge level? (Select one)

( ) Extremely Relevant
( ) Sightly Relevant
( ) Neutral
(✓) Slightly Relevant
( ) Not relevant at all

Any Other comments that you would like to mention?

Event was good. But the topics were not relevant to me. Though overall, the event was good.



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( ) Neutral
(✓) Slightly Relevant
( ) Not relevant at all

Any Other comments that you would like to mention?

Event was highly satisfying. The coordinators organized this event very well.