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## **Industry Visit Report to NOKIA**

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## Acknowledgment

I would like to express my heartfelt gratitude to the HRD, organizing team and institute coordinators for their invaluable support during our industrial visit. Their meticulous planning and coordination ensured that we had a smooth and informative experience. A special thanks to the professionals at the industry for taking the time to share their expertise, providing us with practical insights into the working of the industry. The knowledge gained during this visit has significantly enriched our academic understanding and will be instrumental in shaping our future careers. We deeply appreciate the opportunity and look forward to applying what we've learned.

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# Introduction

## Brief Introduction of NOKIA

**Nokia Mobile Networks** is a key division of Nokia, committed to advancing the frontiers of mobile communication technology globally. With a strong foundation in innovation and collaboration, Nokia Mobile Networks works closely with governments, research institutions, and industry leaders to drive the development of 5G and future communication networks. Inspired by the spirit of technological self-reliance and excellence, the division plays a vital role in empowering digital transformation across nations. The core objective of Nokia Mobile Networks is to connect people and things in a seamless, efficient, and sustainable way. Through its cutting-edge solutions and global partnerships, it provides opportunities for communities, enterprises, and innovators to come together, work together, and experience the power of connectivity for the advancement of society and humanity.

## Summary of Events and Insights

### 1. Evolution from 2G to 5G

**Speaker/Host: Mr. Udaya**

Mr. Udaya began the session with an insightful overview of the evolution of mobile networks from 2G to 5G. He outlined the major advancements in each generation—2G's digital voice, 3G's mobile internet, 4G's high-speed data and streaming, and 5G's ultra-fast, low-latency connectivity with massive IoT integration. He emphasized the transformative role of 5G in areas like smart cities, autonomous vehicles, and industrial automation, and recognized the contributions of Nokia Mobile Networks in building the infrastructure driving this progress.

### 2. Lab Visit and Demonstration

**Speaker/Host: Mr. Padmakumar**

Participants toured a state-of-the-art lab, gaining firsthand exposure to modern mobile

network infrastructure. During the live demonstration, Mr. Padmakumar showcased real-time testing and simulation tools, giving attendees a deep look into how mobile networks are designed, tested, and maintained. The session bridged the gap between theoretical learning and industrial application, offering valuable insights into Nokia's advanced research and development practices.

### **3. TCP/IP Model Explanation**

**Speaker/Host: Mr. Udaya**

Mr. Udaya delivered a practical session on the TCP/IP model, the foundational architecture of internet communication. He explained its four layers—Application, Transport, Internet, and Network Access—and their respective roles in data communication. Real-world examples were used to show how data travels from one device to another, particularly in the context of mobile networks. The session helped attendees understand how protocols like TCP, IP, HTTP, and DNS function together to enable reliable and efficient communication.

### **4. gNB (5G NodeB) Hands-On Session**

**Speaker/Host: Mr. Padmakumar**

The event concluded with a hands-on session on the 5G gNB (next-generation NodeB), where Mr. Padmakumar guided participants through setting up and interacting with actual 5G hardware. The session included practical demonstrations of signal processing, device connectivity, and real-time resource management within a 5G network. We gained an immersive understanding of how 5G nodes operate in the field, reinforcing the pivotal role of organizations like Nokia Mobile Networks in advancing next-gen wireless technologies.

# Conclusion

Deep insights into the latest developments in real-time networking systems, 5G infrastructure, and telecommunications technologies were provided by the immensely enlightening visit to Nokia. Our understanding of how modern communication systems are developed and scaled globally has been greatly expanded by observing Nokia's innovations in fields like advanced networking. The company's role in advancing connectivity in the future was demonstrated by the hands-on sessions with gNB (5G NodeB) and exposure to core network demonstrations.

We are incredibly thankful for the chance to tour such a well-known international company. Seeing firsthand how Nokia Mobile Networks supports global technological innovation and digital transformation was motivating. In addition to improving our technical expertise, this experience has inspired us.