

## 2G-5G Wireless Communications Theory Course

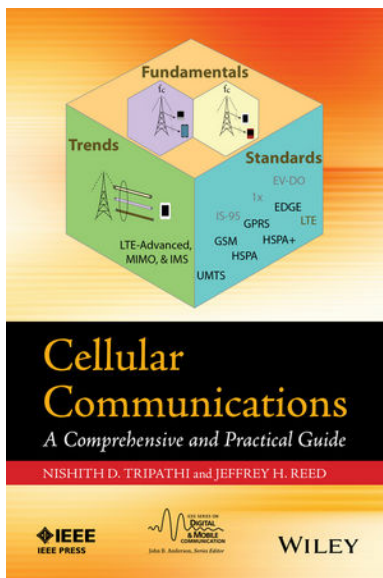
The 2G-5G Wireless Communications Theory Course provides students with comprehensive theory, knowledge of wireless communication standards, applications, and network systems. This course is designed to give the student a very good overall knowledge of the protocols, registration requirements, and industry standard network devices.

**Objective:** Learn the fundamentals of wireless communication systems (GSM, CDMA, UMTS, LTE, and a brief overview of 5G technologies).

**Method of Delivery:** Daily classroom instruction with lab exercises. The instructor also ensures that key terminology is understood by the class as it is used repeatedly in the classroom and during the exercises.

**Prerequisites:** Students of the 2G-5G Wireless Communications Theory Course need to have no specific knowledge in order to attend the course. **Enrollment is restricted to individuals who are employed as law enforcement agents, investigators, or officers; members of the U.S. military and allied militaries; non-contract employees of the Department of Defense, Department of Justice, Department of Homeland Security, and U.S. intelligence agencies.** Students need a willingness to learn and an attitude that fosters a good learning environment for all parties involved.

**Materials:** As the majority of learning is dependent upon having the necessary materials TSE, Inc. provides the following equipment: Student reference materials including reference cards, textbook (*Cellular Communications: A comprehensive and practical Guide (2nd ed.)*)



**Instruction:** The instruction given by TSE, Inc. is paramount to the student's successful understanding of the course objectives. A power point presentation is used as a teaching and lecture tool enhanced by the use of labs and practical exercises. This presentation progresses in a logical manner starting with an overview of 2G technology systems & terminology. Next the presentation covers 3G, 4G, and 5G technologies in a sequential manner. All instruction is designed to support the customer's mission requirements and is delivered by qualified instructors with real-world experience conducting electronic surveillance in support of Special Operations Forces and Law Enforcement operations.

**Student Activities:** Students attend a 5-day block of instruction.

After successfully completing this course, students will be able to:

- Explain propagation of radio signals
- Describe the characteristics of an antenna
- Understand UHF Communications

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- Understand how radio signals can be used to estimate distance
- Understand the principles behind radio resource management techniques such as power control, channel allocation, and handoffs
- Understand the technologies us by the cellular providers (GSM, CDMA, UMTS, LTE)
- Understand the implementation of WLAN/Wi-Fi with Cellular providers' services as part of 5G technology

Contact: For questions concerning registration, training, and location please contact the Director of Training, Mark Conneway at (910) 425-7232 or 3360, or via email at [training@tserecon.com](mailto:training@tserecon.com).

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