KOENIG SOLUTIONS · COURSE OUTLINE

6G Networks: Terahertz, uRLLC++ & Standardization

Learn the timeline, technical requirements, and standardization landscape shaping the development and deployment of 6G networks.

8 Hours	9	26
DURATION	MODULES	TOPICS

COURSE OVERVIEW

This course traces the evolution of wireless technology from 1G to 6G and examines the projected timeline for research, standardization, trials, and commercial deployment, alongside regional developments across Asia, Europe, and the United States. It then covers the technical requirements of 6G, including extreme data rates, ultra-reliable low-latency communication (uRLLC++), massive device connectivity, terahertz frequency utilization, antenna innovations such as massive MIMO and RIS, energy efficiency, spectrum allocation, and security frameworks. Finally, it looks at the key players and organisations shaping 6G, including industry leaders, academia, government bodies, standardization groups such as ITU and 3GPP, and collaborative research platforms including testbeds and public-private partnerships.

WHO THIS COURSE IS FOR

- Telecom Engineers
- Network Architects
- Research Scientists
- Standards Professionals
- Regulatory Specialists
- Technology Strategists

LEARNING OBJECTIVES

This training will help you:

- Learn the skills, technologies, and understand Cellular technology

COURSE SYLLABUS

9 Modules, 26 Topics

PART 1 6G Timeline

01

Historical Context and Milestones

TOPICS

Evolution from 1G to 6G · Key phases of wireless development

02

Projected Timeline for 6G Deployment

TOPICS

- Research and development (2020-2025)
- Standardization and trials (2025-2030)
- Commercial deployment and scaling (2030 onward)

03

Regional Developments and Global Progress

TOPICS

Asia’s leadership (China, Japan, South Korea) · European Union’s 6G initiatives · U.S. and other global efforts

PART 2 6G Requirements

04

Technical Requirements for 6G

TOPICS

- Extreme data rates and bandwidth (Tbps-level speeds)
- Ultra-reliable low-latency communication (uRLLC++)
- Massive device connectivity and scalability

05

Physical Layer Advancements

TOPICS

- Terahertz frequency utilization
- Antenna technology innovations (massive MIMO, RIS)
- Energy efficiency and power optimization

06

Operational and Regulatory Requirements

TOPICS

Spectrum allocation and management · Global interoperability and standardization · Security and privacy frameworks

PART 3 **6G Groups**

07

Key Players in the 6G Ecosystem

TOPICS

- Industry leaders (telecom operators, hardware vendors)
- Academia and research institutions
- Government and regulatory bodies

08

Standardization Organizations and Initiatives

TOPICS

- ITU's 6G Vision Group
- 3GPP and global standardization roles
- Regional initiatives (e.g., Next G Alliance, Hexa-X)

09

Collaborative and Open Research Platforms

TOPICS

- Role of open-source and community-driven projects
- Testbeds and pilot projects
- Public-private partnerships

NOTES

- This course focuses solely on theoretical and conceptual topics, with no lab sessions included.

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

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