

## Learning Guide Unit 8

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Description

Learning Guide Unit 8

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# Overview

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## UNIT 8: Emerging Innovations in Wireless Technologies

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### Topics

- 5G and 6G wireless technologies
- Internet of Things (IoT) and Internet of Everything (IoE)
- Virtual reality (VR) and Augmented Reality (AR)

### Learning Objectives

By the end of this Unit, you will be able to:

1. Compare 5G and 6G wireless technologies.
2. Identify and explain the impact of 5G on emerging technology (IoTs, IoE, VR, or AR) in a specific application scenario.

### Tasks

- Peer assess Unit 7 Written Assignment
- Read through the Learning Guide and the Reading Assignment
- Complete the Discussion Assignment by posting in the Discussion Forum
- Respond to three of your fellow classmates' posts in the Discussion Forum
- Complete and submit the Learning Journal
- Take and submit the Self-Quiz
- Read the Unit 9 Learning Guide carefully for instructions on the Final Exam

# Introduction

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In previous units, we have looked at different kinds of networks, networking protocols, and their areas of application. In this unit, we will explore what the future holds for networking: we shall explore 5G and 6G wireless technologies, and their possible impact on cutting-edge technologies such as the Internet of Things (IoT), Internet of Everything (IoE), Virtual reality (VR) and Augmented Reality (AR). We shall then examine how these cutting-edge technologies will impact revolutionary application areas such as smart homes/cities, autonomous vehicles, cutting-edge medical care, classrooms of the future, etc.

## Watch

## Reference:

- Mrwhosetheboss. (2020, September 25). *6G - Explained!* [Video]. YouTube. <https://www.youtube.com/watch?v=AvcAovqG5Kk>

# Reading Assignment

As you read through the learning resource consider the following:

- *Have you ever experienced virtual or augmented reality before? How do you think these technologies can change the way we interact with digital content?*
  - *How does the concept of IoE differ from IoT, and what new opportunities might it present for businesses and individuals? Can you think of any potential drawbacks or challenges to implementing IoE on a large scale?*
  - *What potential security risks are associated with the deployment of 5G and 6G networks? How might these risks be mitigated?*
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## Read

1. [5G/6G Wireless networks](#). (2023, February 2). Science and Technology.
  - From this article, read the “Implications of 5G and 6G” section.
2. Mihret, E. T., & Haile, G. (2021). [4G, 5G, 6G, 7G and future mobile technologies](#). *American Journal of Computer Science and Information Technology*, 9, (2:75).
  - Read the article on 4G, 5G, 6G, and 7G technologies, with more concentration on 5G and 6G.
3. Purohit, S., Purohit, S., & Mathur, A. (2021). [An evolutionary development from IoT \(Internet of things\) to IoE \(Internet of everything\)](#). *International Research Journal of Engineering and Technology*, 8(1), 994-997.
  - Read the article to learn about the Internet of Things (IoT) and the Internet of Everything (IoE).
4. [What are augmented reality and virtual reality?](#) (2020, March 1). Splunk.
  - Read this article to know about AR and VR.

# Discussion Assignment

Before beginning the discussion, please answer the following questions as well within your initial post:

- *Have you heard of 5G and 6G wireless technologies before? If so, how familiar are you with them?*
- *What industries or areas do you think could benefit from the implementation of 5G and 6G technologies?*

**Task:**

1. Research and compare the features and capabilities of 5G and 6G wireless technologies.
2. Provide a detailed analysis of the similarities and differences between the two technologies.

Engage in a discussion with your classmates and provide feedback on their analysis. Respond to at least two of your classmates' posts and discuss how their analysis aligns with your own.

Your Discussion should be a minimum of 200 words in length.

# Learning Journal

We have reviewed revolutionary technologies such as the Internet of Things (IoT), Internet of Everything (IoE), virtual reality (VR), and augmented reality (AR), and their application in cutting-edge areas.

Choose and explain which technology among IoT, IoE, VR, and AR can be impacted by 5G wireless technology and how it can drive a revolution in a specific application scenario (such as smart homes, smart cities, smart power grids, autonomous vehicles/robots, cutting edge medical care, classrooms of the future, etc.) for the chosen technology.

**Note:** Your submission should be between 200 and 500 words.

Use APA citations and references if you use ideas from the readings or other sources.



## Self-Quiz

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The Self-Quiz gives you an opportunity to self-assess your knowledge of what you have learned so far.

The results of the Self-Quiz do not count towards your final grade, but the quiz is an important part of the University's learning process and it is expected that you will take it to ensure understanding of the materials presented. Analyzing your results will help you perform better on future Graded Quizzes and the Final Exam.

Please access the Self-Quiz on the main course homepage; it will be listed inside the Unit.

## **Review Quiz**

The Review Quiz will test your knowledge of all materials learned in this course. The results of this quiz will not count towards your final grade, but will help guide you in more thoroughly reviewing necessary topics and adequately preparing for the Final Exam.

Please access the Review Quiz under Unit 9 on the main course homepage; it will be listed inside the Unit.

## Checklist

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- Peer assess Unit 7 Written Assignment
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