

# ICT Introduction to Semiconductors

## Certificate

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### **Domain 1: Understand what semiconductors are.**

- 1.1: Understand the purpose of semiconductors.
- 1.2: Understand how semiconductors are different from conductors (regular metals) and insulators (plastics).
- 1.3 Identify common materials used in semiconductors, like silicon.

### **Domain 2: Describe how semiconductors work.**

- 2.1: Explain how tiny parts inside computers help them turn on and off.
- 2.2: Describe how semiconductors can sometimes let electricity pass and sometimes stop it.
- 2.3: Describe the role of electrons and holes in semiconductor behavior.
- 2.4: Explore how semiconductors are used in everyday devices like smartphones and computers.

### **Domain 3: Explore the importance of semiconductors in technology.**

- 3.1: Understand why semiconductors are crucial for modern electronics.
- 3.2: Understand how semiconductors help control electrical signals in devices.
- 3.3: Describe how semiconductors make devices faster and more efficient.

### **Domain 4: Identify the different types of semiconductors.**

- 4.1: Describe the different types of semiconductors and the job they have.
- 4.2: Understand why scientists change semiconductors to work better in devices.
- 4.3: Explore common semiconductor materials like silicon, germanium, and gallium arsenide.
- 4.4: Understand how semiconductors are used in touchscreens, smartwatches, and more.

### **Domain 5: Explore how semiconductors are made.**

- 5.1: Describe the process of making semiconductor wafers.
- 5.2: Understand how semiconductors are cut, shaped, and tested for use in electronic devices.
- 5.3: Discover the role of clean rooms in semiconductor production.

### **Domain 6: Explore careers in the semiconductor industry.**

- 6.1: Identify the soft skills needed to work in the semiconductor industry.
- 6.2: Identify the range of technical skills needed to work in the semiconductor industry.
- 6.3: Identify careers in the semiconductor industry.