**REPUBLIC OF KENYA**

# COMPETENCY BASED CURRICULUM

**FOR**

# ELECTRICAL OPERATION (POWER OPTION)

**KNQF LEVEL 5**

**ISCED CODE: 07130554 B**

TVET CDACC
P.O BOX 15745-00100
NAIROBI

# ELECTRONICS

**UNIT CODE:** ENG/CU/PO/CR/04/5/B

**Relationship to Occupational Standards**
This unit addresses the unit of competency: Demonstrate understanding of Electronics

**Duration of Unit:** 60 hours

**Unit Description**
This unit covers the competencies required to demonstrate understanding of Electronics. Competencies includes; Apply semiconductor theory, applying semiconductor diodes, demonstrating understanding of transistors, applying special semiconductor devices, and Performing rectification

**Summary of Learning Outcomes**

1. Apply semiconductor theory
2. Apply semiconductor diodes
3. Demonstrate understanding of transistors
4. Apply Special semiconductor devices
5. Perform rectification

**Learning Outcomes, Content and Suggested Assessment Methods**

| Learning Outcome | Content | Suggested Assessment Methods |
|---|---|---|
| 1. Apply semiconductor theory | • Meaning of terms<br>• Types of materials<br>  • Insulators<br>  • Conductors<br>  • Semiconductors<br>• Semiconductor materials<br>• Types of semiconductors materials<br>  • Intrinsic and Extrinsic | • Observation<br>• Oral questioning<br>• Written tests |

| Learning Outcome | Content | Suggested Assessment Methods |
|---|---|---|
| 2. Apply semiconductor diodes | • Meaning of terms<br>• P-N juction<br>• Semiconductor diodes<br>• Foreward and reverse Characteristics<br>• Types of semicondctor diodes<br>• Application of semiconductors diodes | • Written tests<br>• Oral questioning |
| 3. Demonstrate understanding of transistors | • Bipolar junction transistors<br>• Operation of NPN and PNP<br>• Field effect transistors<br>• Operation N and P channels<br>• Types of FETs<br>• BJTs and FETs biasing<br>• BJTs and FETs configuration<br>• Characteristics of transistors<br>• Gain of transistors<br>• DC/AC load lines | • Observation<br>• Oral questioning<br>• Written tests |
| 4. Apply Special semiconductor devices | • Meaning of terms<br>• Types of special semiconductor devices<br>• UJT<br>• SCR<br>• LASCR<br>• TRIAC<br>• DIAC<br>• SCS<br>• Application of special semiconductor devices | • Observation<br>• Oral questioning<br>• Written tests |
| 5. Perform rectification | • Meaning of Terms<br>• Classification of rectifiers<br>• Types of rectifiers<br>• Application of rectifiers | • Written tests<br>• Oral questioning |

**Suggested Methods of Instruction**

- Discussions
- Site visits
- On-job-training
- Charts and Audio-visual presentations

**Recommended Resources**

- Computers
- Printers
- Cameras
- Phones
- Stationery