### Budget and cost estimates Draft

### **Assumptions and Calculations Summary:**

#### **1. Offices (13 total):**

* One is used for storage → **12 active offices**
* **2–4 people per office** → Estimate: **3 people avg × 12 = 36 users**
* Wired devices: 36
* Wi-Fi devices: 3 users × 3 devices avg = **108 devices**
* Small switches allowed (<8 ports) → **1 per office**

#### **2. Technicians’ Office:**

* **2 users**
* Wired APs: 2 (for users) + 4 (equipment) = **6 ports**
* Wi-Fi: 2 × 8 devices = **16 devices**

#### **3. Reception:**

* **2 users**
* 1 Printer
* 2 Wired APs + **Wi-Fi for 6 devices (3 per person average)** + **Guest Wi-Fi**

#### **4. Kitchen:**

* **4 Wired APs for IoT**
* General Wi-Fi access

#### **5. Meeting Room:**

* **20–30 users** → average 25
* 2 Wired APs for conferencing
* Wi-Fi: 25 × 3 avg = 75 devices

#### **6. Open Floor Space:**

* 75–120 users → average 100
* **100 Wired APs**
* Wi-Fi: 100 × 3 = **300 devices**
* 5 Printers

## **Network Design Using Cisco Packet Tracer Devices**

### **Wired Infrastructure**

|  |  |  |
| --- | --- | --- |
| **Device** | **Quant** | **Ports Needed / Notes** |
| **Cisco 2960 (24-port switch)** | 6 | Core switching in Machine Room + Floor |
| **Cisco 2960 (8-port switch)** | 13 | Offices, Technicians’ office, Reception, Kitchen |
| **Copper Straight-through cables** | 1500m | Assumed for full building coverage |

### **Wireless Access Points (Using Cisco PT APs)**

|  |  |  |
| --- | --- | --- |
| **Device** | **Quant** | **Notes** |
| **Cisco WAP (PT Generic)** | 20 | Sufficient coverage based on estimated device density |

### **Printers**

|  |  |  |
| --- | --- | --- |
| **Device** | **Quantity** | **Placement** |
| **Network Printers** | 6 | 5 in floor area, 1 in reception |

## **Budget Estimate (Based on Cisco Packet Tracer-equivalent items)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Component** | **Unit Cost (ZAR)** | **Quantity** | **Total (ZAR)** |
| Cisco 2960 (24-port) | R3,800 | 6 | R22,800 |
| Cisco 2960 (8-port) | R1,800 | 13 | R23,400 |
| Cisco WAP | R3,200 | 20 | R64,000 |
| Network Printer | R3,000 | 6 | R18,000 |
| Cat6 Ethernet Cable (per m) | R5.60 | 1500 | R8,400 |
| **Total** |  |  | **R136,600** |

### **Labour Cost Estimate (Optional Addition)**

|  |  |
| --- | --- |
| **Task** | **Estimate (ZAR)** |
| Installation & configuration | R12,000 |
| Testing and commissioning | R5,000 |
| **Labour Total** | **R17,000** |

### **Contingency (10% of total)**

R136,600 × 10% = **R13,660**

### **Final Estimate Including Labour and Contingency**

**R136,600 (hardware) + R17,000 (labour) + R13,660 (contingency) = R167,260**