

# ◆ Lecture 1 – Introduction to IT Support

## ★ What an IT Support Engineer Does

An **IT Support Engineer** is the person who troubleshoots and maintains all the technology devices in a company.

### 🔧 Key Responsibilities

- **Hardware Troubleshooting** 📄  
Fix problems in desktops, laptops, printers, cables, etc.
- **Operating System Troubleshooting** 💻  
Fix Windows errors, crashes, slow performance, login issues.
- **Network Troubleshooting** 🌐  
Check LAN/Wi-Fi issues, router/switch issues, IP conflicts.
- **Device Monitoring & Maintenance** 🔍  
Keep systems updated, check performance, run security scans.
- **Documentation** 📝  
Maintain logs of issues, tickets, system information.
- **Service Request Handling** 🎧  
Solve user issues through calls, emails, or ticketing tools.

### 🔌 Devices an IT Support Engineer Works With

- Mobile phones 📱
- Desktops 📄
- Laptops 💻
- Servers 🖥️
- Cloud services ☁️
- Network devices (routers, switches, firewalls) 🌐
- Security tools 🛡️

👉 IT Support is called “**First Level of Defense**” because they solve most issues before they reach higher teams.

## Where IT Support is Needed?

- Airports 
- Malls 
- Hotels 
- Hospitals 
- Manufacturing industries 
- Chemical companies 
- Retail companies like Nykaa, Croma, DMart 

## Must-Do Requirements (Your List)

1. **Learn Office 365 – first 10 lectures** (YT Channel: *Office 365 Concepts*)
2. **Improve English communication**  
After this, you can apply to many jobs.

## Companies Hiring IT Support

- Thyssenkrupp
- Jindal Steel
- Pidilite
- And many more...

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## Common Roles in IT Support

### 1 Help Desk Support / IT Support Technician

- Handles calls/emails from employees
  - Fixes basic issues: passwords, email access, slow PCs
  - Gives step-by-step guidance  
**Example:** Resetting a user's forgotten password.
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## 2 Desktop Support Engineer

- Works physically with computers
- Installs software, sets up devices
- Troubleshoots hardware problems

**Example:** Installing MS Office on a new employee's PC.

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## 3 System Administrator (SysAdmin)

- Manages servers, enterprise systems
- Ensures security, backups, updates

**Example:** Managing Windows Server, Active Directory.

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## 4 Network Administrator

- Manages routers, switches, network cables
- Maintains internal/external connectivity
- Configures firewalls, VLANs

**Example:** Fixing a department's network outage.

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## 5 IT Support Engineer / Technical Support Engineer I

- Handles complex hardware/software issues
- Works with servers, virtualization, security tools
- Helps in new setups/projects

**Example:** Configuring a new network printer.

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## Computer Hardware (Basics)

### SMPS (Switch Mode Power Supply)

#### What is SMPS?

SMPS converts **Alternating Current AC (from wall)** into **Direct Current DC (used by computer parts)**.

#### Why it is needed?

All internal components (CPU, RAM, HDD) use **DC power**, so SMPS supplies it.

#### Connectors in SMPS:

- **24-pin ATX connector** – Powers motherboard
- **4/8-pin CPU connector** – Powers processor
- **PCIe 6/8-pin** – For graphic cards
- **SATA / Molex** – For HDD, SSD, DVD drive

#### Color Coding:

- **Yellow** – +12V (CPU, GPU)
- **Red** – +5V
- **Orange** – +3.3V
- **Black** – Ground
- **Blue** – -12V

#### Real-life example

When your PC doesn't start but fans spin slightly → SMPS failure.

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## Processor (CPU)

### What is CPU?

**Central Processing Unit** – brain of the computer.

#### Components:

- **ALU** (Arithmetic Logic Unit) → does calculations

- **CU** (Control Unit) → controls operations
- **Cache Memory** → fast temporary memory inside CPU

#### **Types:**

- **Desktop Processors**
- **Laptop Processors** (use less power)

#### **How to check your laptop processor?**

Windows + R → type msinfo32 → Enter

#### **Processor Series Letters:**

- **U** – Ultra-low power (basic usage)
  - **P** – Balanced performance
  - **H** – High performance
  - **HX** – Extreme performance
  - **HK** – High performance + overclocking
  - **G** – With integrated graphics
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#### ◆ **Cores & Threads**

- **Core** = real physical processor inside CPU
- **Thread** = virtual process line that manages tasks

#### **CPU Categories:**

- **i3** → 2–4 cores (browsing, office work)
  - **i5** → 4–6 cores (mid-range)
  - **i7** → 6–8 cores (heavy apps)
  - **i9** → 8–24 cores (gaming, editing, servers)
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## ◆ Intel CPU Generations (Latest → Old)

### 🔥 Latest (as of 2024–2025)

- 14th Gen Meteor Lake
  - 13th Gen Raptor Lake
  - 12th Gen Alder Lake
  - 11th Gen Tiger Lake
  - 10th Gen Comet Lake
  - 9th Gen Coffee Lake
  - 8th Gen Kaby Lake
  - 7th Gen & older
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## ◆ AMD CPU Generations (Latest → Old)

### 🔥 Latest Ryzen Series

- Ryzen 9000 series – Zen 5
  - Ryzen 7000 series – Zen 4
  - Ryzen 5000 series – Zen 3
  - Ryzen 3000 series – Zen 2
  - Ryzen 1000/2000 – Zen 1
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## 🧬 Memory (RAM)

### What RAM does:

- Stores temporary data of apps
- Faster than HDD/SSD
- Clears when device shuts down

### Types:

- **DDR3**
- **DDR4**
- **DDR5**

### How to check RAM info?

Ctrl + Shift + Esc → Performance → Memory

Shows:

- Speed
- Type
- Slots used
- Total RAM

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### **Storage Devices**

- **HDD** – High storage, slow
- **SSD (SATA)** – Faster
- **NVMe SSD** – Very fast

### How storage works:

Data is loaded from HDD/SSD → RAM → CPU processes → Output shown on screen.