

# ◆ 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

## abc 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

## ◆ 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)

## ◆ 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



## **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.