🔹 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…

👷 Common Roles in IT Support

1️⃣ 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.

2️⃣ 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.

3️⃣ System Administrator (SysAdmin) 🗄️

- Manages servers, enterprise systems
- Ensures security, backups, updates
  Example: Managing Windows Server, Active Directory.

4️⃣ Network Administrator 🌐

- Manages routers, switches, network cables
- Maintains internal/external connectivity
- Configures firewalls, VLANs
  Example: Fixing a department's network outage.

5️⃣ 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.

🖥️ 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.

🧠 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

🔸 **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**

🔶 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**

🧬 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.