Department of Computer Science and Engineering

FACULTY OF ENGINEERING AND TECHNOLOGY
UNIVERSITY OF LUCKNOW
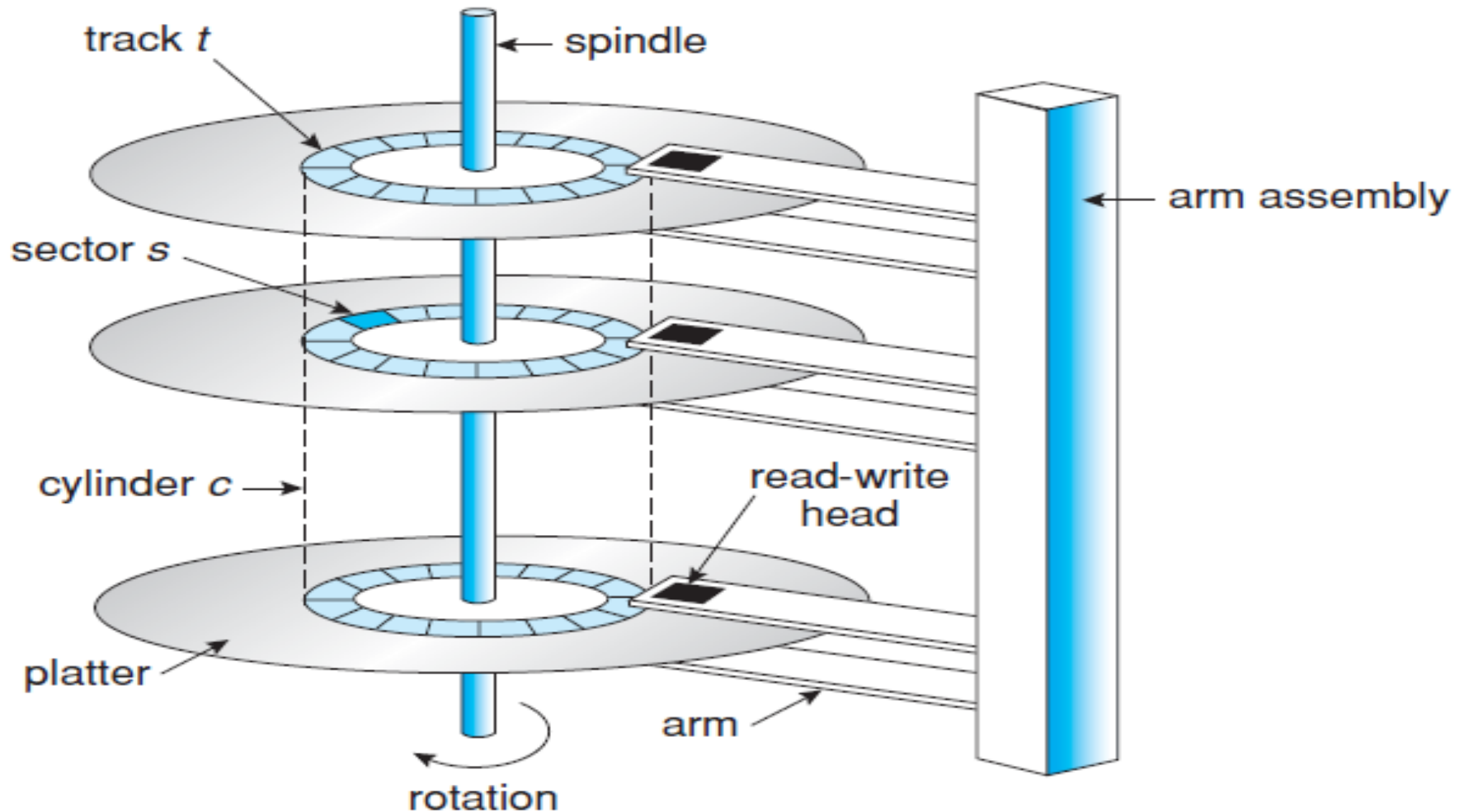## LUCKNOW

CS-501

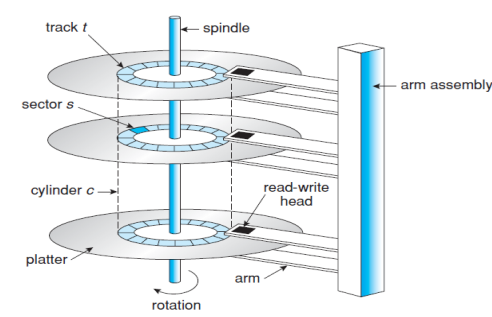**Dr. Zeeshan Ali Siddiqui**
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DISK STRUCTURE

Disk Structure

- Magnetic Disks: Moving-head disk mechanism

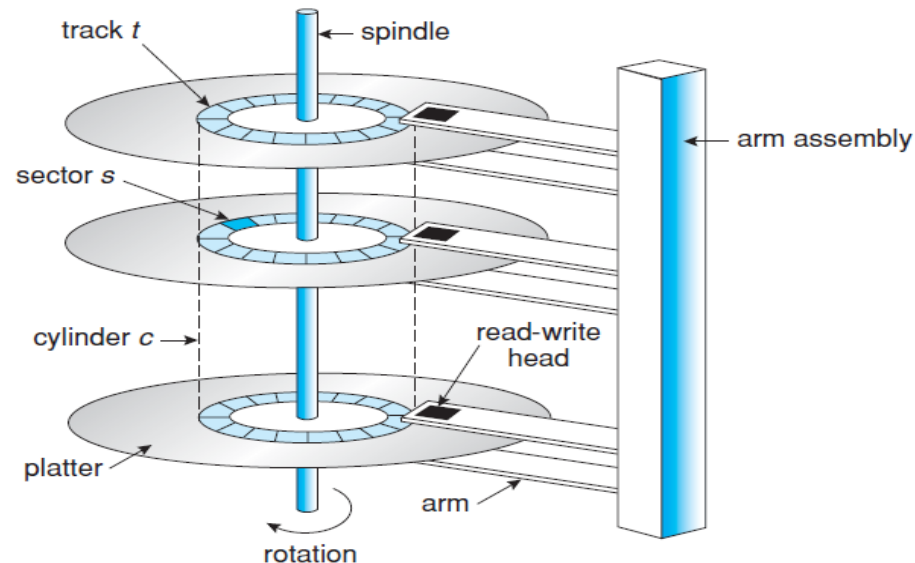# Disk Structure

- Each disk **platter** has a flat *circular* shape, like a CD.

- Common *platter* diameters range from 1.8 to 3.5 inches.

- The two surfaces of a platter are covered with a *magnetic* material.

- We store *information* by recording it magnetically on the platters.

- A *read–write head* "flies" just above each surface of every platter.

Disk Structure

- The heads are attached to a *disk arm* that moves all the heads as a unit.

- The surface of a platter is logically divided into circular **tracks**, which are subdivided into **sectors**.

- The set of tracks that are at one arm position makes up a **cylinder**.

Disk Structure

- There may be thousands of concentric cylinders in a *disk drive*, and each track may contain hundreds of sectors.

- The *storage capacity* of common disk drives is measured in gigabytes.
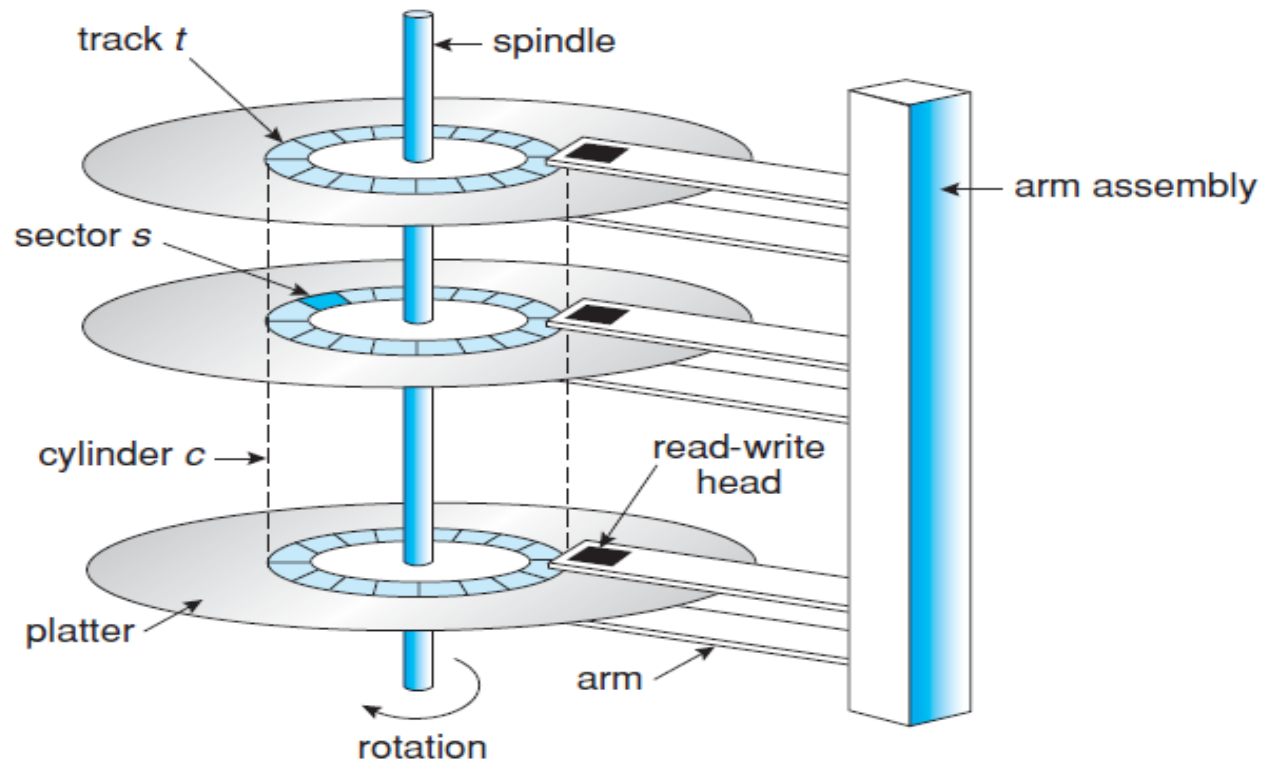
Disk Speed

- Disk speed has two parts:

- **Transfer rate:** It is the rate at which data flow between the drive and the computer.

Disk Speed

- **Positioning time/Random-access time**: It consists of two parts:
  - **Seek time:** The time necessary to move the disk arm to the desired cylinder.
  - **Rotational latency:** The time necessary for the desired sector to rotate to the disk head.

- **Transmission time:** Time for all desired data to spin by read-write head.
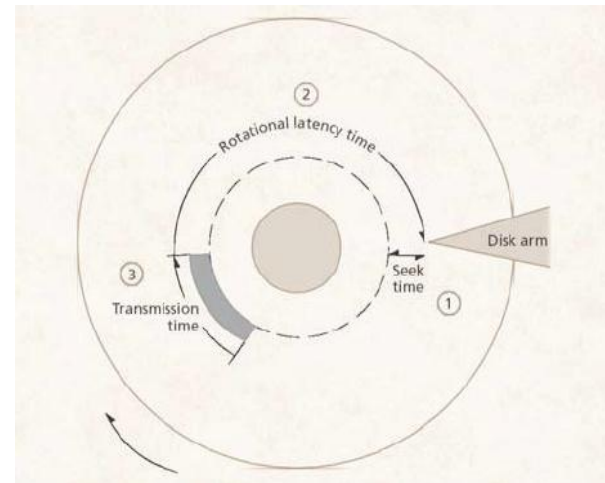
References

1. Silberschatz, Galvin and Gagne, "Operating Systems Concepts", Wiley.

2. William Stallings, "Operating Systems: Internals and Design Principles", 6th Edition, Pearson Education.

3. D M Dhamdhere, "Operating Systems: A Concept based Approach", 2nd Edition, TMH.

Thank You.