**TAB 2023-24**

**CAD and PCB Designing**

**Preparation**

Date: 14 September 2023

Topic: PCB Designing

**What?**

\*A PCB is a replica of a layer cake.

\*A PCB has layers of required material combined with special adhesives.

\*PCB abbreviated as Printed Circuit Board is used to compress a comlpex circuit onto a relatively smaller board or a chip.

**Why?**

\*\*Before:

> More wires - More power consumption, Time complexity is high, Current losses,

Short circuit risks are high.

\*\*Now:

>PCB - Power Consumption is High, Reaction Time is low, Risk of shorting is low

**How?**

*\*\*For reference, imagine the construction of a building*

\*step1: Paper Plan

\*step2: Pillars, slabs, beams

\*step3: Walls

\*step4: Plastering, painting

*\*\*PCB designing*

\*step1: Schematics(circuit in 2D)

\*step2: PCB editing-placing components, wiring

\*step3: Edgecuts, material selection, etc

\*step4: Fabrication, printing, mounting components, making physical connections

**Types?**

Single sided PCBs - compare with a pop tart.

\*A crunchy base with the main filling on the top.

\*A solid board with conductor filling on the a single side.

Double sided PCBs - compare with an oreo.

\*Common base, sandwiched with two similar functionalities on either side.

\* A solid board with conductors embedded on both sides.

Multilayered PCBs - compare with a burger

\*more layers, more variations

\*more layers, more connections can be made

Rigid PCBs - compare with a cookie

\*brittle, breaks on applying much force

\*cannot twisted or bent, strong

Flexible PCBs - compare with a slice of pizza

\*can be twisted or bent to some extent, much costlier than a cookie

\*lesser physical constraints, costly, more relialable