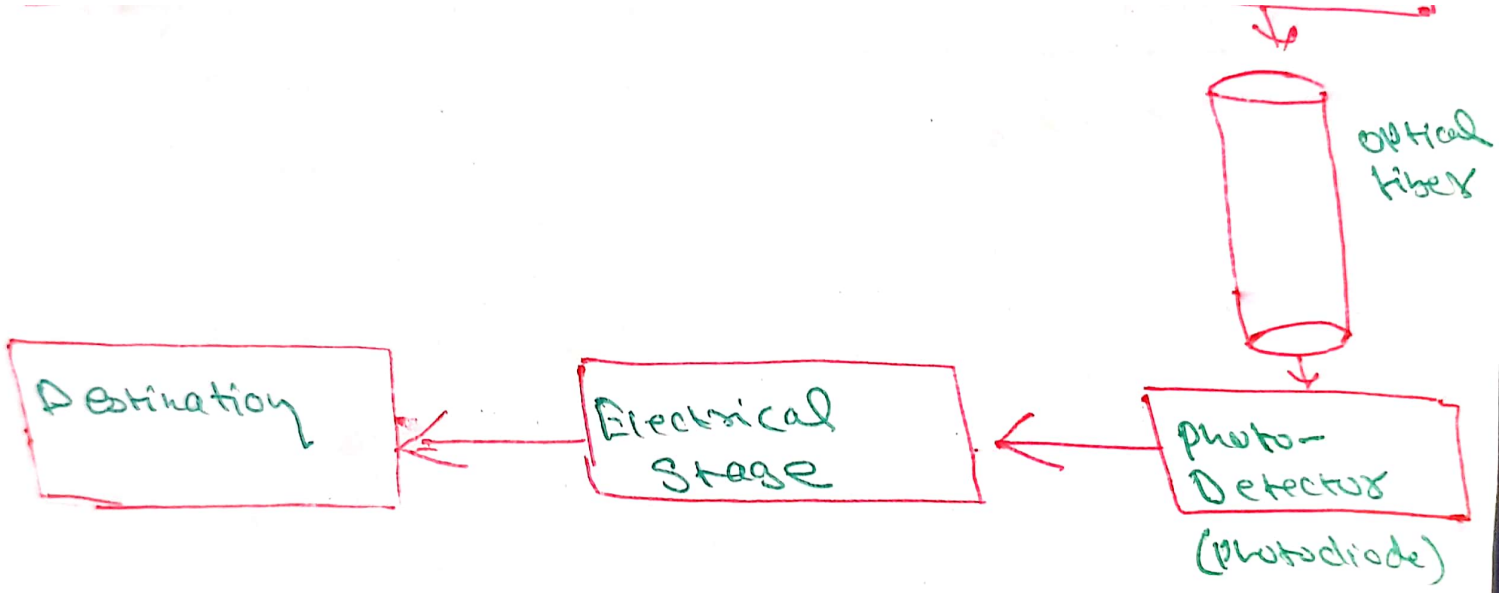


## * Optical fiber Communication process:-

→ Message, that we want to transmit, may be not electrical in nature (audio signal), so first of all, it needs to be convert into electrical form using transducer.

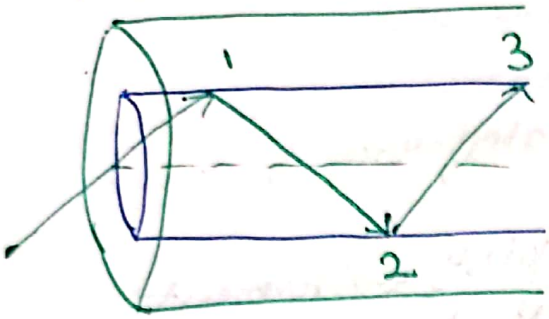
→ Now the message, converted into electrical form modulates an optical source.
eg:- LASER or LED.

→ After this, the light rays containing message travel through the optical fiber by the phenomenon of Total Internal reflection (TIR). Due to TIR, the energy loss in negligible inside the fiber while travelling.

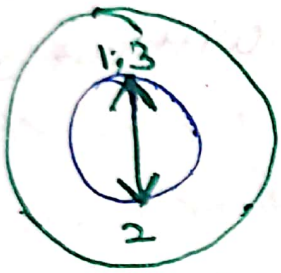
→ Now at the receiving end, photoelectors like photo diode or photo transistors etc, are used to convert the light signal, back into electrical signal. Then the original message signal is retrieved from this electrical signal.

# * Meridional and Skew Rays :—

Meridional rays :—




[Ray path view along the fiber axis]

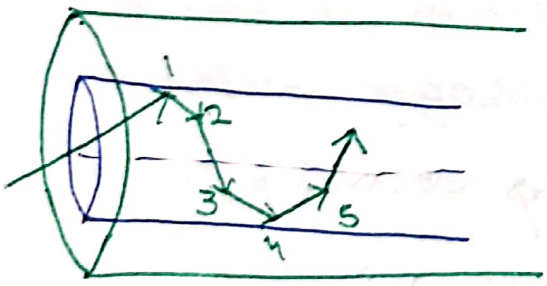



[Ray path view of plane normal to fiber axis]

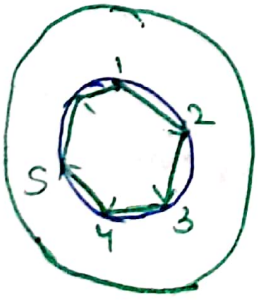
→ Meridional rays enter the fiber through the axis of the fiber.

→ Meridional rays crosss the optical fiber axis at each reflection.

Skew rays :—




[Ray path view along the fiber axis]



→ Skew rays are also known as helical rays, as they move on helical path.

→ Skew rays do not cross the fiber axis & propage around the axis on zig-zag path

→ Moves on helical path around the fiber.