

**SUBJECT INFO. :** Principle of lithography is that 'ink and water do not mix. This is an indirect process. In this process the image and non image areas are in the same level. The image areas are oleophilic (ink receptive). The non image areas are hydrophilic (water receptive). Before coming to the printing department the plate is made to oil and water receptive in the plate making section by chemical treatment. During printing, first the dampening solution is applied over the plate surface, the non image areas only receive the dampening solution. Then ink is applied by the inking roller over the plate surface. The dampening solution present in the non image areas does not allow the ink to form over the non-image areas. The ink is only received by the image areas. During printing the image with ink is transferred to the paper by pressure.

### Principle Of Offset Printing

Offset printing is a commonly used printing technique in which the inked image is transferred (or "offset") from a plate to a rubber blanket, then to the printing surface. When used in combination with the lithographic process, which is based on the repulsion of oil and water, the offset technique employs a flat (planographic) image carrier on which the image to be printed obtains ink from ink rollers, while the non-printing area attracts a water-based film (called "fountain solution"), keeping the non-printing areas ink-free. Development of the offset press came in two versions: in 1875 by Robert Barclay of England for printing on tin. In 1904 by Ira Washington Rubel of the United States printed on paper with offset principle which later becomes very famous

Sheet fed offset is a common machine used in the printing industry. I and the students of B.Voc Printing learned a lot from this project. The raw material needed to make this machine has to be collected. Then we designed it on Corel Draw system. And started working.

We can make a machine model of the required size, then we can fix the internal components of the machine with the right dimensions so that there will be no trouble when it is built.

Taking every measurement like diameter of roller, holder, wooden planks, base and top of the machine. Once your 2D model is ready you can start working on making the model dummy. Now, we collected rods, nuts and bolts, straps from the hardware store. Then a carpenter cut the planks to the right size and measured them. With proper measurement we can make assembly of machine model.

### Project Features :

- \* This sheet-fed offset machine includes all the unit like a real machine
- \* Including feeding, dampening, inking, printing and delivery unit.
- \* Made of wood, this machine includes different rollers like a real offset machine.
- \* A cloth belt has been adopted to pass the paper substrate further due to its smaller size.
- \* Also a plastic container has been used as a compressor motor.
- \* Thus all the sections are structured in a proper manner.

### Project Images :



