Bachelor of Journalism & Mass Communication

JMC 107 Design and Graphics

UNIT III

Printing Methods

Letterpress, Cylinder, Gravure, Screen, Offset printing, Plate Making.

Offset press

Offset printing is a developed form of lithography printing. It is a commonly used printing technique where the inked image is transferred 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. Development of the offset press came in two versions, first in 1875 by Robert Barclay of England for printing on tin, and second in 1903 by Ira Washington Rubel of the United States for printing on paper.

Compared to other printing methods, offset printing is best suited for cost-effectively producing large volumes of high quality prints. In this method, the printing surface make on zinc and aluminum with the help of positive and negative. In this printing methods, two types of machines are mainly used for printing.

1. Sheet fed offset Machine.
2. Web fed Offset Machine.

The both machines have dampening system, who is provide the liquid layer of ink to the surface of without printing. Sheet feed offset machine is used for all types of printing works and the Web feed Offset machine is used for fast and very large number of printing work.

Advantages

Consistent high image quality offset printing produces sharp and clean images and type more easily than letterpress printing because the rubber blanket conforms to the texture of the printing surface.

- Quick and easy production of printing plates.
- Longer printing plate life than on direct litho presses because there is no direct contact between the plate and the printing surface. Properly developed plates running in conjunction with optimized inks and fountain solution may exceed run lengths of a million impressions.
- Offset printing is the cheapest method to produce high quality printing in commercial printing quantities.

Disadvantages

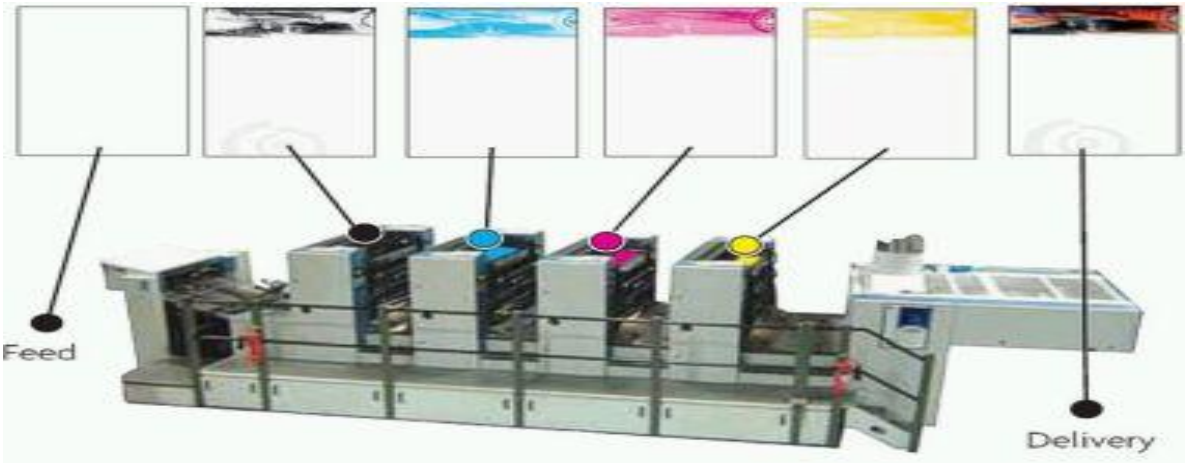
- Propensity for anodized (Coat a metal with an oxide coat) aluminum printing plates to become sensitive (due to chemical oxidation) and print in non-image/background areas when developed plates are not cared for properly.

- Time and cost associated with producing plates and printing press setup. As a result, very small quantity printing jobs are now moving to digital offset machines.

Plate Making

Computer to Plate (CTP) / Direct to Plate (DTP)

Computer to Plate (CTP) is a newer technology that allows the imaging of metal or polyester plates without the use of film. Eliminating the stripping, compositing, and traditional plate making processes, CTP revolutionized the printing industry and led to reduced prepress times, lower costs of labor, and improved print quality.



Most CTP systems used thermal CTP as opposed to violet CTP, though both systems are effective, depending on the needs of the printing job. Thermal CTP does have the advantage of extremely high quality, but Violet CTP does cost significantly less. Thermal plates are generally used for longer runs, while Violet CTP is employed for shorter runs, and popular with 2-up and 4-up applications. Thermal CTP has the added bonus of utilizing binary exposure, which limits the risk of under or overexposure, and makes it possible to work under yellow light.

Thermal CTP involves the use of thermal lasers to expose and/or remove areas of coating while the plate is being imaged. This depends on whether the plate is negative,

or positive working. These lasers are generally at a wavelength of 830 nanometers, but vary in their energy usage depending on whether they are used to expose or ablate material. Violet CTP lasers have a much lower wavelength, 405-410 nanometers. Violet CTP is “based on emulsion tuned to visible light exposure,” The general trend of plate setters has been to move toward coatings whose success on press is independent of post imaging chemical bath processing

Offset Lithography became the most popular form of commercial printing in the 1950’s (Offset Printing). Subsequent improvements in plates, inks, and paper enhanced the technology and maximized its “superior production speed and plate durability,” (Offset Printing).

Today, offset lithography is “responsible for over half of all printing using printing plates”. The quality of the prints made is consistently high, and the volume of prints created for their respective cost makes commercial offset lithography very efficient for businesses, especially when many prints must be created quickly.