Photolithography (from Greek: Light-Stone-Writing):

- Using light and light sensitive materials to transfer patterns onto a wafer.

- The substrate is coated with a photoresist by a spin-on process
- A mask (glass or quartz clear plate with Cr opaque areas on it) with the desired design is prepared using a mask writer
- The substrate is exposed to UV light through the mask using a mask aligner or a stepper
- The wafer is then placed in a developer to remove the exposed (in case of a “positive” photoresist) or unexposed (“negative”) areas of the photoresist
- After processing (etching or depositing in the areas not covered by the resist), the resist is not needed anymore and is stripped.
Typical Litho recipe steps:

• Dehydration for a few minutes on a hot plate
• Adhesion promoter coating (optional)
• Bake (on a hot plate)
• Photoresist coating (thickness determined by viscosity and speed)
• Pre-bake (AKA soft bake) – for removal of solvents
• Alignment
• Exposure (mask aligner, typically in contact mode for better resolution)
• Development (using a diluted solvent in a beaker inside a photolithography hood)
• Post Bake
• Processing (deposition, etch, etc...)
• Stripping and post process cleaning (solvents and/or plasma ashing)

*Each step needs to be optimized based on the photoresist, equipment, and samples used.