**Work Plan and Methodology**

- **Extensive Literature reviews:**
  Literature review will be done by various books, journals, research articles, patents, pharmacopoeia etc. covering cancer, various aspects of chemotherapy, targeting approaches, pH sensitive liposome, and drug profile through various books, journals, research articles, patents, pharmacopoeia etc.

- **Procurement and identification of drug:**
  Drug will be procured as a gift sample from Industry or Institution and identification of drug will be done by IR, DSC and NMR.

- **Development of Analytical Method:**
  Development for estimation of drug in Liposomal formulation and for estimation of drug in diffusion medium (pH 5.0 & pH 7.4) will be done by UV spectroscopic method.

- **Development and Optimization of Formulation:**
  Docetaxel encapsulated pH-sensitive liposomes will be prepared by Thin film hydration method and will be optimized by various process and formulation parameters using lipids.

- **Characterization of Formulation:**
  Characterization of liposomal formulation will be done for percentage drug entrapment (PDE), Particle size & poly-dispersivity index (PDI), surface morphology using Scanning Electron Microscope, drug compatibility with formulation excipients using Differential Scanning Calorimetry (DSC).

- **In-vitro drug release study:**
  In-vitro drug release study of optimized formulation liposome will be done in suitable diffusion medium (PBS pH 7.4 & 5.0).

- **In vitro cytotoxicity study:**
  *In vitro* cytotoxicity studies of the optimized formulation liposome will be done by A549 cell line by MTT assay.

- **Stability study of the optimized formulation liposome** will be done by according to ICH guidelines.