

**PROJECT RISK ANALYSIS AND MITIGATION TECHNIQUES**

**Objectives:**

To give knowledge of various aspects of risk management to students so that they are able to identify risk events, to use of risk prompts, use of risk assessment tables and utility of grading of construction entities.

**Course Contents :**

- 1.) Net present Work
- 2.) Perfectly co related, moderately co-relations & uncorrelated cash flows.
- 3.) Scenerio analysis
- 4.) Sensitivity analysis
- 5.) Risk Profile methods
- 6.) Certainty Equivalent Method
- 7.) Risk adjusted discount rate method
- 8.) Certainty index method
- 9.) 3 point estimated method
- 10.) Use of risk assessment tables.

General – Importance of Risk, types of risks, quantifiable and unquantified risks.

Risk analysis and Management for projects (RAMP) – Identifying risk events. Probability distribution. Stages in Investment life-cycle; determination of NPV and its standard deviation for perfectly co-related, moderately co-related and un-correlated cash flows. Sensitivity analysis, scenario analysis simulation, decision tree analysis, risk profile method, certainly equivalent method; risk adjusted discount rate method, certainty index method, 3 point estimated method; use of risk prompts, use of Risk Assessment tables, details of RAMP process, utility of Grading of construction entities for reliable risk assessment.

Risk Mitigation – by elimination, reducing, transferring, avoiding, absorbing or pooling. Residual risk, mitigation of unquantified risk. Coverage of risk through CIDC's MOU with the Actuarial Society of India through risk premium such as (BIP) – Bidding Indemnity Policy (DIMO) – Delay in meeting obligation by client policy, (SOC) – Settlement of claims policy (LOP)- Loss of profit policy (TI).

Transit Insurance policy (LOPCE) Loss of performance of construction equipment policy.

**References**

1. Industrial Engineering and Management of manufacturing systems. Dr.Surendra Kumar Satya Prakashan
2. RAMP Handbook by institution of Civil Engineers and the faculty and Institute of Actuaries- Thomas Telford publishing, London.
3. Construction Engineering and Management – Seetharaman.
4. Projects Planning analysis selection implementation and Review – Prasanna Chandra.