

Theses: IIT Guwahati

Master of Technology

Assessment of seismic damage of reinforced concrete buildings using fuzzy logic

[Sateesh Kumar; March 2002; Supervised by Sajal Kanti Deb]

Fuzzy logic is a powerful tool in modeling uncertainties and gives meaningful solution for the complex problem of seismic damage assessment. Uncertainties in earthquake ground motion and structure are characterized by representative values of nine damage parameters. These parameters are selected within the uncertain ranges based on engineering practices. Five limit states representing various degrees of fuzzy rule base is formed, from which the seismic damage of reinforced concrete building is assessed by applying the defuzzification method, which converts the fuzzy linguistic variable to a real value. A program SEISDAM has been developed for assesment of seismic damage using fuzzy logic. The proposed method of seismic damage assessment is simple and hence, has the potential for practical application.

Response of liquid storage tank considering fluid structure interaction

[Prodip Kumar Paul; March 2002; Supervised D. Maity]

In this thesis, response of liquid storage tank has been computed considering fluid structure interaction under harmonic, impluse and earthquake excitations. A parametric study has been carried out to identify the parameters influencing the response.