

## IF561 : Structural reliability

**CREDITS = 5 (L=3, T=2)**

**M. Tech First year, 2<sup>nd</sup> Semester**

### Teaching and Assessment Scheme:

Teaching Scheme			Credits	Assessment Scheme				
L	T	P		Theory		Practical		Total Marks
			ESE	CE	ESE	CE		
3	2	0	5	70	30	30	20	150

### Course Contents:

Unit No.	Topics	Teaching Hours
	Concepts of structural safety;	4
	Basic statics and probability;	3
	Resistance parameters and distributions;	5
	Probabilistic analysis of loads,	3
	live load and wind load;	3
	Determination of reliability;	4
	Monte Carlo study of structural safety;	4
	Level 2 reliability methods including advanced level 2 method;	3
	Reliability analysis of components;	3
	Reliability based design-determination of partial safety factors, code calibration;	4
	Reliability of structural systems;	3
	Applications to steel and concrete structures	3
	<b>TOTAL HOURS</b>	<b>42</b>

### Reference books:

- Palle Thoft Christensen and M.J. Baker, Structural Reliability Theory and its Application, Springer-Verlag, Berlin Heidelberg, New York, 1982.
- R.E. Melchers, Structural Reliability Analysis and Prediction, Ellis Horwood, Chisester, England, 1987.

For internal circulation only

- A.H.S. Ang and W.H. Tang, Probability Concepts in Engineering Planning and Design, Vol. II, John Wiley, New York, 1984.
- Palle Thoft Cristensen and Y. Murotsu, Applications of Structural Systems Reliability Theory, Springer-Verlag, Berlin, 1986.