

**CE 585 DESIGN OF COASTAL STRUCTURES
HOMEWORK1**

HOMEWORK 1

Suppose that, the annual maximum wave heights in deep water from dominant wind directions are computed and listed down for 15 years as follows:

Year	Maximum Observed H_o (m.)
1979	8.23
1980	5.72
1981	4.57
1982	6.21
1983	7.02
1984	3.54
1985	4.23
1986	4.90
1987	8.08
1988	6.55
1989	3.02
1990	5.46
1991	5.21
1992	3.97
1993	3.88

- a) Using Gumbel distribution paper plot the extreme probability distribution.
- b) Write down the equation of the distribution. Compare the curves drawn from the data and the equation.
- c) Find the encounter probability of $H_s = 5.0$ m. for a structure having $L = 60$ years.
- d) A structure with 60 years economical life will be constructed at $d_s = 16$ m. water depth. It is decided to design this structure for a wave height with a 20% risk of exceedance. Calculate the design wave height.