AMMV08 APPLIED MATHEMATICS FOR MARINE ENGINEERING

UNIT-1 BASIC STATISTICS

1.1 Measures of Central Tendency: Mean- Calculation of mean, Measure of Dispersion: Mean deviation Standard deviation

1.2 Variance - calculation of Standard deviation of single group and two groups – Moments.

UNIT-2 PROBABILITY AND RANDOM VARIABLES

2.1 Correlation, Correlation coefficient, Regression lines, Rank correlation- Sample space and events, Probability, Axioms of Probability- conditional probability- total probability,

2.2 Bayes theorem- Random variable

2.3 Discrete Probability distribution- Continuous probability distributions- Expectation

2.4 Moment generating function- probability generating function- Probability mass and density functions.

UNIT-3 STANDARD DISTRIBUTIONS

3.1 Binomial, Poisson, Normal, Geometric, Negative binomial, Uniform,

3.2 Exponential, Gamma distributions and their properties.

UNIT-4 TESTING OF HYPOTHESIS

4.1 Sampling distributions - Estimation of parameters - Statistical hypothesis

4.2 Tests based on Normal, t, Chi-square and F distributions for mean, variance and proportion –

4.3 Contigency table (test for independent) - Goodness of fit.

UNIT V NUMERICAL METHODS

5.1 Interpolation for equal and unequal integrals: Lagrange s methods – Newton's forward and backward " different formulae - Divided difference method.

5.2 ODE: Taylor series – Euler– Runge-Kulta methods.

References Books:

1. Jain, M.K. Iyengar, S.R.K., Jain, R.K., Numerical Methods for Engineering and Scientific computation 4rth edition, Newage International Private Limited, New Delhi, 2003.
2. Devore, J.L., "Probability and Statistics for Engineering and the Sciences", Cengage Learning,New Delhi, 8th edition, (2012).
3. Sastry. S, "Introductory methods of Numerical analysis", 3rd edition Printice – Hall of India Private Limited, India, 2002.