

**CORE COURSE - III (CC):  
COMPUTER APPLICATIONS IN ENVIRONMENTAL SCIENCES**

**UNIT 1:**

Introduction to computers: Computer system - Hardware components - CPU, Memory, I/O devices, information storage media; software components; Computer Programmes - Stored programme concept, operating systems - DOS and its use; Algorithm - flow charts and pseudo - code.

**UNIT 2:**

Functions and sub programmes: Statements of functions - function subprogramme - subroutine subprogram - common statements - Equivalence statements.

File Management: I/O statement for sequential access file. I/O statements for direct access file. Auxiliary I/O statements, file positioning I/O statements name list statements.

**UNIT 3:**

Study of scientific packages such as Fox pro, Microsoft office - MS Excel - spreadsheets/worksheets & graphing features to model simple systems and their graphical presentations-Applications.

**UNIT 4:**

MS word – formatting documents – insert objects-creating tables-labels-and envelopes using mail merge. MS Powerpoint – slide show – formatting presentation – Inserting clipart. MS Access.

**UNIT 5:**

Programming exercise to handle problems of statistical types by using statistical package. Statistical techniques: Probability, discrete and continuous series, estimation of parameters (mean, median, mode) hypothesis testing (t- test); ANOVA; regression and correlation. Forecasting and simulation for simple environmental modeling.

**REFERENCES**

1. Balagurusamy, Computer application.
2. E.V. Krishnamurthy and S.K. Sen .Computer - Based Numerical Algorithm. East West Press, 1984.
3. K.S. Trivedi.Probability and Statistics with Reliability, queuing and Computer Science Applications. Prentice Hall, India.
4. Krebs, C. 1989. Ecological methodology .Academic press, London
5. Ludwig, J.A. and. J.F Reynolds. 1988. Statistical Ecology – A primer on methods and computing. John-Wiley and sons. New York.
6. Manuals of work processor, dBase and Lotus.
7. S.C. Gupta and V.U. Kapoor. Fundamentals of Mathematics Statistics.