M.Sc. (Population Studies)

Semester Course

DEPARTMENT OF EPIDEMIOLOGY AND BIOSTATISTICS
KAHER, BELAGAVI.

C O N T E N T S

Mission

"To strengthen research in each and every KLE constituent units,
And
Sensitize faculty for quality research culture of Internationally established standards"

Preamble

Biological sciences have very large variability, and it is difficult to understand completely all the parameters contributing for the event under study. In this situation applied statistics, as a science, has a great role to play for identifying the variables and their contributions in health and disease.

Statistics has been responsible for accelerating progress in all applied sciences by defining the correct methods of planning, collecting, analyzing and interpreting data for establishing cause and effect relationship.

No science can be learned or progress without continuous updates, hence collecting meaningful information, organizing information, and interpretation of the process and its outcome, is always the necessity of all applied sciences, so the applied statistics does not need introduction.

Department of Epidemiology and Biostatistics

The Department of Epidemiology and Biostatistics is aimed to help in meeting the mandatory need of teaching and research of applied statistics in various Graduate, Post Graduate, Post P.G. and Ph.D. Courses offered by KLEs J. N. Medical College, Belagavi, KLEs V.K. Institute of Dental Science, Belagavi, KLEs College of Pharmacy, Bangalore, KLEs College of Pharmacy, Belagavi, KLEs College of Pharmacy, Hubli, KLEs Institute of Physiotherapy, Belagavi, KLEs Institute of Nursing, Belagavi, and KLEs BMK Ayurveda College of Belagavi.

Department of Epidemiology and Biostatistics has been offering the following courses from academic year 2014:

- ✓ B. Sc. Biostatistics & Population Sciences (3 Years) – 12th Standard (Pre-University) with Statistics or Mathematics, Biology alongwith Mathematics are also eligible.
- ✓ M.Sc. in Biostatistics (2 Years) – Three years graduate degree with statistics or mathematics,
- ✓ M.Sc. in Epidemiology (2 Years) – Three years graduate degree with Statistics or Mathematics, Health, Medical and Allied Subjects.

- ✓ M. Sc. in Population Studies (2 Years) - Three years graduate degree in any subject with Statistics/ Mathematics or graduates in Health Science subjects including Nursing and Pharmacy.
- ✓ Ph.D. in Biostatistics – Candidates with Post Graduation in Statistics or Mathematics from a recognised University.

Other Courses

- ✓ Certificate Course in Biostatistics (Regular 6 months/Distance 1 year) – designed to meet the research need of Research Scholars and faculty.
- ✓ P.G. Diploma in Biostatistics (Regular 1 year /Distance 2 years) – Medical and Allied subject graduates interested to pursue research career, with at list one paper in Statistics at Graduation level or Certificate in Biostatistics from any University.
- ✓ Intensive Course in Biostatistics & Research Methodology (Regular 3 Weeks/Part Time 5 Weeks) – This is a skill enhancement course, and can be attended by any graduate desirous to develop research aptitude.

Its faculty with necessary knowledge and skills to deal with statistical analyses in applied research, and to train in quantitative analysis, along with risk managerial skills in their field of interest is well equipped. Substantial facilities are available for higher education.

Further, there is scope and facility for higher education, Ph.D. etc. in their subjects of interest.

M.Sc. (Population Studies)

The syllabus of the M.Sc. (Population Studies) course, besides compulsory background courses and courses of general interest, includes a variety of subjects in the field of Population Studies - theoretical and applied – needed as subjects of interest in Public Health, Medicine, Pharmacy, Physiotherapy, and Statistical Softwares. The M.Sc. (Population Studies) course will provide trained manpower, for the sectors needing to churn population data for decision making.

What will they learn?

The students will gain specialized knowledge and skills required to teach subject matter, and design, monitor and manage research in population sciences and allied field studies.

Career and employability

Internationally and nationally the demand for demographers far exceeds the availability, and Health Research Management.

Eligibility for M.Sc. (Population Studies)

Graduates in any subject with Statistics/ Mathematics or graduates in Health science subjects including Nursing and Pharmacy from any recognized university from Karnataka or other University with minimum 50 percent marks for general category, and 45 percent for SC, ST and OBC will qualify for admission to M.Sc. (Population Studies) course.

Total Intake – 21

Selection Procedure

To maintain high academic standards, the selection of students will be written examination and Personal interview.

Evaluation and teaching schedule

The course will include theory classes followed by practical assignments comprised of four semesters of total two years duration. The practical assignments will be evaluated for the Internal Assessment marks. Average marks obtained in practical assignments and an examination as replica of final examination before final examination in each semester will be the Internal Assessment marks.

Students will have to complete dissertation by using service statistics or data collected by Census or National Health/ Demography Surveys.

Final year students will also be the members of consultancy teams for analysis; cleaning, analysis and interpretation of thesis of Research Scholars.

Attendance: Students are expected to have 80% of total attendance in theory and practical's. However, students will be expected to cover missed theory and practical classes, giving extra time after discussing with the concerned teacher.

Medium of instruction: English

Course Fees: In accordance with other M.Sc. Courses

Duration of course - Two academic years of four semesters

Examination pattern

Theory					
Type of questions	**No. of questions**	**Questions to be answered**		**Marks per question**	**Total marks**
Long Essay	04	03		20	3 x 20=60
Short answer	05	04		05	4 x 05=20
Sub Total: 10 papers of 80 marks each (10 x 80=800)					800
Theory's Internal assessment (10 x 20=200)					200
Practical and research project (Internal Examination)					
Details/ semester	1st	2nd	3rd	4th	Total
Practical	40	40	40	40	160
Internal/assessment	10	10	10	10	40
Project/ Dissertation (External Examiner)					
Details	**Synopsis**	**Data quality**	**Analysis/ interpretation**	**Defense**	**Total**
Report	**20**	**20**	**30**	**30**	**100**
G. Total					**1300**

One External Examiner and one Internal will form the practical examination team.

Internal Assessment

For internal assessment 35% marks are essential to appear for University theory examinations.

Evaluation

Minimum 50% overall, 50% marks in theory, and practical, and 35% in Internal Assessment is eligibility to appear for University Examination, together shall qualify to pass the Certificate Course in Biostatistics.

The mode of evaluation for Project Report will be based on the presentation of the project report by the candidate before the Examiner and the Faculty of the Department of Epidemiology and Biostatistics, which will be arranged after theory Examination.

Results

A candidate who scores less than 50% of the total marks in an individual subjects, has to reappear for the same subject in subsequent examination conducted by the university.

- Class shall be awarded asper University rules

  Grade percent marks

  A 75% and above

  B 60% and above but less than 75%

  C 50% and above but less than 60 %

First Year - Semester I

1.1 Sources of population data	**(60L+20P)**
	Censuses in India and World (15L), Registration of vital events (5L), population and Health surveys – Civil Registration System (CRS) (5L), Sample Registration System (SRS) (5L), National Sample Survey (NSS) (5L+5P), National Family Health Survey (NFHS) (5L+5P), District Level Household Surveys (DLHS) (5L+5P), Reproductive and Child Health Survey (RCHS) – Nature and limitation of data, data appraisal, evaluation and adjustments (15L+5P).
1.2 Basic Statistics for analysis of Population data and Software	**(60L + 20P)**
	Basic Statistics: Types of Data; Concepts of a Statistical Population and Sample from a Population; Qualitative and Quantitative Data; Nominal and Ordinal data; Cross Sectional and Time Series data; Discrete and Continuous data; Frequency data (10L). Different types of Scales - Nominal, Ordinal, Ratio and Interval (1L). Collection and Scrutiny of Data: Primary data - Designing a Questionnaire and a Schedule; Checking their Consistency (6L+2P). Secondary data - its Major Sources including some Government Publications (2L). Complete Enumeration, Controlled Experiments, Observational Studies and Sample Surveys (5L+1P). Scrutiny of data for Internal Consistency and Detection of Errors of Recording. Ideas of Cross-Validation, Logical Errors (3L+1P). Presentation of Data: Construction of Tables with one or more Factors of Classification (2L+5P). Diagrammatic and Graphical Representation of Grouped Data. Frequency Distributions, Cumulative Frequency Distributions/ Ogives and their Graphical Representation, Histogram, Frequency Polygon, and Box plot (3L+4P). Analysis of Quantitative Data: Univariate data-Concepts of Central Tendency, and Location (5L+2P). Dispersion and Relative Dispersion, Skewness and Kurtosis, and their Measures including those based on Quantiles and Moments (8L+2P). Analysis of Categorical Data: Consistency of Categorical Data. Independence and Association of Attributes (2L+2P). Various Measures of Association for two - three-way classified data (2L+1P). Odds Ratio and Relative Risk (1L+1P). Sampling Techniques, and Study Designs (10L).
1.3 Methods of Population Data Analysis and Adjustment of Demographic Data	**(48L + 32P)**
	Rates, Ratios, Percentages, Incidence, Prevalence, Rates of Population Growth, Arithmetic, Geometric and Exponential Growth Rates, Population Doubling Time, Population Stabilization, Cohort and Cross-Sectional Measures, Standardization of Rates (20L+13P). Types of Errors, Coverage and Content Errors (5L). Sources of Errors. Examples of data from Survey and Census Data (5L). Post-Enumeration Surveys; Dual Record System. Techniques of Evaluation of Age Data using Whipple's Index, Myer's Index, UN Joint Score (13L+12P). Quality Checks incorporated in Survey Procedures to Minimize Errors. Smoothing of Age Data (5L+7P)

Semester – II

2.1 Methods of Population Estimate and Projection	**(48L + 32P)**
	Concepts of Population Projections; Population Estimates, Forecasts and Projections, uses of Population Projections (20L+15P). Methods of Interpolation; Extrapolation using Linear, Exponential, Polynomial, Logistics, Gompertz curves (12L+7P). Cohort Component Method: basic Methodology; Projection of Mortality, Fertility and Migration Components (8L+5P). Methods of Rural-Urban and Sub-national Population Projections (8L+5P).
2.2 Population Composition and Change, National and World	**(58L + 28P)**
	Spatial Changes in Population Size, Composition and Distribution, Global Prospective with reference to India (20L+10P). Demographic, Social, Economic and Cultural Determinants (15L+6P). Aging & its Gender Issues (8L). Gender Inequalities and its Determinants & Consequences (7L+6P). Patriarchy and Matriarchy in Traditional and Modern Societies (8L).
2.3 Nuptiality and Fertility	**(54L + 26P)**
	Concept of Family, Indian Marriage and its Consequences (5L). Concepts and Measures of Nuptiality Levels, Trends and Differentials of Fertility (20L+12P). Sources of Nuptiality and Fertility data (1L). Concepts and Measures in the study of Fertility & its Determinants, Measures of Reproduction and their Determinants (10L+10P). Determinants of Fertility-Framework Analysis, Bongaart's Proximate Determinants of Fertility (8L). Methods of Family Planning (10L+4P)

Second Year - Semester III

3.1 Morbidity, Mortality, construction of life tables	**(48L + 32P)**
	Need of the study on Morbidity and Mortality (2L); Sources of Morbidity and Mortality data and their quality with special reference to the developing countries and India (3L). Concepts of Morbidity, Rates, Ratios, Incidence, Prevalence (7L+3P). Diagnostic Test Evaluation; False Negative, False Positive, Sensitivity and Specificity (8L+4P). Concepts and basic Measures of Mortality; Crude Death Rate (CDR) and Age-Specific Death Rates (ASDRs)(5L+2P) Still Birth Rate/Ratio, Perinatal Mortality Rate /Ratio, Infant Mortality Rate, Maternal Mortality Rate/Ratio and their relative merits and demerits (5L+3P). Standardization of Mortality Ratios/Rates; Direct and Indirect techniques of Need for adjustment, Standardization of Mortality Rates (5L+5P), Numerator and Denominator Approaches for Estimating Adjusted Rate and Lexis diagram; Estimating IMR from Large Scale Sample Surveys (8L+5P). Basic concept of a Life Table, Brief history of Life Tables, Anatomy of Life Table, Types and forms of Life Tables, Application of Life Table in Demographic Analysis (10L+10P).
3.2 Migration and urbanization	**(48L + 32P)**
	Basic concepts of Migration (In & Out), types of Migration, Determinants and Consequences of Migration (5L). Pull and Push factors for Migration (8L). Patterns of International Migration: Historical and recent trends, permanent Immigrants, Labour Migration, Brain Drain, Refugee Migration and Illegal Migration (5L). Migration Theories and models, Ravenstein's Laws of Migration, Everett Lee's Theory of Migration, Mobility Field Theory, Lewis-Fei-Ranis Model of Development, Todaro's Model of Rural-Urban Migration (5L). Measures of Migration; Direct Estimation of Lifetime, Inter-Censal Migration Rates from Census data, Indirect Measures of Net Internal Migration, National Growth Rate Method, and Census and Life Table Survival Ratio Methods of International Migration (10L+7P). Basic concepts of Urbanization, types of Urbanization, Determinants And Consequences of Urbanization, Measures of Urbanization (5L+5P). Measures of Concentration of Population-Density, Percentage Distribution and Dissimilarity Index, Measures of Degree and Tempo of Urbanization, Measures of Growth and Distribution of Urban Population (Rank-Size Rule), Primacy Index (Lorenz Curve and Gini's Concentration Ratio) (10L+20P).
3.3 Computer Softwares-SPSS, EPI info, R and EXCEL training and using	**(48L + 32P)**
	Training: SPSS, EPI info, R and EXCEL – to compute Measures of Fertility, Mortality, Life Table etc.

Semester – IV

4.1 Population, Health and Environment (Half Paper) (40L)	
	Demographic Dividend, Population Ageing, Age-Sex Structure, Demographic Transition Effect on Age-structure, Demographic determinant of Population Ageing, Population and its Development linkages (10L), Divergent Views regarding relationship between Population and Development (Malthusian Theory, Socialist and Marxist Views) (5L), Reproductive and Child Health and its relationship with Population Growth and Development, Impact of HIV/AIDS on Fertility, Mortality and its Relationship with Migration, Human Development Index (10L). Population and Environment Degradation and their Implications; Population Growth & Development, Global Warming, Pressure of Population Growth on Water Resources, Population Growth and Land Use, Soil Erosion, Deforestation (15L).
4.2 Population theories, Population and Health Policies (half paper) (40L)	
	Population Policies in India and other Developed Countries (4L), Family Welfare Programme & its Measures and Consequences for Population Change, including its Socio-economic and Cultural Determinants (5L). Contraceptives & their Prevalence Rate, Unmet Need for Family Planning, Human Resource Management, Cost Effective Analysis (5L). Health Influencing Policies, Historical Perspective of Health Policies and Programmes in Developing and Developed Countries (6L). Alma Ata Declaration - Health for all by 2000 A.D (4L). National Health and Family Planning Programmes: CNA, RCH, National Population Policy 2000, National Health Policy 2017, and National Rural Health Mission 2005, National Youth Policy 2012 (8L). Population Growth and Food, Water, Sanitation, Housing, Employment, and Environment for Sustainable Economic Growth (Malthus Theory), Theory of Social Capillarity, Theory of Change & Response, Theory of Diffusion or Cultural Lag, Liebenstein Theory, Becker's Theory, Easterlin Framework of Fertility, Caldwell's Theory, U. N. Threshold Hypothesis (8L).
4.3 Dissertation	
	Submission and publication of papers

References

1. Bhat B.R, Srivenkatramana T and Rao Madhava K.S.(1996): Statistics: A Beginner's Text, Vol. I, New Age International (P) Ltd.
2. Croxton F.E, Cowden D.J and Kelin S (1973): Applied General Statistics, Prentice Hall of India.
3. Goon A.M., Gupta M.K., Das Gupta.B. (1991): Fundamentals of Statistics, Vol.I, World Press, Calcutta.
4. Anderson T.W and Sclove S.L (1978) An Introduction to the Statistical Analysis of Data, Houghton Miffin\Co.
5. Cooke, Cramer and Clarke (): Basic Statistical Computing, Chapman and Hall.
6. Mood A.M, Graybill F.A and Boes D.C. (1974): Introduction to the Theory of Statistics, McGraw Hill.
7. Snedecor G.W and Cochran W. G. (1967): Statistical Methods. Iowa State University Press.
8. Spiegel, M. R. (1967): Theory & Problems of Statistics, Schaum's Publishing Series.

9. A.P. Gore and S.A. Paranjpe (2000) : A Course in Mathematical & Statistical Ecology,
10. P.S.S. Sunder Rao, J. Richard, Introduction to Biostatistics and Research Methods, Prentice-Hall of India Private Limited, 2006.
11. Armitage, P., Statistical Methods in Medical Research, London, Blackwell Scientific Publications, 1989.
12. Hill, A.B., Principles of Medical Statistics, London, Edward Arnold, 1981.
13. Altman, D.G., Practical Statistics for Medical Research, London, Chapman and Hall, 1992.
14. Bhat B.R, Srivenkatramana T and Rao Madhava K.S. (1997): Statistics: A Beginner's Text, Vol. II, New Age International (P) Ltd.
15. Edward P.J., Ford J.S.and Lin (1974): Probability for Statistical Decision-Making, Prentice Hall.
16. Goon A.M., Gupta M.K., Das Gupta.B. (1999): Fundamentals of Statistics, Vol.II, World Press, Calcutta.
17. Mood A.M, Graybill F.A and Boes D.C. (1974): Introduction to the Theory of Statistics, McGraw Hill.
18. R.C.Elandt Johnson (1975) : Probability Models & Statistical Methods in Genetics, Wiley, C.C.Li (1976) :
19. Cooke, Cramer and Clarke (): Basic Statistical Computing, Chapman and Hall.
20. David S (1996): Elementary Probability, Oxford Press.
21. Hoel P.G (1971): Introduction to Mathematical Statistics, Asia Publishing House.
22. Freund J.E (2001): Mathematical Statistics, Prentice Hall of India.
23. Hodges J.L and Lehman E.L (1964): Basic Concepts of Probability and Statistics, Holden Day.
24. Mood A.M, Graybill F.A and Boes D.C. (1974): Introduction to the Theory of Statistics, McGraw Hill.
25. Berger, J. O. Statistical Decision Theory and Bayesian Analysis, Springer Verlag.
26. Robert C. P. and Casella, G. Monte Carlo Statistical Methods, Springer Verlag.
27. Leonard T. and Hsu, J. S. J. Bayesian Methods. Cambridge University Press.
28. DeGroot M. H. Optimal Statistical Decisions. McGraw Hill.
29. Bernando J. M. and Smith, A. F. M. Bayesian Theory, John Wiley and Sons.
30. Robert, C. P. The Bayesian Choice : A decision Theoretic Motivation, Springer.

31. Murthy M.N (1967): Sampling Theory and Methods, Statistical Publishing Society, Calcutta.
32. Sampath S. (2000): Sampling Theory and Methods, Narosa Publishing House.
33. Sukhatme B.V(1984) : Sample Survey methods and Its Applications, Indian Society of Agricultural Statistics.
34. W.G. Cochran, Sampling Techniques, Wiley Eastern Limited, New Deli, Banglore.
35. Mukhopadhyay, Parimal (1996) : Mathematical Statistics. New Central Book Agency Pvt. Ltd., Calcutta.
36. Mukhopadhyay, Parimal (1998) : Theory and Methods of Survey Sampling. Prentice Hall.
37. Chatterjee, S. and Price, P. (1991) : Regression Analysis by example. Second edition. John Wiley & sons.
38. Guide to current Indian Official Statistics. Central Statistical Organisation, Govt. of India, New Delhi.
39. Cochran W.G and Cox G.M (1957): Experimental Designs, John Wiley and Sons.
40. Das M.N and Giri (1986): Design and Analysis of Experiments, Springer Verlag
41. Des Raj (2000) : Sample Survey Theory, Narosa Publishing House.

42. Goon A.M.,Gupta M.K.,Das Gupta.B. (1986): Fundamentals of Statistics, Vol.II, World Press, Calcutta.
43. Kempthorne O. (1965): The Design and Analysis of Experiments, Wiley Eastern.
44. N. Krishnan Nambudari, Lewis F. Carter, Hubert M. Blalock, Jr, Applied Multivariate analysis and Experimental and Desgins, McGRAW-HILL Book Company, New Delhi.
45. L. J. Bain and M. Englhardt: Statistical analysis of reliability and life testing models,
46. Marcel Dekker (1991). S. Zacks: Introduction to reliability analysis Probability models and statistical methods,
47. Draper, N.R., and Smith, H., Applied Regression Analysis, New York, John Wiley & Sons, 1981.
48. Hand, D.J., and Taylor,C.C., Multivariate Analysis of Variance and Repeated Measures, London, Chapman and Hall, 1987.
49. Maxwell, A.E., Multivariate Analysis in Behavioural Research, London, Chapman and Hall, 1977.
50. McCullagh, P., and Nelder, T.A., Generalized Linear Models, London, Chapman and Hall, 1990.
51. Cochran, W.G., and Cox, G.M. Experimental Designs, Bombay; Asia Publishing House, 1962.
52. D.W.Hosmer & S.Lemeshaw (1989) : Applied Logistic Regression Wiley.
53. Chatterjee, S. and Price, P. (1991) : Regression Analysis by examples. Second edition. John Wiley & sons.
54. Murdock S.R., Ellis D.R., Applied Demography : An Introduction for Basic Concepts Methods and Data, Bouldev, Co., West View Press,1991.
55. United Nations Manual X, Indirect Techniques of Demography Estimation, New York, United Nations Population Division,1983.
56. Keyfitz N, Applied Mathematical Demography, Second Edition, New York, Springer Verlag, 1985.
57. Brass W, The Relational Gompertz Model of Fertility by Age of Women. World Fertility Survey Data, London, World frtility Survey, 1980.
58. Bongaarts J, Population Policy Options in the Developing World, New York, Population Council, Research Division Working Paper No. 59, 1994.
59. Bongaarts J, Bulatao RA, Completing the Population Transition, New York, Population Council, Research Division Working Paper No. 125, 1999.
60. Singh S.N., M.K.Premi, P.S.Bhatia , Ashish Bose Population transition in India Vol.1 & 2, B.R. Publishing Corporation, Division of D.K Publishers.Distributors (P) Ltd , Delhi 110007,1989.
61. Henry S Shryock, Jacob S Siegel & Associates, The Methods & Material
62. of Demography, U.S. Bureau of the Census, U.S. Government Printing
63. Office, Washington D.C. - Vol I & II, 1980.
64. Siegel, S., Non-Parametric Statistics for Behavioural Sciences, New York, McGraw-Hill,1988
65. D.J.Finney (1978) : Statistical Methods in Biological Assays, Charles Griffics & Co.
66. A.P. Gore and S.A. Paranjpe (2000) : A Course in Mathematical & Statistical Ecology,
67. Z.Govindarajulu (2000) : Statistical Techniques in Bioassay, 2nd Edition, S.Karger.
68. D.W.Hosmer & S.Lemeshaw (1989) : Applied Logistic Regression Wiley.
69. R.C.Elandt Johnson (1975) : Probability Models & Statistical Methods in Genetics, Wiley, C.C.Li (1976) :
70. First Course in Population Genetics, Boxwood Press.
71. E.C.Pielou (1977) : An Introduction to Mathmatical Ecology, John Wiley.

72. Davison, A.C. and Hinkley, D.V. (1997) : Bootstrap methods and their application, Cambridge University Press.
73. Gibbons, J.D. (1985) : Nonparametric statistical inference, 2^{nd ed., Marcel Dekker, Inc.
74. Randles, R.H. and Wolfe, D.A. (1979) : Introduction to the theory of nonparametric statistics, John Wiley & Sons, Inc.
75. Fraser, D.A.S. (1957) : Nonparametric methods in statistics, John wiley & sons, Inc.
76. Hajek, J. and Sidak, Z. (1967) : Theory of rank tests, Academic Press.
77. Puri, M.L. and Sen, P.K. (1971) : Nonparametric methods in multivariate analysis, John Wiley & Sons, Inc.
78. Cox, D.R. and Oakes, D. (1983) : Survival analysis, Chapman and Hall.
79. Park K., Test Book of Preventive and Social Medicine, Edition 21, 2011.
80. Lilienfed, A.M. and D. Lilienfed, Foundation of epidemiology, 2nd Edition, New York, Oxford Publications, 1979.
81. K. J. Rothman and S. Geenland (ed.) (1998). Modern Epidemiology, Lippincott-Raven.
82. S. Selvin (1996). Statistical Analysis of Epidemiologic Data, Oxford University Press.
83. D. McNeil (1996). Epidemiological Research Methods. Wiley and Sons.
84. J. F. Jekel, J. G. Elmore, D.L. Katz (1996). Epidemiology, Biostatistics and Preventive Medicine. WB Saunders Co.
85. First Course in Population Genetics, Boxwood Press.
86. Indrayan A, Basic Methods of Medical Research, Third Edition, AITBS Publishers, J-5/6 Krishna Nagar, Delhi – 110051, India
87. Health Research Methodology , A guide for training in research methods,
88. WHO Regional Office for the Western Pacific Manila,1992.
89. Norton, Peter: Guide to MS-DOS.
90. Mathur, Rajiv: Learning Windows -98 Step by step. Galgotia
91. Mathur, Rajiv: Learning Excel-97 for Windows step by step. Galgotia
92. Sanders, H.D.: Computer Today. Mc Graw Hill.
93. Rajaraman : Computer Programming in FORTRAN-77, Prentice Hall.
94. Clive G.: The professional programmers guide to FORTRAN-77. Pitman, publishing House, London.
95. Reddy, R.N. and Ziegler, C.A.:FORTRAN-77-With applications for scientists and engineers. JAICO Publishing House, Bombay, Calcutta & Madras.