

BSC SEM-V P-I

COURSE CODE:22.170

COURSE DETAILS

B.Sc. Part -3rd Semester -5th

Department of statistics

Name of course :- Paper 1st :computer programming in C++.

Course Objective :- Knowledge of computer programming of statistical techniques.

Course outcome:-

1. Students will know about C++ programming ,
2. Able to know about different operators,
3. Able to know about different statements,
4. Able to write program in C++ for different statistical techniques ,
5. Able to know how statistical measures are calculated by computer programming.

Reference Book:

1. Programming in C++ - E.Balguruswami
2. Programming in C++ - V. Rajraman.

BSC SEM-V P-II

COURSE CODE:22.180

COURSE DETAILS

B.Sc. Part -3rd Semester -5th

Department of statistics

Name of course :- Paper 2nd : Numerical methods -I

Course Objective :- Knowledge of estimating intermediate values of the function corresponding to the argument.

Course outcome:-

1. Students will be able to know about interpolation and operators involved in it.
2. Able to distinguish between different operation and differentiation in calculus.
3. Able to know the difference between function and polynomial.
4. Able to estimate the intermediate values of entry corresponding to the argument using different formula.
5. Able to find the error in estimating the values in different formulas.

Reference Book:

1. The calculus of finite difference and numerical methods:- H.C.Sexena
2. Numerical Analysis – B.S.Goal and S.K. Mittal

BSC SEM-V P-III

COURSE CODE:22.190

COURSE DETAILS

Name of Department : Statistics

Name of Course: Paper III Operation Research –I (B.Sc.5th Semester)

Course Objective: The objective of this course is to make student well known about the Concept of Operation Research, their implementation and different methods to solve Linear Programming problems.

Course Outcome: Upon successful completion of “Linear Programming and operation Research- I”, a student will be able to:

1. Define vectors, their linear dependence and independence,
2. Define operation Research , their characteristic features, methodology, uses, limitations and application,
3. Define Linear programming problem(LPP),objective and their limitation,
4. Define basic terminology used such as: basic solution, feasible solution, basic feasible solution etc,
5. Formulate and model a linear programming problem from a word problem and solve them graphically in 2 dimensions, while employing some convex analysis,
6. Place a Primal linear programming problem into standard form or canonical form and use the simple method (including artificial variable technique, Big-M method and two phase method) to solve it,
7. Define and prove the Weak duality theorem, basic duality of the theorem and duality simplex method,
8. Find the dual, and identify and interpret the solution of the dual problem (using simplex and dual simplex method)from the final table of the Primal problem,

Reference Book:

1. Operation Research by Kanti Swarup , P.K.Gupta and Manmohan
2. Operation Research by R.K.Gupta .

BSC SEM-V P-IV

COURSE CODE:22.200

COURSE DETAILS

Name of Department : Statistics

Name of Course: Inference-I (B.Sc.paper 4th, semester- 5th)

Course Objective: The main objective of this course is to provide students concept of inference and related studies.

Course Outcome: By the end of this course, students-

1. Will demonstrate knowledge of MYUE, UMVUE, Cramer-Rao inequality and MVBE.
2. Will learn about sufficiency, complete family of distribution and complete sufficient statistics for different distribution.
3. Will learn about MVUE and Blackwellisation and its application,
4. Will learn about non control distributions.
5. Will demonstrate understanding of completeness of sufficient statistics.

Text Book:

1. Mathematical statistics by – M.Ray & Harswarup Sharma.

Reference Book: Fundamental of mathematical statistics by - S.C. Gupta & V.K. Kapoor.

BSC SEM-V

COURSE CODE:22.210

COURSE DETAILS

Name of Department : Statistics

Name of Course: Practical (5th Semester)

Course Objective: The main objective of this course is to provide practical knowledge of statistics based on paper 1st, paper 2nd, paper 3rd and paper 4th by conducting practical in laboratory.

Course Outcome : On successful completion of this course students-

1. Will know importance of computer programming in 'C++',
2. Will know how to write simple programming in C++ mean, range, variance, etc.
3. Will know how to solve interpolation problem, extrapolation problem, central different problems, etc.
4. Will learn how to solve linear programming problems.
5. Will learn how to solve duality problems.

Text Book: Books recommended for the above papers.

BSC SEM-VI P-I

COURSE CODE:22.220

COURSE DETAILS

Name of Department : Statistics

Name of Course: Mathematical methods(paper 1st, Semester 6th)

Course Objective : The principle objective of this course is to introduce undergraduate students , the knowledge of mathematical methods.

Course Outcome : On successful completion of this course, students-

1. Will know how to solve problems of determinants and rank,
2. Will learn about vector and vector space, linear independence and dependence.
3. Will learn about inner product and inner product space,
4. Will know the concepts of homogeneous and non homogeneous equation and how it is solved.
5. Will learn about ligen values and ligen vectors and related studies.

Text Book:

1. A text book of matrices by A.K.Vasistha
2. Matrices by Shantinaragan.

BSC SEM-VI P-II

COURSE CODE:22.230

COURSE DETAILS

Name of Department : Statistics

Name of Course: Paper II: Numerical methods – II

Course Object: Knowledge about the methods of solving different type of equations.

Course Outcome :

1. Students will be able to know the different between numerical quadrature and integration in calculus,
2. Able to know the different method for calculating areas.
3. Able to calculate the solution of differential equations which are generally used in engineering fields.
4. Able to know about inverse interpolation and the methods for their calculations.
5. Able to sum the different type of series data.

Reference Book:

1. The calculus of finite differences and Numerical methods:- H.C.Saxena
2. Numerical Analysis – B.S.Goal and S.K.Mittal.

BSC SEM-VI P-III

COURSE CODE:22.240

COURSE DETAILS

Name of Department : Statistics

Name of Course: Paper III Operation Research –II (B.Sc.6th Semester)

Course Objective: The objective of his course is to make student well known about the different field where Operation Research is successfully employed.

Course Outcome: Upon successful completion of “**Linear Programming and Operation Research-II**”, a students will be able to:

1. Define the problem of Sequencing (problem with n jobs and two machines and n jobs with three machines) and solve it using Johnson’s method and graphical method(for n job and two machines only),
2. Define Transportation problem(non-degenerate solution and balanced case only) and find the initial basic feasible solution using North west corner Rule, Matrix minima and Vogel’s methods,
3. Define Assignment problem and its solution using Hungarian method,
4. Define two- person zero sum-game, minimax - maximin principle, saddle point and solve the game and without saddle point,
5. Solve $2 \times n$ or $m \times 2$ game graphically or $m \times n$ game using dominance property,
6. Define Queuing theory (including basic characteristics or queuing systems, Poisson and Exponential distribution),
7. Calculate and explain the Distribution of arrival, inter arrival time, service time, waiting time, M/M/1 queuing system and its characteristics.

Reference Book:

1. Operation Research by Kanti Swarup, P.K.Gupta and Manmohan
2. Operation Research by R.K.Gupta

BSC SEM-VI P-IV

COURSE CODE:22.250

COURSE DETAILS

Name of Department : Statistics

Name of Course: Inference -II (Paper -IV , B.Sc.6th Semester)

Course Objective: The objective of this course is to provide an understanding for the undergraduate students on statistical concepts of inference, non parametric methods, two sample problems and related studies.

Course Outcome: On successful completion of this course, students-

1. Will be able to explain basic concepts of critical regions, two kinds of error, power function of a test,
2. Will learn about likelihood ratio test, tests for mean and variance of same distribution.
3. Will know about non-parametric methods and their application,
4. Will learn about different tests such as sign test, wilcoxon signed rank test, etc.
5. Will learn about two simple problems, test of randomness, median test, etc.

Text Book: Non-parametric methods & regression Analysis by Qaim Akbar Rizvi.

Reference Book: Fundamental of mathematical statistics by S.C.Gupta & V.K.Kapoor.

BSC SEM-VI

COURSE CODE:22.260

COURSE DETAILS

Name of Department : Statistics

Name of Course: Practical (B.Sc.6th Semester)

Course Objective: The main objective of this course is to provide students practical knowledge of statistics based on paper- I, paper –II, paper III and paper –IV by conducting practical in laboratory.

Course Outcome: On completion of this course, students-

1. Will learn how to solve problems related to determinants , ranks and homogeneous and non homogeneous simultaneous equations, **eigen** values and **eigen** vectors,
2. Will be able to solve the problems related to numerical equation, inverse interpolation,
3. Will learn how to solve ordinary differential equation using different methods.
4. Will be able to solve the problems related to transportation and assignment,
5. Will learn how to solve problems of game theory.

Text Book: Books recommended as above for paper I, II, III&IV.

