Sri Vani Degree & PG College
Affiliated to SK University
Kakkalapalli Cross, Near Sakshi Office, Ananthapuramu
Andhra Pradesh, India- 515002

Department Profile: STATISTICS

Sri Vani Degree Anantapuramu started teaching the B.Sc. (statistics) course in the session 1999-2000. The Department of Statistics was initially situated in the Main building of the college,

The department, as part of its quality teaching, makes use of models, charts, LCD projector and collection of subject-related news clippings. Class seminars, group discussions, quiz programmes and special guest lectures by university professors also form part of effective teaching and learning.

The department is maintaining a departmental library to enable the students to utilize the knowledge resource for their academic advancement. There is a laboratory where advanced scientific calculators are used to enable the students to have good exposure to data collection, sampling techniques, statistical quality control etc. The lab is also utilized to introduce to the students the research potential areas like operations research, stochastic processes and statistical quality control.

To build-up statistical skills and abilities and expose them to the application part of the subject, the students are encouraged to collect data from various sources including newspapers and analyze it by applying the statistical techniques. With this kind of employment orientation many of our students are trained to face interviews, so as to earn placements in reputed companies.

The department is also extending academic support to BCOM,BBA and the PG departments of MBA,MCA, Bio-Technology and Commerce including the Department of Statistics. Apart from academic pursuits, the teachers have also taken interest in the matters of advising the students on higher studies and career building, personal and financial including health problems. It has been inculcating interest in the student community a sense of social responsibility.

Vision:

"Education for all and Quality education at affordable cost".

Mission:

"To bring out the best in each and every student and motivate them to carve their path in contemporary society emboldened with knowledge and skills, keeping morality and ethics as underlying forces".

Courses / Programs offered:

Level	Course
UG	B.Sc (MSCS)- Mathematics, Statistics, Computer Science

Course Structure under CBCS:

Year	Sem	Course	Title of the Course	Internal Marks	External Marks	Total Marks
I	I	I	Descriptive Statistics and Probability	25	75	100
			Practical Course- I	-	50	50
	II	II	Mathematical Expectation and Probability Distributions	25	75	100
			Practical Course- II	-	50	50
II	III	III	Statistical Methods	25	75	100
			Practical Course- III	-	50	50
	IV	IV	Statistical Inference	25	75	100
			Practical Course- IV	-	50	50
III	V	V	Sampling tectonic and analysis of variance	25	75	100
			Practical Course- V	-	50	50
		VI	Quality and Reliability	25	75	100
			Practical Course- VI	-	50	50
	VI	VII-C	Applied Statistics	25	75	100
			Practical Course- VII	-	50	50
		VIII-C1	Operation research	25	75	100
			Practical Course- VIII	-	50	50
		VIII-C2	NUMERICAL ANALYSIS	25	75	100
			Practical Course- IX	-	50	50
		VIII-C3	Project work	50	100	150

- Participation of Interdisciplinary Courses and the departments/ units involved : NIL
- Participation of the department in the courses offered by other departments : NIL
- Courses collaboration with other universities, Industries, foreign institutions : NIL
- Details of courses/ programmes discontinued (if any) with reasons : NIL

Number of teaching posts:

Post	Sanctioned	Filled
Teaching	01	01

Program outcomes, Program specific outcomes & Course outcomes:

Program Outcome:

When the student joins college after school they are free to make their own choices which are very instrumental in changing their attitude towards life and society. It is very important to give them an appropriate and conducive environment to learn and grow.

After completion of the degree apart from his/her specialty in the program of his/her choice the student learns a lot during their three year stay that makes them mature enough to take the right decisions at the right time. Students develop analytical thinking and good communication skills during classroom teaching (through projects/presentation/practical) and also as they participate in various activities both at departmental as well as college level.

Being a Central University, the student gets a chance to communicate with students of other states of India which makes them culturally sensitive and socially interactive.

As part of various departmental /college seminars and workshops he learns to respect and protect the environment. These programs also help in generating gender sensitization and building of ethical values to become a responsible citizen when he/she graduates from the college

Program Specific Outcome:

Statistics is the language of the uncertainties riddled modern information age. This program is a compact combination of detailed courses of Statistics and adequate amount of courses on Computer Science, Mathematics and Operations research to complement and offer diversification after the completion of program.

The thrust of the program is to provide a platform for pursuing higher studies leading to post-graduate or doctorate degrees. Along with this students are equipped with skill enhancement courses like Research methodology, Statistical packages and R language. Apart from this there is a range of Generic electives courses in Economics, Commerce, Computer Science etc.

Which students choose as per their interest and aptitude. This enhances theoretical rigor with technical skills which prepare students to become globally competitive to enter into a promising professional life even after graduation.

This program offers a range of traditional avenues in academics, Govt. Service, IAS, Indian Statistical/ Economic Services, Industries, Commerce, Investment Banking, Banks and Insurance Sectors, CSO and NSSO, Research Personnel/Investigator in Govt. organizations such as NCAER, IAMR, ICMR, Statistical and Economic Bureau & various PSUs., Market Research, Actuarial Sciences, Biostatistics, Demography etc.It also provides an array of non-traditional employment avenues ranging from Stock Brokers Analyst, Sports Analyst, Poll Analyst, Business Analyst, Financial Analyst, Content Analytic

Course: BSC statistics	Outcomes
Descriptive statistics and probability theory	Students learn to design data collection plans and basic tools of Descriptive statistics.
Regression analysis and discrete distributions	Student learn to i) identify the relationship between two variables using Scatter plot ii) Interpret a sample correlation.
Continuous probability distribution	Students learn different types of continuous distribution with their Properties and applications.
Sampling theory	Understand the concept of sampling distribution of a statistic and its properties, difference between parameter and statistic.

Statistical inference-I Statistical quality control	Students are able to describe the properties of unbiasedness. They are also learning to identify the null hypothesis, alternative hypothesis and test statistic. Students are able to i) explain the different meanings of the quality concept and its influence.
Statistical inference-II Operations research	Students learn to I) identify situauations where one-way ANOVA is appropriate ii) identify the degrees of freedom associated with each sum of squares, iii) Interpret an ANOVA table. i)Formulate and solve LPP, Assignment problems, Transportation problems. ii) solve the zero-sum-two person -game

Course outcomes:

SEMESTER-I (PAPER I)

TITLE OF THE COURSE: Descriptive Statistics

Students will acquire

- Knowledge of Statistics and its scope and importance in various areas such as Medical, Engineering, Agricultural and Social Sciences etc.
- information about various Statistical organizations in India and their functions for societal developments,
- Knowledge of various types of data, their organization and evaluation of summary measures such as measures of central tendency and dispersion etc.
- knowledge of other types of data reflecting quality characteristics including concepts of independence and association between two attributes,
- Insights into preliminary exploration of different types of data.
- Knowledge of correlation, regression analysis, regression diagnostics, partial and multiple correlations.

SEMESTER-II (PAPER II)

TITLE OF THE COURSE: Probability Theory and Distributions

Students will acquire

- ability to distinguish between random and non-random experiments,
- Knowledge to conceptualize the probabilities of events including frequents and axiomatic approach. Simultaneously, they will learn the notion of conditional probability including the concept of Bayes' Theorem,
- knowledge related to concept of discrete and continuous random variables and their probability distributions including expectation and moments,
- knowledge of important discrete and continuous distributions such as Binomial, Poisson, Geometric, Negative Binomial and Hyper-geometric, normal, uniform, exponential, beta and gamma distributions,
- Acumen to apply standard discrete and continuous probability distributions to different situation

SEMESTER-III (PAPER III)

TITLE OF THE COURSE: Statistical Methods

Students will acquire:

(a) Acquainting the students with various statistical methods.
(b) To introduce students to different measurement scales, qualitative and quantitative and discrete and continuous data.
(c) To help students to organize data into frequency distribution graphs, including bar graphs, histograms, polygons, and o-gives.
(d) Students should be able to understand the purpose for measuring central tendency, variation, skewness and kurtosis and should be able to compute them as well.
(e) Students should be able to understand and compute various statistical measures of correlation, fitting of curve and regression
(f) Introduction to Statistics, definitions and data classification, types of studies and types of samples
(g) Graphical displays of data, frequency distributions, analyzing graphs
(h) Numerical descriptions of data, measures of center tendency, measures of dispersion, skewness and kurtosis
(i) Correlation and regression
(j) Theory of attributes

SEMESTER-IV (PAPER IV)

TITLE OF THE COURSE: Statistical Inference

The students will acquire

(a) Concept of law large numbers and their uses
(b) Concept of central limit theorem and its uses in statistics
(c) concept of random sample from a distribution, sampling distribution of a statistic, standard error of important estimates such as mean and proportions,
(d) knowledge about important inferential aspects such as point estimation, test of hypotheses and associated concepts,
(e) knowledge about inferences from Binomial, Poisson and Normal distributions as illustrations,
(f) knowledge about order statistics and associated distributions,
(g) Concept about non-parametric method and some important non-parametric tests.

SEMESTER-V (PAPER V)

TITLE OF THE COURSE: Sampling Techniques and Designs of Experiments

The students shall get

(a) basic knowledge of complete enumeration and sample, sampling frame, sampling distribution, sampling and non-sampling errors, principal steps in sample surveys, limitations of sampling etc.,
(b) Introduced to various statistical sampling schemes such as simple, stratified and systematic sampling.
(c) an idea of conducting the sample surveys and selecting appropriate sampling techniques,
(d) Knowledge about comparing various sampling techniques.
(e) carry out one way and two way Analysis of Variance,
(f) understand the basic terms used in design of experiments,
(g) use appropriate experimental designs to analyze the experimental data,
(h) apply Multiple range tests, the multiple t–test,

(i) Give statistical interpretation of the experimental results obtained. The fundamental concepts of design of experiments.
(j) Introduction to planning valid and economical experiments within given resources.
(k) Completely randomized design
(l) Latin square design.
(m) Balanced incomplete block design.
(n) Full and confounded factorial designs with two and three levels.
(o) Fractional factorial designs with two levels.

SEMESTER-V (PAPER VI)

TITLE OF THE COURSE: Quality and Reliability

The students shall get

a. Describe quality control methods
b. Understand the use of statistical process control
c. Describe & apply control charts
d. Distinguish Mean,Range, p,np=d and c-charts
e. Define process capability
f. Describe & apply capability indexes
g. Define six-sigma capability

SEMESTER-VI (PAPER VII)

TITLE OF THE COURSE: Applied Statistics

The students shall get

After going through this course, the students will have an idea of This course is meant to acquaint the students with some important but useful concepts on topics in time series analysis so that the students can get an important background material for taking up an advanced course in financial econometrics and data analysis. After completion of this course, the students will know about

(a) time series data, its applications to various fields and components of time series,
(b) fitting and plotting of various growth curves such as modified exponential, Gompertz and logistic curve,
(c) fitting of trend by Moving Average method,
(d) measurement of Seasonal Indices by Ratio-to-Trend , Ratio-to-Moving Average and Link Relative methods,
(e) Calculation of variance of random component by vitiate component method,
(f) Applications to real data by means of laboratory assignments.
(g) income distributions and their fitting in real life situations,
(h) commonly used measures of demography pertaining to its three basic aspects, viz. the fertility, mortality and migration,
(i) various data collection methods enabling them to have a better insight in policy making, planning and systematic implementation,
(j) Construction and implication of life tables,
(k) Population growth curves, population estimates and projections,
(l) Real data implementation of various demographic concepts as outlined above through practical assignments.

SEMESTER-VI (PAPER VII-CLUSTER-I)

TITLE OF THE COURSE: Operation research

The students shall get

The 'Operations Research' is not only confined to any specific agency like defence services but today it is widely used in all industrial organizations. It can be used to find the best solution to any problem be it simple or complex. It is useful in every field of human activities. Thus, it attempts to resolve the conflicts of interest among the components of organization in a way that is best for the organization as a whole. Main fields where OR is extensively used are:

1. National Planning and Budgeting
2. Defense Services
3. Industrial Establishment and Private Sector Units
4. Research & Development and Engineering

SEMESTER-VI (PAPER VII-CLUSTER-II)

TITLE OF THE COURSE: NUMERICAL ANALYSIS

The students shall get

Theory of finite differences deals with the changes that take place in the value of the dependent variable due to finite changes in the independent variable.

On completion of the course, students should have achieved the following

1. Mathematical Operators (Forward and Backward difference operators , Shift Operator ,Central difference operator ,Derivative)
2. Approximating a given set of data by a function using interpolation formula.
3. Newton Gregory interpolation formula (forward and backward) for arguments at equal intervals
4. Newton's Divided difference interpolation formula and Lagrange's interpolation formula(for unequal intervals)
5. Central Difference interpolation formula(Gauss and Stirling's)
6. Representation of a polynomial in factorial Notation
7. Numerical Quadrature using the interpolation formula(Trapezoidal Rule, Simpson's $1/3^{rd}$ and $3/8^{th}$ quadrature formula
8. Solution of Difference equations
9. Mathematical Operators (Forward and Backward difference operators , Shift Operator ,Central difference operator ,Derivative)
10. Approximating a given set of data by a function using interpolation formula.
11. Newton Gregory interpolation formula (forward and backward) for arguments at equal intervals
12. Newton's Divided difference interpolation formula and Lagrange's interpolation formula(for unequal intervals)
13. Central Difference interpolation formula(Gauss and Stirling's)
14. Representation of a polynomial in factorial Notation
15. Numerical Quadrature using the interpolation formula(Trapezoidal Rule, Simpson's $1/3^{rd}$ and $3/8^{th}$ quadrature formula
16. Solution of Difference equations

SEMESTER-VI (PAPER VII-PROJECT WORK)

TITLE OF THE COURSE: Project Work

Students will opt for a compulsory industrial Project in Semester VI. At the end of this project, students will be in a position to

(a) Analyze and interpret and take appropriate decisions in solving real life problems using statistical tools.

(b) use different Statistical packages for graphical interface, data analysis and interpretation,

(c) Write a systematic Statistical project report.

Head of the Department Profile:

Name: Mr.P.P. NARASA NAIDU

Qualification: MSC,B.Ed

Experience: 16

Other Positions:

Name	Qualification	Designation	Teaching Experience
MR.P.P.NARASA NAIDU	M.Sc, B.Ed	Lecturer in Statistics	16

List of Visiting Faculty:

Name	Designation	Institute	Teaching Experience
Mr.A.KULLAYA SWAMI	Lecturer	SR Govt. Degree college ,Punganur	16

Percentage of Lecturers delivered and Practical Classes handled:

Name of the faculty	Total work load	Classes handled	Practical Classes handled
MRr.P.P.NARASA NAIDU	30	22	08

Student-Teacher Ratio:

Level	Class	Number of Teachers	Student Teacher Ratio
UG	I BSC	01	15:1
	II BSC		12:1
	III BSC		14:1

Number of academic staff (technical) and administrative staff:

	Sanctioned	Filled
Lab Assistants	NIL	NIL
Lab Attendants	NIL	NIL

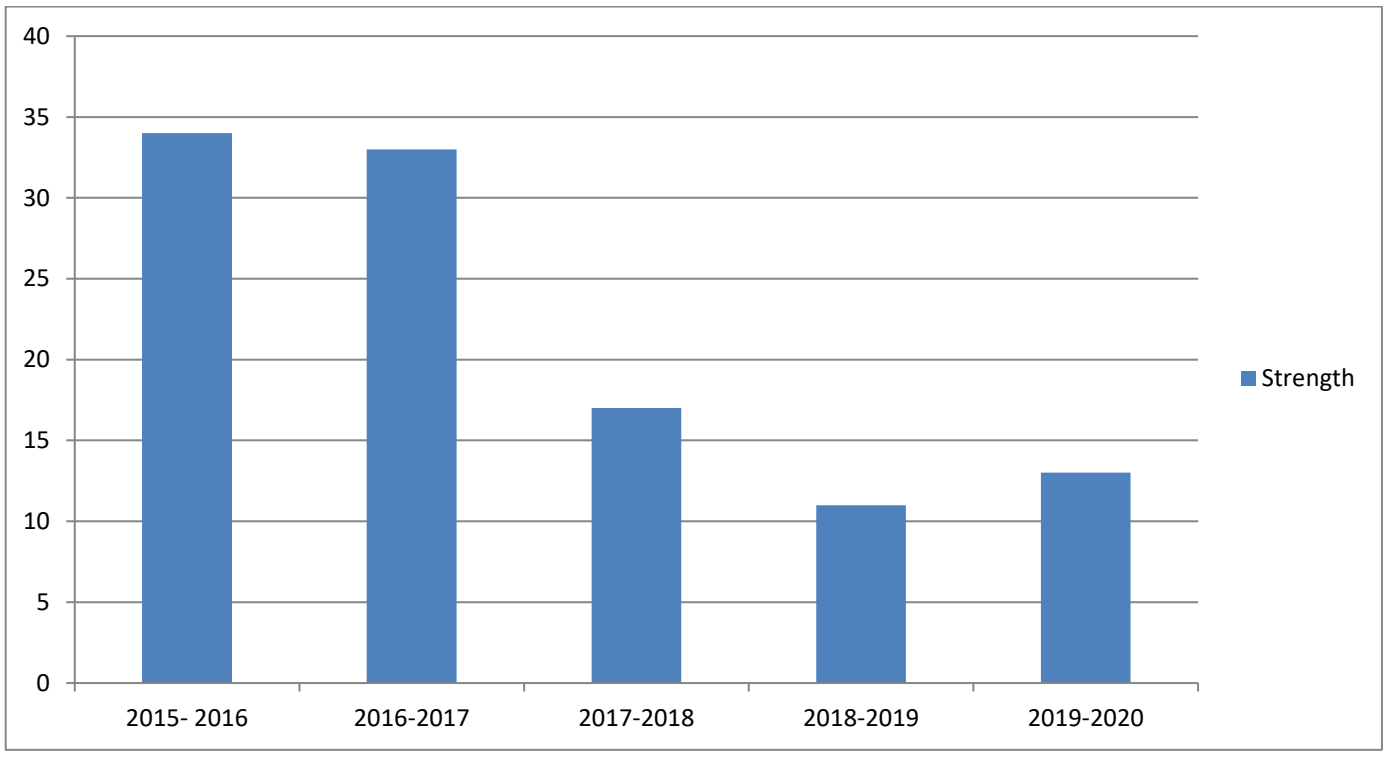
Qualification of Teaching Faculty:

PDF	PhD	M.Phil	PG with NET/SLET	PG
-	-	-	-	01

- List of eminent academicians and scientists / visitors to the department : NIL
- Seminars/ Conferences/ Workshops organized : NIL

Student Profile program wise:

Name of the course	Year	Total Seats	Enrolled		Total
			Male	Female	
B.Sc (MSCS)	2015- 2016	50	09	25	34
	2016-2017	50	13	20	33
	2017-2018	50	06	11	17
	2018-2019	50	02	09	11
	2019-2020	50	05	08	13

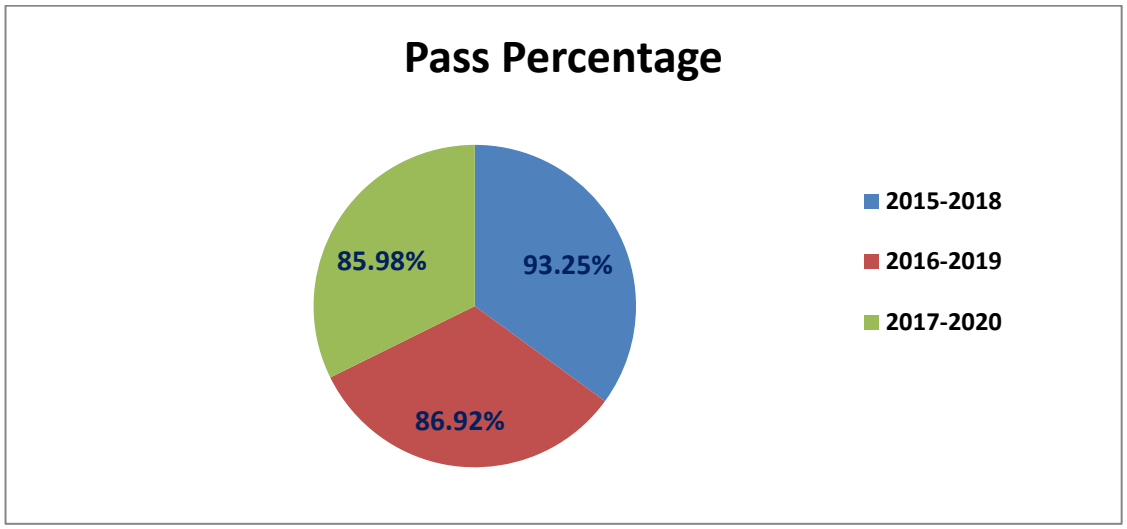


Pass percentage:

Year	Month	Sem	Enrolled		Appeared		Pass Percentage
			M	F	M	F	
2015-16	Nov/Dec	I	10	27	9	25	94.1
	Mar/Apr	II	10	27	9	22	87
2016-17	Nov/Dec	I	15	20	13	20	100
		III	10	27	10	21	96.7
	Mar/Apr	II	15	20	13	19	72
		IV	10	27	9	20	96.5
2017-18	Nov/Dec	I	9	13	6	11	82.3
		III	10	19	8	15	79.3
		V (P-5)	10	27	9	20	93
		V (P-6)	10	27	9	20	97
	Mar/Apr	II	9	13	6	11	76.4
		IV	11	18	9	16	86.20
		VI (ELE)	10	27	8	19	89
		C-1	10	27	8	19	93
		C-2	10	27	8	19	93
		Project work	10	27	8	19	100
2018-19	Nov/Dec	I	3	11	2	9	82
		III	9	13	5	11	87.5
		V (P-5)	12	17	7	16	79.31
		V (P-6)	12	17	11	16	93.10
	Mar/Apr	II	3	11	1	7	75
		IV	9	13	2	11	92
		VI (ELE)	10	19	7	18	86.20
		C-1	10	19	8	18	89.65
		C-2	10	19	9	19	96.55
		Project work	10	19	10	19	100
2019-20	Nov/Dec	I	7	10	5	8	69.23
		III	3	11	1	6	714
		V (P-5)	9	13	3	11	85.7
		V (P-6)	9	13	3	11	92
	Mar/Apr	II					
		IV					
		VI					

Overall (year wise) pass percentage: (Passed out)

SNO	Year	Pass Percentage
1	2015-2018	93.25
2	2016-2019	86.92
3	2017-2020	85.98



Diversity of Students:

Name of Course	% of students from the same state	% of students from other state	% of students from abroad
UG	100	-	-

Details of Infrastructure facilities:

Library:

There is a central library to cater to the need of the students. Department does not have a library. But the complimentary copies provided by different publisher are provided in the department for the use of the student.

Internet facility for staff and students:

Yes (only for staff)

Classroom with ICT facility:

Yes

Laboratories:

Yes.

Details of student enrichment programme (Special lectures/ workshops/ seminar) with external experts:

Nil

Number of students receiving financial assistance from college, university, government or other agencies:

Data maintained by the college

Teaching methods adopted to improve student learning:

- Lecture
- Practical
- Assignments
- PPT's
- Class seminars
- Quiz
- Question and answers
- Lab demo
- Question paper discussion
- Test

Library books:

- Fundamental of statistics
- Probability statistics
- Operation research
- Telugu Academy Books ,first year statistics
- Telugu Academy Books ,second year statistics
- Telugu Academy Books ,first year statistics

SWOC analysis of the department and future plans:

Strength:

- Qualified and highly credentialed faculty
- Good diversity in experiences
- Good equipments in laboratories and other facilities
- Excellent support from the senior administration Equal
- emphasis both on theory and experiment Goods results
- Finance support

Weakness:

- Limited number students in the classrooms
- Collaboration with research institutions

Opportunities:

- Increase awareness for physics as an integral part of future education
- Creation of a vibrant academic atmosphere in the department with the help of reputed and experienced teachers.
- To prepare our students for entrance exam for PG courses & competitive exams

Challenges:

- To maintain the academic standard of the department in spite of the weaknesses mentioned earlier.
- To increase high scientific temper among students.
- To link the curricula and teaching learning process with need of industries.
- Motivating students to take projects
- Motivating students to take jobs in industry, defense research laboratories, MPSC, UPSC and academic institutes.