Subject No. 3

NURSING RESEARCH AND STATISTICS

Section 'B' (Paper II) – STATISTICS

Total Hours: 100 Theory Hours: 50

Lab Hours: 50

AIM:

- This course is designed to assist the students to develop an understanding of the statistical methods and apply them in conducting research studies in nursing.

OBJECTIVES:

At the end of the course the students are able to:-

- Explain the basic concepts related to statistics.
- Describe the scope of statistics in health and nursing.
- Organize tabulate and present data meaningfully.
- Use descriptive and inferential statistics to predict results.
- Draw conclusions of the study and predicts statistical significance of the results.
- Describe vital health statistics and their use in health related research.
- Use statistical packages for data analysis.

COURSE CONTENT:

Unit I -Introduction:

- Concepts, types, significance, and scope of statistics meaning of data, parametric and non parametric data.
- Sample, & **calculation of sample size,** parameter, Type and levels of data and their measurement.
- Organization and presentation of data.
- Tabulation of data: Frequency distribution, Graphical and tabular presentations.

Unit II -Measures of central tendency:

- Mean, Median, Mode.

Unit III -Measures of variability:

- Range, Percentiles, Average deviation, Quartile deviation, Standard deviation

Unit IV -Normal Distribution:

- Probability, Characteristics and application of normal probability curve; sampling error.
- Cumulative distribution - The cumulative frequency graph, Percentiles and percentile ranks, The Cumulative percentage curve.

Unit V -Measures of relationship:

- Correlation- need and meaning, Rank order correlation, Scatter diagram method, Product moment correlation.
- Simple linear regression analysis and Prediction.

Unit VI -Designs and meaning:

- Experimental designs, Comparison in pairs, randomized block design, Latin squares.

Unit VII -Significance of statistic and significance of difference between two Statistics: (testing hypothesis)

- Non parametric test – Chi – square test, Sign median test, Mann-Whitney test.
- Parametric test – 't' test, anova, manova, ancova, Pearson's r

Unit VIII -Use of statistical methods in psychology and education:

- Scaling – Z Score , Z Scaling, Standard Score and T score

- Reliability of test Scores: test-retest method, parallel forms, spilt half method.

Unit IX -Application of statistics in health:

- Ratios, Rates, Trends, Vital health statistics – Birth and death rates, Measures related to fertility, morbidity and mortality.

Unit X -Use of computers for data analysis:

- Various statistical packages and its use for analysis.
- SPSS & Graph pad

NURSING RESEARCH AND STATISTICS

Section 'B'

STATISTICS

Unit No. & total hours	***Objectives***	***Contents and distributed hours***
I (07 hours)	At the end of unit students are able to **Knowledge:** Understand and describe the scope of statistics and meaning of data. **Skill:** Apply this knowledge in research work.	• Concepts, types, significance, and scope of statistics meaning of data, parametric and non-parametric data (2 hrs) • Sample & **calculation of sample size,** parameter (1 hr) • Type and levels of data and their Measurement(2hrs) • Organization & presentation of data.(2 Hrs)

Unit I – Introduction

CO-1: Describe constrainsts, uses, functions, scope and meaning of Statitics
CO-2: Distinguish between parametric and non-parametric test
CO-3: Define sample, population, parametric, statistics.
CO-4: Enlist formula for calculating sample size
CO-5: Enlist levels of measurement of data
CO-6: Define tabulation of data, presentation of data and enlist various methods of presentation of data and tabulation of data

Course outcome	**Program Outcome**						
	Clinician/Nurse Educator	**Professional**	**Communicator**	**Leader and member of the health care team and system**	**Lifelong learner**	**Critical thinker**	**Researcher**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO-1: Describe constrainsts, uses, functions, scope and meaning of Statitics	3	2	2	2	2	3	3
CO-2: Distinguish between parametric and non-parametric test	3	3	3	1	2	3	3
CO-3: Define sample, population, parametric, statistics.	3	3	3	1	2	3	3
CO-4: Enlist formula for calculating sample size	3	3	3	1	2	3	3
CO-5: Enlist levels of measurement of data	3	3	3	1	2	3	3
CO-6: Define tabulation of data, presentation of data and	3	3	3	1	2	3	3

enlist various methods of presentation of data and tabulation of data								
II (04 hours)	At the end of unit students are able to **Knowledge:** Explain the tabulation of data and measures of central tendency. **Skill:** Present the data in various forms and calculate central tendency. **Attitude:** Apply this knowledge in research and professional work.	Frequency distribution Graphical and tabular presentations(2 hrs) Measures of central tendency : • Mean • Median • Mode (2 hrs)						

Unit II – Measures of Central Tendency

CO-1: Enlist various rules for tabulation of data
CO-2: List various methods of presentation for quantitative and qualitative data
CO-3: Describe various methods of presentation for quantitative data
CO-4: Describe various methods of presentation for qualitative data
CO-5: Define measures of central tendency and what are the good requisites of measures of central tendency,
CO-6: Describe various methods of measures of central tendency with formulas

Course Outcome	**Program Outcome**						
	Clinician/ Nurse Educator	**Professional**	**Communicator**	**Leader and member of the health care team and system**	**Lifelong learner**	**Critical thinker**	**Researcher**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO-1: Enlist various rules for tabulation of data	3	3	3	1	2	3	3
CO-2: List various methods of presentation for quantitative and qualitative data	3	3	3	1	2	3	3
CO-3: Describe various methods of presentation for quantitative data	3	3	3	1	2	3	3
CO-4: Describe various methods of presentation for qualitative data	3	3	3	1	2	3	3
CO-5: Define measures of central tendency and what are the good requisites of measures of central tendency,	3	3	3	1	2	3	3

CO-6: Describe various methods of measures of central tendency with formulas	3	3	3	1	2	3	3

III (04 hours)	At the end of unit students are able to **Knowledge:** Understand and describe the measures of variability. **Skill:** Calculate the measures of variability. **Attitude:** Incorporate & relate with research work.	• Range • Percentiles • Average Deviation • Quartile Deviation (2 hrs) • Standard Deviation (2 hrs)

Unit III – Measures of Variability

CO-1: Define measures of central and describe its good requisites
CO-2: Enlist various types of measures of dispersion
CO-3:Write uses of Standard Deviation

Course Outcome	**Program Outcome**						
	Clinician/Nurse Educator	**Professional**	**Communicator**	**Leader and member of the health care team and system**	**Lifelong learner**	**Critical thinker**	**Researcher**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO-1: Define measures of central and describe its good requisites	3	3	3	1	2	3	3
CO-2: Enlist various types of measures of dispersion	3	3	3	1	2	3	3
CO-3:Write uses of Standard Deviation	3	3	3	1	2	3	2

IV (03 hours)	At the end of unit students are able to **Knowledge:** Understand and describe normal distribution and cumulative distribution. **Skill:** Calculate probability and prepare cumulative frequency graphs.	• Normal Distribution: o Probability o Characteristics and application of normal probability curve. (2 hrs) • Sampling error. • Cumulative distribution: The cumulative frequency graph Percentiles and percentile ranks. • The Cumulative percentage curve or Ogive. (1 hr)

Unit IV – Normal Distribution

CO-1: Define and enlist important properties of normal distribution
CO-2: Define probability write its uses

CO-3: Describe multiplication law of probability with formula.
CO-4: Describe addition law of probability with formula
CO-5: Define sample and sampling errors
CO-6: Define and describe cumulative frequency distribution
CO-7: Define and describe quartile, decile and percentile and write its formula for quantitative and qualitative data.
CO-8: Define and describe Cumulative frequency curve or O-give curve

Course Outcome	**Program Outcome**						
	Clinician/ Nurse Educator	**Professional**	**Communicator**	**Leader and member of the health care team and system**	**Lifelong learner**	**Critical thinker**	**Researcher**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO-1: Define and enlist important properties of normal distribution	3	3	3	1	2	3	3
CO-2: Define probability write its uses	3	3	3	1	2	3	3
CO-3: Describe multiplication law of probability with formula.	3	3	3	1	2	3	3
CO-4: Describe addition law of probability with formula	3	3	3	1	2	3	3
CO-5: Define sample and sampling errors	3	3	3	1	2	3	3
CO-6: Define and describe cumulative frequency distribution	3	3	3	1	2	3	3
CO-7: Define and describe quartile, decile and percentile and write its formula for quantitative and qualitative data.	3	3	3	1	2	3	3
CO-8: Define and describe Cumulative frequency curve or O-give curve	3	3	3	1	2	3	3

V (06 hours)	At the end of unit students are able to **Knowledge:** Understand and explain measures of relationship. **Skill:** Calculate measures of relationship and apply it in research studies.	• Correlation – need and meaning • Rank order correlation (2 hrs) • Scatter diagram method.(2 hrs) • Product moment correlation. (1 hr) • Simple linear regression analysis and Prediction. (1hr)
Unit V – Measures of relationship		

CO-1: Define Correlation and write it's uses
CO-2: Describe scatter diagram method of correlation coefficient and write it's properties
CO-3: Define and describe Pearson's Correlation Coefficient
CO-4: Define and describe Spearman's Rank Order Correlation Coefficient
CO-5: Define Regression and write it's properties
CO-6: Enlist two lines of regression

Course Outcome	**Program Outcome**						
	Clinician/ Nurse Educator	**Professional**	**Communicator**	**Leader and member of the health care team and system**	**Lifelong learner**	**Critical thinker**	**Researcher**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO-1: Define Correlation and write it's uses	3	3	3	1	2	3	3
CO-2: Describe scatter diagram method of correlation coefficient and write it's properties	3	3	3	1	2	3	3
CO-3: Define and describe Pearson's Correlation Coefficient	3	3	3	1	2	3	3
CO-4: Define and describe Spearman's Rank Order Correlation Coefficient	3	3	3	1	2	3	3
CO-5: Define Regression and write it's properties	3	3	3	1	2	3	3
CO-6: Enlist two lines of regression	3	3	3	1	2	3	3

VI (5 hours)	At the end of unit students are able to **Knowledge:** Understand and describe different types of research design. **Skill:** Analyze and use research designs accurately.	• Experimental designs Latin squares. (1 hrs) • Comparison in pairs, (3 hrs) • Randomized block design. (1 hrs)
Unit VI – Designs of Experiment and its meaning		

CO-1: Define designs of experiment,
CO-2: Describe various terms and concepts used in designs of experiment
CO-3: Define and describe latin square design
CO-4: : Define and describe latin square design
CO-5: Describe a Simple one factor experiment
CO-6: Describe two level factorial design
CO-7: Write in detail two group factorial degign
CO-8: Discuss in detail important characteristics of experimental design
CO-9: Write in detail merits and demerits of experimental design
CO-10: Write in detail important characteristics of Completely Randomized Design
CO-11: Write in detail important characteristics of Split Plot Design
CO-12: Write in detail merits, demerits and demerits of Split Plot Design
CO-13: Write in detail important characteristics of Lattice Design
CO-14: Write in detail important characteristics of Augmented Design
CO-15: Write in detail merits and demerits of Augmented Design
CO-16: Write in detail important characteristics of Randomized Block Design

Course Outcome	**Program Outcome**						
	Clinician/ Nurse Educator	**Professional**	**Communicator**	**Leader and member of the health care team and system**	**Lifelong learner**	**Critical thinker**	**Researcher**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO-1: Define designs of experiment,	3	3	3	1	2	3	3
CO-2: Describe various terms and concepts used in designs of experiment	3	3	3	1	2	3	3
CO-3: Define and describe latin square design	3	3	3	1	2	3	3
CO-4: : Define and describe latin square design	3	3	3	1	2	3	3
CO-5: Describe a Simple one factor experiment	3	3	3	1	2	3	3
CO-6: Describe two level factorial design	3	3	3	1	2	3	3
CO-7: Write in detail two group factorial degign	3	3	3	1	2	3	3
CO-8: Discuss in detail important characteristics of experimental design	3	3	3	1	2	3	3
CO-9: Write in detail merits and demerits of experimental design	3	3	3	1	2	3	3
CO-10: Write in detail important characteristics of	3	3	3	1	2	3	3

Completely Randomized Design							
CO-11: Write in detail important characteristics of Split Plot Design	3	3	3	1	2	3	3
CO-12: Write in detail merits, demerits and demerits of Split Plot Design	3	3	3	1	2	3	3
CO-13: Write in detail important characteristics of Lattice Design	3	3	3	1	2	3	3
CO-14: Write in detail important characteristics of Augmented Design	3	3	3	1	2	3	3
CO-15: Write in detail merits and demerits of Augmented Design	3	3	3	1	2	3	3
CO-16: Write in detail important characteristics of Randomized Block Design	3	3	3	1	2	3	3

VII (08 hours)	At the end of unit students are able to **Knowledge:** Understand and describe the significance of statistics and difference between two statistics. **Skill:** Test hypothesis. **Attitude:** Recognize and correlate hypothesis with statistical differences.	• Non parametric test – Chi – square test • Parametric test – 't' test, ANOVA, Pearson's r (5 hrs) • Sign median test, Mann-Whitney test. (2hrs) • Manova, ancova, (1 hr)

Unit VII – Significance of statistic and significance of difference between two Statistics: (testing hypothesis

CO-1: Define hypothesis in statistics
CO-2: Describe characteristics of hypothesis in statistics
CO-3: Describe basic concepts of hypothesis in statistics
CO-4: : Define and describe level of significance
CO-5: Define decision rule in statistics
CO-6: Define and describe in detail one-tail and two-tail test
CO-7: Describe procedure for hypothesis testing
CO-8: Define and describe power of hypothesis test
CO-9: Define and describe parametric and non-parametric method of hypothesis testing
CO-10: Describe in detail importance of parametric test in research methodology.
CO-11: Describe in detail hypothesis testing for single mean
CO-12: Describe in detail hypothesis testing for difference between two means
CO-13: Describe Student's Paired t test
CO-14: Describe in detail tests of significant for single proportion
CO-15: Describe in detail tests of significant for difference between two proportions
CO-16: Describe tests of significance for variance of hypothesis population
CO-17: Describe tests of equality of variance of two normal population
CO-18: Describe in detail Student's t-test for testing significance of correlation

CO-19: Enlist limitations of hypothesis testing
CO-20: Define and describe Chisquare test
CO-21: Describe non-parametric equivalent of chisquare test
CO-22: Describe the conditions for applying chisquare test
CO-23: Describe Yate's correction in chisquare test
CO-24: Describe various characteristics of chisquare test
CO-25: Define and describe Student's unpaired t test for difference between two means
CO-26: Define and describe One way ANOVA
CO-27: Define and describe Sign Test
CO-28: Define and describe Median Test
CO-29: Define and describe Mann Whitney U test
CO-30: Define and describe Multivariate Analysis of Variance(MANCOVA)
CO-31: Define and describe general uses of analysis of Covariance(ANCOVA)

Course Outcome	**Program Outcome**						
	Clinician/Nurse Educator	**Professional**	**Communicator**	**Leader and member of the health care team and system**	**Lifelong learner**	**Critical thinker**	**Researcher**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO-1: Define hypothesis in statistics	3	3	3	1	2	3	3
CO-2: Describe characteristics of hypothesis in statistics	3	3	3	1	2	3	3
CO-3: Describe basic concepts of hypothesis in statistics	3	3	3	1	2	3	3
CO-4: : Define and describe level of significance	3	3	3	1	2	3	3
CO-5: Define decision rule in statistics	3	3	3	1	2	3	3
CO-6: Define and describe in detail one-tail and two-tail test	3	3	3	1	2	3	3
CO-7: Describe procedure for hypothesis testing	3	3	3	1	2	3	3
CO-8: Define and describe power of hypothesis test	3	3	3	1	2	3	3
CO-9: Define and describe parametric and non-parametric method of hypothesis testing	3	3	3	1	2	3	3
CO-10: Describe in detail importance of parametric test in research methodology.	3	3	3	1	2	3	3
CO-11: Describe in detail hypothesis testing for single mean	3	3	3	1	2	3	3
CO-12: Describe in detail hypothesis testing for difference between two means	3	3	3	1	2	3	3
CO-13: Describe Student's Paired t test	3	3	3	1	2	3	3

CO-14: Describe in detail tests of significant for single proportion	3	3	3	1	2	3	3
CO-15: Describe in detail tests of significant for difference between two proportions	3	3	3	1	2	3	3
CO-16: Describe tests of significance for variance of hypothesis population	3	3	3	1	2	3	3
CO-17: Describe tests of equality of variance of two normal population	3	3	3	1	2	3	3
CO-18: Describe in detail Student's t-test for testing significance of correlation	3	3	3	1	2	3	3
CO-19: Enlist limitations of hypothesis testing	3	3	3	1	2	3	3
CO-20: Define and describe Chisquare test	3	3	3	1	2	3	3
CO-21: Describe non-parametric equivalent of chisquare test	3	3	3	1	2	3	3
CO-22: Describe the conditions for applying chisquare test	3	3	3	1	2	3	3
CO-23: Describe Yate's correction in chisquare test	3	3	3	1	2	3	3
CO-24: Describe various characteristics of chisquare test	3	3	3	1	2	3	3
CO-25: Define and describe Student's unpaired t test for difference between two means	3	3	3	1	2	3	3
CO-26: Define and describe One way ANOVA	3	3	3	1	2	3	3
CO-27: Define and describe Sign Test	3	3	3	1	2	3	3
CO-28: Define and describe Median Test	3	3	3	1	2	3	3
CO-29: Define and describe Mann Whitney U test	3	3	3	1	2	3	3
CO-30: Define and describe Multivariate Analysis of Variance(MANCOVA)	3	3	3	1	2	3	3
CO-31: Define and describe general uses of analysis of Covariance(ANCOVA)	3	3	3	1	2	3	3
VIII (5 hours)	At the end of unit students are able to **Knowledge:** Understand and describe the uses of statistical methods in psychology and education. **Skill:** Develop skill for using statistical methods in psychology and education.			• Reliability of test Scores: test-retest method, parallel forms, spilt half method. (3 hrs) • Scaling – Z Score , Z Scaling.(1 hr) • Standard Score and T score.(1 hr)			

Unit VIII – Use of statistical methods in psychology and education

CO-1: Define and describe importance of statistical methods in psychology and education
CO-2: Describe importance of statistics in psychology
CO-3: Define and describe the importance of z-score
CO-4: : Enlist steps for interpretation of z-score
CO-5: Define and describe in detail z-scaling
CO-6: Define standard score
CO-7: Define reliability of test score and write its four assumptions
CO-8: Define and describe test retest method of reliability
CO-9: Define and describe parallel forms of reliability
CO-10: Define and describe Split Half form of reliability
CO-11: Discriminate between reliability and validity
CO-12: Define and describe in detail validity
CO-13: Define and describe in detail discriminant validity
CO-14: Describe in detail process to assess validity
CO-15: Describe in detail procedure for validation of questionnaire survey
CO-16: Describe in detail face validity
CO-17: Enlist in detail advantages of face validity

Course Outcome	**Program Outcome**						
	Clinician/Nurse Educator	**Professional**	**Communicator**	**Leader and member of the health care team and system**	**Lifelong learner**	**Critical thinker**	**Researcher**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO-1: Define and describe importance of statistical methods in psychology and education	3	3	3	1	2	3	3
CO-2: Describe importance of statistics in psychology	3	3	3	1	2	3	3
CO-3: Define and describe the importance of z-score	3	3	3	1	2	3	3
CO-4: : Enlist steps for interpretation of z-score	3	3	3	1	2	3	3
CO-5: Define and describe in detail z-scaling	3	3	3	1	2	3	3
CO-6: Define standard score	3	3	3	1	2	3	3
CO-7: Define reliability of test score and write its four assumptions	3	3	3	1	2	3	3
CO-8: Define and describe test retest method of reliability	3	3	3	1	2	3	3
CO-9: Define and describe parallel forms of reliability	3	3	3	1	2	3	3
CO-10: Define and describe Split Half form of reliability	3	3	3	1	2	3	3

CO-11: Discriminate between reliability and validity	3	3	3	1	2	3	3
CO-12: Define and describe in detail validity	3	3	3	1	2	3	3
CO-13: Define and describe in detail discriminant validity	3	3	3	1	2	3	3
CO-14: Describe in detail process to assess validity	3	3	3	1	2	3	3
CO-15: Describe in detail procedure for validation of questionnaire survey	3	3	3	1	2	3	3
CO-16: Describe in detail face validity	3	3	3	1	2	3	3
CO-17: Enlist in detail advantages of face validity	3	3	3	1	2	3	3

IX (4 hours)	At the end of unit students are able to **Knowledge:** Understand the importance and meanings of vital health statistics. **Skill:** Apply this knowledge in professional work. **Attitude:** Contributes in collecting and calculating vital statistics correctly.	• Ratios, Rates, Trends (2hours) • Vital health statistics – Birth and death rates. (1 hr) • Measures related to fertility, morbidity and mortality.(1 hr)

Unit IX– Application of statistics in health

CO-1: Define Census, sample survey , vital statistics, vital rates, methods of collection of vital statistics and it's uses
CO-2: Describe methods of collecting primary data
CO-3: Describe in detail observation method of data collection
CO-4: : Describe in detail controlled and uncontrolled observations
CO-5: Describe in detail merits of telephone interview
CO-6: Describe uses of medical statistics
CO-7: Define and describe Sample Registration System
CO-8: Define and describe Sample Registration System
CO-9: Define and describe various fertility indicators

Course Outcome	**Program Outcome**						
	Clinician/Nurse Educator	**Professional**	**Communicator**	**Leader and member of the health care team and system**	**Lifelong learner**	**Critical thinker**	**Researcher**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO-1: Define Census, sample survey , vital statistics, vital rates, methods of collection of vital statistics and it's uses	3	3	3	1	2	3	3
CO-2: Describe methods of collecting primary data	3	3	3	1	2	3	3

CO-3: Describe in detail observation method of data collection	3	3	3	1	2	3	3
CO-4: : Describe in detail controlled and uncontrolled observations	3	3	3	1	2	3	3
CO-5: Describe in detail merits of telephone interview	3	3	3	1	2	3	3
CO-6: Describe uses of medical statistics	3	3	3	1	2	3	3
CO-7: Define and describe Sample Registration System	3	3	3	1	2	3	3
CO-8: Define and describe Sample Registration System	3	3	3	1	2	3	3
CO-9: Define and describe various fertility indicators	3	3	3	1	2	3	3

X (4 hours)	At the end of unit students are able to **Knowledge:** Know the different available statistical packages.	• Use of statistical package. (2 hr) • **SPSS & Graph pad** (2 hr)

Unit X– Use of computers for data analysis

CO-1: Describe the importance of problem solving in data analysis
CO-2: Enlist in detail uses of computers in nursing
CO-3: Describe in detail about computer technology
CO-4: : Describe Central Processing unit of computer system
CO-5: : Describe various parts of central procession unit of computer system
CO-6: : Describe various characteristics of computer system
CO-7: : Describe in detail various uses of computers in research
CO-8: : Describe applications of computers in statistics
CO-9: : Define SPSS and write its importance in research and data analysis
CO-10: : Define and describe GraphPad Prism software for data analysis
CO-11: : Describe in detail Statistical Analysis Software(SAS)
CO-12: : Define SPSS and write its importance in research and data analysis

Course Outcome	**Program Outcome**						
	Clinician/ Nurse Educator	**Professional**	**Communicator**	**Leader and member of the health care team and system**	**Lifelong learner**	**Critical thinker**	**Researcher**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO-1: Describe the importance of problem solving in data analysis	3	3	3	1	2	3	3

CO-2: Enlist in detail uses of computers in nursing	3	3	3	1	2	3	3
CO-3: Describe in detail about computer technology	3	3	3	1	2	3	3
CO-4: : Describe Central Processing unit of computer system	3	3	3	1	2	3	3
CO-5: : Describe various parts of central procession unit of computer system	3	3	3	1	2	3	3
CO-6: : Describe various characteristics of computer system	3	3	3	1	2	3	3
CO-7: : Describe in detail various uses of computers in research	3	3	3	1	2	3	3
CO-8: : Describe applications of computers in statistics	3	3	3	1	2	3	3
CO-9: : Define SPSS and write its importance in research and data analysis	3	3	3	1	2	3	3
CO-10: : Define and describe GraphPad Prism software for data analysis	3	3	3	1	2	3	3
CO-11: : Describe in detail Statistical Analysis Software(SAS)	3	3	3	1	2	3	3
CO-12: : Define SPSS and write its importance in research and data analysis	3	3	3	1	2	3	3

DISTRIBUTION OF LABORATORY HOURS:

Unit No.	*Name of the unit /Activity to performed by the students*	*Allotted Hours*
I	Introduction	4
II	Measures of central tendency	4
III	Measure of variability	5
IV	Normal distribution	2
V	Measures of relationship	8
VI	Designs and meaning	2
VII	Use of statistical & significance of difference between two statistics	10
VIII	Use of statistical methods in psychology & education	5
IX	Application of statistics in health	2
X	Use of computers for data analysis	8
	Total Hours	50

TEACHING STRATEGY:

- Total Hours -100 Lecture - 50hrs
  Lab hours -50hours

TEACHING METHODS:

- Lecture cum discussion, Seminar, Panel discussion, Symposium, Group Discussion Written assignments.

A.V.AIDS:

- Over head Projector, L.C.D, Computer Assisted learning, Flip charts, Posters, Black Board

ASSIGNMENTS:

Sr. No.	Assignment	No./Quantity	Marks per Assignment	Total Marks
1	Exercises on organization and tabulation of data,	05	1X5	25
2	Graphical and tabular presentation of data	05	1X5	25
			Total Marks	50

LIST OF RECOMMENDED BOOKS:

- Basavanthappa B.T, Nursing Research.
- Garrett H.E, Statistic in psychology & education.
- Mahajan B. K. Methods in Biostatistics.
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