Rajarshi Shahu Mahavidyalaya (Autonomous), Latur.

Structured Work Plan for Teaching

(July -2019 to Dec-2020)

1. Details of Classes to be taught

Sr. No.	Class	Name of Asst. Prof.	Subject	Paper
1	B.Voc. I Year	Mr. A. J. Waghmare	Biotechnology	Statistical Methods Course Code: U-STM-207
2	B.Voc. II Year		Food Processing Technology	Business Mathematics Course Code: U-BUS-418
3	B.Voc. III Year			Aptitude and Logical Reasoning-II Course Code: U-ALR-649

2. Summary of Lesson Plan

Name of Teacher: Mr. A. J. Waghmare Class: B.Voc. F. P. T. F. Y (SEM-I)

Sr. No.	Subject	Unit & Chapter to be Covered	Date	No. of Lectures	Academic Activities to be Organized	No. of Test/ Assignment with Topic & Date
1	Statistical Method	Unit I: Fundamental Mathematics Introduction, Definition of set, Representation of set, -notation, Types of sets, Equality of sets, Subset of set, Union of sets, Intersection of sets, Disjoint sets, Universal set, Complement of set, Difference of sets, Venn diagram Determinants, Minors & Co-factors of the elements of the determinant, Properties of determinant, Application of determinants in Business problems.	18-07-20 To 03-01-20	15L	Classroom Group Discussion	

		Unit II: Introduction, central tendency of data, mean, properties of arithmetic mean, Short cut method of calculating A.M for discrete series, Calculation of arithmetic mean for grouped frequency, Distribution: continuous series, calculation of arithmetic mean from grouped frequency distribution with open end class, geometric mean, Harmonic mean, advantages and disadvantages of A.M, G.M and H.M. median quartiles deciles and percentiles, mode.	04-01-20 To 22-01-20	14 L	Seminar	
		Unit III: Distributions Probability Distribution: Standard probability distribution: Binomial, Poisson and Normal Hypothesis: Definition, Types (0ne tailed, two tailed), Sampling distribution and errors, Types of errors (Type I, II). Test of hypothesis: ANOVA (one way and Two ways), T - Test for paired sample, Chi square test. Correlation: Definition, types of correlation and Methods of studying correlation, Significance test for Correlation coefficient. Regression: Regression Lines, Regression equations and significance test for Regression Coefficient.	23-01-20 To 10-02-20	10L	Seminar	
		Unit IV: Computers Introduction computers and its peripherals. Binary Number system, Low level and High-Level Language, Flow charts, Operating Systems, Introduction to various packages and software's, Use of MS Dos commands, Windows: Word and Excel.	11-02-20 To 28-03-20	06L	Seminar	

1.	Food Processing Technology	Unit-I: Set Theory Introduction, Definition of set, Representation of set, ϵ-notation. Types of sets, Equality of sets, Subset of set. Union of sets, Intersection of sets, Disjoint sets, Universal set, Complement of set, Difference of sets. Venn diagram, Application of sets.	10-12-19 To 03-01-20	15L	Classroom Group Discussion	

		Unit II: Determinants Definition, Formation of determinants, Examples and problems. Minors & Co-factors of the elements of the determinant, Properties of determinant Application of determinants in Business problems.	04-01-20 To 22-01-20	15 L	Seminar	
		Unit III: Vectors & Matrices Vectors, Matrices, Difference between matrices and determinants, Types of matrices, Equality of matrices Matrix addition-multiplication, Scalar multiplication, System of Linear Equations, Transpose, Adjoint, Inverse of a square matrix Solution of linear equation by matrix method, Elementary transformation, Solution of linear equation by Gauss-Jordan Elimination method, Rank of matrix, Linear dependence & independence of vectors, Linear Combination, Application of matrices in solving problems relating to business and economics, Application of matrix algebra input output analysis.	23-01-20 To 10-02-20	15L	Seminar	
		Unit IV: Permutation & Definition, Properties, Theorems, Problems, Binomial theorem, Independent term, Middle term, Theorems.	11-02-20 To 30-03-20	15L	Seminar	

2.	Food Processing Technology	Unit I: Numerical Ability Theory, Different types of Numbers: Natural Numbers, Integers, Even Numbers, Odd Numbers, Prime Numbers. Test for Prime Number, Prime Factorization., Composite Number, Perfect Square., Test of Divisibility GCD and LCD: Greatest Common Divisor (GCD or HCF), Method for finding the GCD & LCM of two or more numbers Factorization Method., Least Common Multiple, Important Properties of GCD & LCM.	10-12-19 To 03-01-20	15L	Classroom Group Discussion	

		Unit II: Daily Life Problems Theory, Preliminaries, BODMAS Rule, Modulus of Real Numbers, Quadratic Equation, Fractions, Law of Exponents, Last digit of a power. Algebraic methods of solving a pair of Linear Equations: Substation Method, Elimination Method. Age Problem, Average: Theory, Arithmetic Mean, Important facts about Arithmetic Mean, Geometric Mean. Median & Mode: Theory, Examples. Standard Deviation, Variance.	04-01-20 To 22-01-20	15 L	Seminar	
		Unit III: Logical Reasoning Data Interpretation: Theory, Table, Bar Chart, Line graph, Histograms, Pie Charts. Observational Ability: Theory, to draw a Venn Diagram, Logical Puzzles: Theory, Problems.	23-01-20 To 10-02-20	15L	Seminar	
		Unit IV: Typical Problems Calendar Problem: The History, Theory: Odd Days, Leap Year, Ordinary Year, Counting of Odd Days. Tricks and Shortcuts for calculations, working rule for finding the day of a given date, Conditions for calendars of two different years to be same. Clock Problem: Theory, Important facts and shortcuts for quick calculation, some important types of clock problems. Series Formation: Theory, Number Sequence, Letter Sequence, Symbol Sequence.	11-02-20 To 30-03-20	15L	Seminar	

Course Teacher

HoD

Head
Department of Biotechnology
Rajarshi Shahu Mahavidyalaya
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Principal

PRINCIPAL
Rajarshi Shahu Mahavidyalaya,Latur
(Autonomous)

Rajarshi Shahu Mahavidyalaya (Autonomous), Latur.

Structured Work Plan for Teaching

(Dec -2019 to March-2020)

1. Details of Classes to be taught

Sr. No.	Class	Name of Asst. Prof.	Subject	Paper
1	B.Sc. I Year	Mr. A. J. Waghmare	Biotechnology	Biomathematics, Biostatistics & Computer Course Code: U-BBC-290 Course Title: Lab Course VIII Course Code: U-LAC-294
2	B.Voc. I Year		Food Processing Technology	Mathematical Foundation General Education-VI Course Code: U-MAF-307
3	B.Voc. II Year			Aptitude and Logical Reasoning Course Code: U-ALR-517

2. Summary of Lesson Plan

Name of Teacher: Mr. A. J. Waghmare Class: B.Sc. B. T. F. Y (SEM-II)

Sr. No.	Subject	Unit & Chapter to be Covered	Date	No. of Lectures	Academic Activities to be Organized	No. of Test/ Assignment with Topic & Date
1	Biotechnology	Unit I: Biomathematics Chapter-1: Introduction, The set theory, Properties and Operations of sets, Linear constants, Quadratic equations, Functions and Relations. Chapter- 2: Limit of functions (basic idea of limit of functions without analytic definition), Derivative and Integration – introduction, application for simple algebraic and trigonometric functions. Chapter- 3: Logarithm, Binomial theorem for integers, Factorial, Permutation and Combination.	10-12-19 To 03-01-20	15L	Classroom Group Discussion	

		Chapter-4: Determinant and Matrices, Plotting of Graphs, Properties of functions from Graphs. Introduction to MATLAB software.				
		Unit II: Biostatistics Chapter-1: Statistics as statistical data: various types of data (Raw data, grouped data), Representation of data using frequency distribution diagram. Simple/Multiple/Subdivided bar diagram, Pie diagram) Chapter-2: Graphs (Histogram, polygon, curve), Population, sample, sampling methods (SRS, Stratified sampling.) Chapter-3: Measure of central tendency: Mean, Median, Mode. Chapter-4: Measures of dispersion: Variance, Standard deviation, Coefficient of variance.	04-01-20 To 22-01-20	14 L	Seminar	
		Unit III: Distributions Chapter-1: Probability Distribution: Standard probability distribution: Binomial, Poisson and Normal Chapter-2: Hypothesis: Definition, Types (0ne tailed, two tailed), Sampling distribution and errors, Types of errors (Type I, II). Test of hypothesis: ANOVA (one way and Two ways), T - Test for paired sample, Chi square test. Chapter-3: Correlation: Definition, types of correlation and Methods of studying correlation, Significance test for Correlation coefficient. Chapter-4: Regression: Regression Lines, Regression equations and significance test for Regression Coefficient.	23-01-20 To 10-02-20	10L	Seminar	
		Unit IV: Computers Chapter-1: Introduction computers and its peripherals. Chapter-2: Binary Number system, Low level and High-Level Language, Flow charts,	11-02-20 To 28-03-20	06L	Seminar	

		Chapter-3: Operating Systems, Introduction to various packages and software's, Chapter-4: Use of MS Dos commands, Windows: Word and Excel.				

1.	Food Processing Technology	Unit-I: Set Theory Chapter-1: Introduction, Definition of set, Representation of set, ϵ-notation. Chapter-2: Types of sets, Equality of sets, Subset of set. Chapter-3: Union of sets, Intersection of sets, Disjoint sets, Universal set, Complement of set, Difference of sets. Chapter-4: Venn diagram, Application of sets.	10-12-19 To 03-01-20	15L	Classroom Group Discussion	
		Unit II: Determinants Chapert-1: Definition, Formation of determinants, Examples and problems. Chapter-2: Minors & Co-factors of the elements of the determinant, Chapter-3: Properties of determinant Chapter-4: Application of determinants in Business problems.	04-01-20 To 22-01-20	15 L	Seminar	
		Unit III: Vectors & Matrices Chapter-1: Vectors, Matrices, Difference between matrices and determinants, Types of matrices, Equality of matrices Chapter-2: Matrix addition-multiplication, Scalar multiplication, System of Linear Equations, Transpose, Adjoint, Inverse of a square matrix Chapter-3: Solution of linear equation by matrix method, Elementary transformation, Solution of linear equation by Gauss-Jordan Elimination method, Rank of matrix, Linear dependence & independence of vectors, Linear Combination.	23-01-20 To 10-02-20	15L	Seminar	

		Chapter-4: Application of matrices in solving problems relating to business and economics, Application of matrix algebra input output analysis.				
		Unit IV: Permutation & Combination Definition, Properties, Theorems, Problems, Binomial theorem, Independent term, Middle term, Theorems.	11-02-20 To 30-03-20	15L	Seminar	

2.	Food Processing Technology	Unit I: Numerical Ability Chapter-1: Theory, Different types of Numbers: Natural Numbers, Integers, Even Numbers, Odd Numbers, Prime Numbers. Chapter-2: Test for Prime Number, Prime Factorization., Composite Number, Perfect Square., Test of Divisibility Chapter-3: GCD and LCD: Greatest Common Divisor (GCD or HCF), Method for finding the GCD & LCM of two or more numbers Chapter-4: Factorization Method., Least Common Multiple, Important Properties of GCD & LCM.	10-12-19 To 03-01-20	15L	Classroom Group Discussion	
		Unit II: Daily Life Problems Chapter-1: Theory, Preliminaries, BODMAS Rule, Modulus of Real Numbers, Quadratic Equation, Fractions, Law of Exponents, Last digit of a power. Chapter-2: Algebraic methods of solving a pair of Linear Equations: Substation Method, Elimination Method. Chapter-3: Age Problem, Average: Theory, Arithmetic Mean, Important facts about Arithmetic Mean, Geometric Mean. Median & Mode: Theory, Examples. Chapter-4: Standard Deviation, Variance.	04-01-20 To 22-01-20	15 L	Seminar	

		Unit III: Logical Reasoning Data Interpretation: Theory, Table, Bar Chart, Line graph, Histograms, Pie Charts. Observational Ability: Theory, to draw a Venn Diagram, Logical Puzzles: Theory, Problems.	23-01-20 To 10-02-20	15L	Seminar	
		Unit IV: Typical Problems Chapter-1: Calendar Problem: The History, Theory: Odd Days, Leap Year, Ordinary Year, Counting of Odd Days. Chapter-2: Tricks and Shortcuts for calculations, working rule for finding the day of a given date, Conditions for calendars of two different years to be same. Chapter-3: Clock Problem: Theory, Important facts and shortcuts for quick calculation, some important types of clock problems. Chapter-4: Series Formation: Theory, Number Sequence, Letter Sequence, Symbol Sequence.	11-02-20 To 30-03-20	15L	Seminar	

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