The Kelkar Education Trust's V.G.Vaze College of Arts, Science and Commerce (Autonomous)

The Kelkar Education Trust's

V G Vaze College of Arts, Science and Commerce

(Autonomous)

Syllabus for FYBA

(June 2023 Onwards)

Program: BA

Semester I

Course: Quantitative Techniques I

Course Code	Paper Title	Credit
VGVUAVSE101	Quantitative Techniques I	4

The Kelkar Education Trust's V.G.Vaze College of Arts, Science and Commerce (Autonomous)

Syllabus as per Choice Based Credit System

i) Name of the Programme	:	B.A.
ii) Course Code	:	VGVUAVSE101
iii) Course Title	:	Quantitative Techniques I
iv) Semester wise Course Contents	:	Copy of the syllabus enclosed
v) References and additional references	:	Enclosed in the Syllabus
vi) Credit structure	:	
No. of Credits per Semester	:	4
vii) No. of lectures per Unit	:	20
viii) No. of lectures per week	:	04
ix) No. of Tutorial per week	:	---
2. Scheme of Examination	:	Semester End Exam:60 marks(4 Questions of 15 marks) Internal Assessment 40 marks:Test 15 marks, Project/ Assignment 15 marksClass Participation: 10 marks
3. Special notes, if any	:	No
4. Eligibility, if any	:	As laid down in the College Admission brochure / website
5. Fee Structure	:	As per College Fee Structure specifications
6. Special Ordinances / Resolutions, if any	:	No

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Programme: FYBA									Semester: I	
Course: Quantitative Techniques I									Course Code: VGVUAVSE101	
Teaching Scheme (Hrs/Week)				Continuous Internal Assessment(CIA) 40 marks					End Semester Examination	Total
L	T	P	C	CIA-1	CIA-2	CIA-3	CIA-4	Lab	Written	
4	-	-	3	15	15	10		-	60	100
Max. Time, End Semester Exam (Theory) -2Hrs.										

Prerequisite: An inclination towards learning the fundamentals of Statistics

Course Objectives	
1.	To introduce the students to the fundamentals of Statistical Reasoning and Statistical methods in Research
2.	To introduce the students to basic statistical tools
3.	To get them acquainted with various methods of statistical calculations
4.	To inculcate the idea of analytical thinking along with theoretical understanding

Course Content		
Unit No.	Content	Lectures
I: Introduction to Statistics, collection, classification, Presentation of Data, Measures of Central Tendency	Statistics: Characteristics of Statistics as Data, Functions, Limitations and uses of Statistics Data Sources: Primary and Secondary Sources-Methods of Sampling-Classifications and Tabulations Frequency Distribution (Univariate Data): Discrete, Continuous and Cumulative Graphical Representation: Bar Diagram, Histogram, Pie Chart, Frequency Polygon, Frequency Curve Measures of Central Tendency – Mean, Median and Mode. Use of Excel for graphical representation of Data and calculation of measures of central Tendency	20
II: Measures of Dispersion	Introduction: Objectives of Measuring Dispersion, Qualities of a good Measure of Dispersion, Measure of Dispersion: Algebraic (Absolute and Relative) and Graphic (Lorenz Curve), Bivariate Frequency Distribution, Correlation Analysis: Meaning Correlation and Causation, Types of Correlation. Use of Excel to calculate measures of dispersion and correlation coefficient.	20

III: Probability, Financial Statistics	Probability: Concepts- Sample Space, Independent and Dependent Events, Calculation of Probability using permutation and combination, Financial Statistics: Profit, Loss, Discount, Simple and Compound Interest, Growth and Depreciation . Use of Excel to calculate Financial Statistics.	20
Total No. of Lectures		60

Beyond the Syllabus
Case study analysis of major firms, selection of sample from real life data

Semester I Quantitative Techniques I (Paper Pattern)
Duration: 2 hours   Marks: 60
Q.1 Brief Answers (2/3)   (Unit 1)   15 Marks
Q.2 Brief Answers (2/3)   (Unit 2)   15 Marks
Q.3 Brief Answers (2/3)   (Unit 3)   15 Marks
Q.4. Brief Answers (2/3)   (Unit 4)   15 Marks

Course Outcomes	
Students should be able to...	
CO1	Understand the basics about Quantitative Techniques
CO2	Get an insight about various Statistical Tools and Methods of Calculations
CO3	Understanding the applications of various Quantitative Techniques in the Research Process
CO4	Understand the Financial Statistics and its Applications

Syllabus Prepared by:
Mrs. Vaishali Sambodhan Dhammapathee

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Reference Books (Recommended Resources)	1. Anthony, M., & Briggs, N. (2002). *Mathematics for Economics and Finance* (1st ed.). Delhi: Replika Press Pvt Ltd, Cambridge University Press. 2. Bose, D. (2007). *An Introduction to Mathematical Economics.* New Delhi: Himalaya Publishing House. 3. Chiang A, C. (1986). *Fundamental method of Mathematical Economics.* New York: Mc Graw Hill. 4. Dowling, E. T. (1993). *Mathematical Methods for Business and Economics.* McGraw -Hill. 5. Guha, A. (2005). *Quantitative Aptitude.* New Delhi: Tata McGraw-Hill.

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Syllabus for FYBA

(June 2020 Onwards)

Program: BA

Semester II

Course: Quantitative Techniques II

Course Code	Paper Title	Credit
VGVUAVSE201	Quantitative Techniques II	4

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Syllabus as per Choice Based Credit System

i) Name of the Programme	:	B.A.	
ii) Course Code	:	VGVUAVSE201	
iii) Course Title	:	Quantitative Techniques II	
iv) Semester wise Course Contents	:	Copy of the syllabus enclosed	
v) References and additional references	:	Enclosed in the Syllabus	
vi) Credit structure	:		
No. of Credits per Semester	:	04	
vii) No. of lectures per Unit	:	20	
viii) No. of lectures per week	:	04	
ix) No. of Tutorial per week	:	---	
2 Scheme of Examination	:	Semester End Exam:60 marks(4 Questions of 15 marks) Internal Assessment 40 marks:Test 15 marks, Project/ Assignment 15 marksClass Participation: 10 marks	
3 Special notes, if any	:	No	
4 Eligibility, if any	:	As laid down in the College Admission brochure / website	
5 Fee Structure	:	As per College Fee Structure specifications	
6 Special Ordinances / Resolutions, if any	:	No	

Programme: FYBA	Semester: II
Course: Quantitative Techniques II	Course Code: VGVUAVSE201

Teaching Scheme (Hrs/Week)				Continuous Internal Assessment(CIA) 40 marks					End Semester Examination	Total
L	T	P	C	CIA-1	CIA-2	CIA-3	CIA-4	Lab	Written	
4	-	-	3	15	15	10		-	60	100
Max. Time, End Semester Exam (Theory) -2Hrs.										

Course Objectives	
1.	To introduce the students to Fundamentals of Mathematical Tools
2.	To understand Economic Applications of the Basic Concepts of Algebra
3	To understand the Business-related Applications of the Mathematical Concepts
4	To understand the Research related Applications of the Mathematical Concepts

Prerequisite:	Basic understanding about the Economic Applications of Mathematical Tools

Course Content		
Unit No.	Content	Lectures
I:Equations Graphs, Functions, Economic Applications	**A: Equations and Graphs**-Cartesian Co-ordinate System, Linear Equations and Graphs, Slopes, Intercepts, Equation of a Straight Line- Applications of Linear Equations in Economics **B: Functions**: Concepts, Graphic Functions (Linear and Quadratic) Equations, Solving Quadratic Equations **C: Systems of Equations**: Graphical Solutions, Demand and Supply Analysis, Break-Even Analysis, Income Determination Models	20

II: Limits, Differentiation, Economic Applications	**A: Limits**- Continuity, Differentiability and Continuity, Rules of Differentiation (Constant Linear and Power Function, Sums and Differences, Product, Quotient) **B: Higher Order Derivatives** – Increasing and Decreasing Functions, Concavity and Convexity, Inflection Points **C: Optimizing Economic Functions for Business** – Maximizing Profits and Minimizing Costs, Relationships among Total, Marginal and Average Functions	20
III. Matrix Algebra, Linear Programming (Economic Applications) Algebra	**A: Matrix Algebra-** Definition and Types of Metrices, Algebraic Operations of Addition, Subtraction, Scalar and Vector Multiplication and Multiplication of Metrices (2*2) only **B: Linear Programming: -** Formulation of the Objective Functions and the Constraints, Graphical Solution **C: Algebra-** Sequences and Series, Arithmetic and Geometric Progression, Sum of nth Number Series	20

Beyond the Syllabus
Carrying out surveys and analyzing the data so collected with the help of various quantitative techniques

Semester II: Quantitative Techniques (Paper Pattern)
Duration: 2 hours   Marks: 60
Q.1 Brief Answers (2/3)   (Unit 1)   15 Marks
Q.2 Brief Answers (2/3)   (Unit 2)   15 Marks
Q.3 Brief Answers (2/3)   (Unit 3)   15 Marks
Q.4. Brief Answers (2/3)   (Unit 4)   15 Marks

Course Outcomes	
Students should be able to...	
CO1	Learn about various Calculus Tools and its Economic Applications
CO2	Solve various Optimization Problems using the tools
CO3	Learn about the Business and Research related applications of the Mathematical Tools
CO4	To develop analytical thinking along with theoretical understanding of Economic Concepts
CO5	Carry out a research project on his own

Syllabus Prepared by:
1. Ms. Vaishali Dhammapathee, Head, Department of Economics

Recommended Resources : Reference Books

1) Anthony M. and Norman Briggs, Mathematics for Economics and Finance, CambridgeUniversity Press, Replika Press Pvt. Ltd., Delhi, 2002.

2) Bose D., An Introduction to Mathematical Economics, Himalaya Publishing House, NewDelhi, 2007.

3) Chiang A. C., Fundamental method of Mathematical Economics, Mc-Graw Hill, New York, 1986

4) Dowling E. T., Mathematical Methods for Business and Economics, Schaum's Outline Series, McGraw -Hill, 1993.

5) Guha A.: Quantitative Aptitude, Tata McGraw-Hill, New Delhi, 2005

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