



SYMBIOSIS COLLEGE वसुधैव कुटुम्बकम् ARTS AND COMMERCE

(An Autonomous College under Savitribai Phule Pune University)

Senapati Bapat Road, Pune-04.

Board of Studies Meeting of Department of Statistics and Computer Applications

Date: 5<sup>th</sup> Oct, 2019

Time: 8:30 am

Venue: Room No. 206

Sr. No	Members Name	Designation	Signature
1.	Dr. Hrishikesh Soman	Chairperson, Principal	_____
2.	Dr. Vinayak Sholapurkar	SPPU Representative	<i>[Signature]</i> 05/10/2019
3.	Dr. Asmita Chitnis	Academic Council Nominee	_____
4.	Mrs. Vaishali Joshi	Academic Council Nominee	_____
5.	Mr. Pankaj Shah	Industry expert	_____
6.	Ms. Simran Chhabra	Alumni Representative	<i>[Signature]</i>
7.	Mrs. Ashwini Kothari	Assistant Professor	<i>[Signature]</i>
8.	Mr. Rahul V. Sharma	Assistant Professor	<i>[Signature]</i> 05/10/19

**Symbiosis College of Arts and Commerce, Pune**  
(An Autonomous College under SPPU)

**Department of Statistics and Computer Applications.**  
**Board of Studies Meeting 2019-20.**

**Date of the meeting: Saturday, 5<sup>th</sup> Oct 2019**

**Time: 8:30 am to 10:30 am**

**Venue: Room No. 206**

**AGENDA**

- 1) Welcome to the BOS members
- 2) To discuss and modify the existing syllabus of F.Y.B. Com for Business Mathematics & Statistics-II.
- 3) Any other matter with the permission of the Chair.
- 4) Vote of thanks.



# Symbiosis College of Arts and Commerce

(An Autonomous College Under to Savitribai Phule Pune University)

Department of Mathematics & Computer Application.

## Minutes of the Meeting

The Board of Studies Meeting was held on Saturday, 5<sup>th</sup> October, 2019 at 8:30am in Room No. 206.

**In this meeting following members were present:**

1. Dr. Vinayak M. Sholapurkar (Subject Expert)
2. Ms. Simran Chhabra (Alumni Representative)
3. Mrs. Ashwini Kothari
4. Mr. Rahul V. Sharma

**In this meeting following points were discussed:**

**Confirmation of the minutes of the meeting held on Thursday, 21<sup>st</sup> February, 2019.**

1. Copy of the minutes of meeting held on Thursday, 21<sup>st</sup> February, 2019 were read by Mr. Rahul V. Sharma.
2. Discussion on new topics and old topics was done to include or exclude in the syllabus of Business Mathematics & Statistics-II, Sem-II 2019-20.

**Topics included:**

Transportation in LPP. (as a topic)  
Time Series. (as a Unit)  
Probability Distribution. (as a Unit)

**Topics Excluded:**

Mutual Funds.  
Measure of Dispersion.

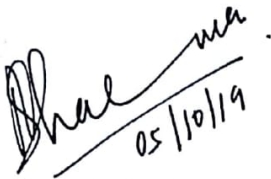
3. Question paper format & marks distribution was discussed in the meeting. Its was adviced to include MCQ's in theory exam in order to cover variety of patterns of question.

**Resolution of the meeting:**

After discussion and suggestion a tentative syllabus for Business Mathematics & Statistics-II was decided.

No change in the Question paper format.


The meeting ended with vote of thanks to the Chair.

  
05/10/19

Mr. Rahul V. Sharma

  
Mrs. Ashwini Kothari

Old Syllabus

 SYMBIOSIS		<b>Symbiosis College of Arts and Commerce</b> (An Autonomous College Affiliated to University of Pune)									
Subject code		Semester	II								
Title of Subject		<b>MATHEMATICS AND STATISTICS 2</b> ( From 2016-2017)									
Objectives:		<ol style="list-style-type: none"><li>1. To understand the concept and applications of matrices.</li><li>2. To solve LPP to maximize the profit and to minimize the cost.</li><li>3. To understand the concept of S.I.P. with reference to Mutual Funds.</li><li>4. To use regression analysis to estimate the relationship between two variables .</li><li>5. To understand the concept and applications of different types of index numbers.</li></ol>									
<b>Detailed syllabus</b>											
<b>Unit</b>	<b>Contents of the syllabus</b>									<b>Number of Lectures</b>	
1	<b>Matrices And Determinants (upto order 3 only )</b> Multivariable data, Definition of a Matrix. Types of Matrices. Algebra of Matrices. Determinants. Adjoint of a Matrix. Inverse of a Matrix using Adjoint . Solution of Non-homogeneous system of Linear equations (not more than three variables). Condition for existence and uniqueness of solution. Solution using inverse of the coefficient matrix. Problems.									12	
2	<b>Linear Programming Problems (L.P.P.)( for two variables only))</b> Definition and terms in a L. P. P.. Formulation of L.P.P. . Solution by Graphical method. Problems									8	
3	<b>Mutual Funds</b> Concept of investment in Mutual Fund. Problems on calculation of Net Income and change in NAV.Averaging of price under the Systematic Investment Plan.(SIP)									7	
4	<b>Measures of Dispersion</b> Concept of dispersion. Measures of dispersion: Range. Variance, Standard deviation( S.D.) for grouped and ungrouped data. combined S.D. Measures of relative dispersion Coefficient of range. Coefficient of variation .									12	

Old Syllabus



5	<b>Correlation and Regression</b> Concept and types of correlation. Scatter diagram, Interpretation with respect to magnitude and direction of relationship. Karl Pearson's coefficient of correlation for ungrouped data. Spearman's rank correlation coefficient. Concept of linear regression. Lines of regression for ungrouped data, Predictions using lines of regression. Regression coefficients and their properties.	10
6	<b>Index numbers</b> Concept and Definition of Index Number, Types of Index Numbers, Uses of Index Numbers, Problems in construction of Index Numbers., Commonly used Index Numbers. Methods of construction of price index number, Laspeyer's Paasche's and Fishers price index number.	5
<b>Total Number of Lectures</b>		<b>54</b>
<b>Reference Books :</b> 1) Business Mathematics by Dr. Amarnath Dikshit & Dr. Jitendra Kumar Jain. 2) Business Mathematics by V. K. Kapoor – Sultan Chand & Sons, Delhi. 3) Business Mathematics by Bari – New Literature Publishing Company, Mumbai. 4) Fundamentals of Statistics by S.C. Gupta - Sultan Chand & Sons, Delhi. 5) Fundamentals of Statistics by Goon, Gupta and Dasgupta -- The world press private ltd. 6) Statistics by Sancheti and Kapoor - Sultan Chand & Sons, Delhi <b>Text Books</b> 1) Text Book for SSPU Syllabus for F.Y.B.Com. Business Mathematics and Statistics 2) Text Book for Mumbai University Syllabus for F.Y.B.Com. Mathematical and Statistical Techniques (Sem I and Sem II) 3) Text Book for XII Standard Board for the subject Mathematics and Statistics.		
<b>Assignment (20 Marks)</b> Students can select any topic related to the syllabus or can do the assignment based on problem solving related to syllabus using Excel or R.		

old Syllabus



॥ सावित्री पुस्तकालय ॥  
SYMBIOSIS

**Symbiosis College of Arts and Commerce**  
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Subject code	20121C19	Semester	II															
Title of Subject		BUSINESS MATHEMATICS AND STATISTICS-2 (AY 2019-20)																
Objectives:		<ol style="list-style-type: none"><li>1. To understand the concept and applications of Matrices.</li><li>2. To solve LPP to maximize the profit and minimize the cost.</li><li>3. To minimize the cost of distributing a product from a number of sources or origins to a number of destinations.</li><li>4. To use regression analysis to estimate the relationship between to variables.</li><li>5. To understand the concept and applications of different types of Index Numbers.</li><li>6. To predict the future behaviour of the variable based on past experience, use of least square method.</li><li>7. To specify probability in an area of study which involves predicting the relative likely hood of various outcomes.</li></ol>																
Detailed syllabus																		
Unit	Contents of the syllabus																	Number of Lectures
1	<b>Matrices and Determinants (up to order 3 only)</b> Multivariable data, Definition of a Matrix, Types of Matrices, Algebra of Matrices, Determinants, Adjoint of a matrix, Inverse of a Matrix using Adjoint. Solution of Non-homogeneous system of Linear Equations (not more than three variables). Condition for existence and uniqueness of solution, Solution using inverse of the coefficient matrix, Problems.																	12
2	<b>Linear Programming Problems (L.P.P.) (for two variables only)</b> Definition and terms in a L. P. P., Formulation of L.P.P., Solution by Graphical method, Transportation Problems.																	12
3	<b>Correlation and Regression</b> Concept and types of correlation. Scatter diagram, Interpretation with respect to magnitude and direction of relationship. Karl Pearson's coefficient of correlation for ungrouped data. Spearman's rank correlation coefficient. Concept of linear regression. Lines of regression for ungrouped data, Predictions using lines of regression. Regression coefficients and their properties.																	10



4	<b>Index numbers</b> Concept and Definition of Index Number, Types of Index Numbers, Uses of Index Numbers, Problems in construction of Index Numbers., Commonly used Index Numbers. Methods of construction of price index number, Laspeyer's Paasche's and Fishers price index number.	4
5	<b>Time series</b> Concepts and components of a Time series. Representation of trend by Freehand Curve Method, Estimation of Trend using Moving Average Method and Least Square Method (Linear Trend only). Estimation of Seasonal Component using Simple Arithmetic Mean for Additive Model only (For Trend free data only). Concept of Forecasting using Least Square Method.	8
6	<b>Probability Distributions</b> Discrete Probability Distribution: Binomial, Poisson (Properties and applications only, no derivations are expected) Continuous Probability distribution: Normal Distribution. (Properties and applications only, no derivations are expected)	8
<b>Total Number of Lectures</b>		<b>54</b>
<b>Reference Books:</b> <ol style="list-style-type: none"> <li>1) Business Mathematics by Dr. Amarnath Dikshit &amp; Dr. Jitendra Kumar Jain.</li> <li>2) Operations Research by V. K. Kapoor – Sultan Chand &amp; Sons, Delhi.</li> <li>3) Business Mathematics by Bari – New Literature Publishing Company, Mumbai.</li> <li>4) Fundamentals of Statistics by S.C. Gupta - Sultan Chand &amp; sons, Delhi.</li> <li>5) Fundamentals of Statistics by Goon, Gupta and Dasgupta – The World Press Private Ltd.</li> <li>6) Statistics by Sancheti and Kapoor - Sultan Chand &amp; Sons, Delhi</li> <li>7) Operations Research by Schaumi Series.</li> </ol>		
<b>Text Books</b> <ol style="list-style-type: none"> <li>1) Text Book for SSPU Syllabus for F.Y.B.Com. Business Mathematics and Statistics</li> <li>2) Text Book for Mumbai University Syllabus for F.Y.B.Com. Mathematical and Statistical Techniques (Sem I and Sem II)</li> <li>3) Text Book for XII Standard Board for the subject Mathematics and Statistics.</li> </ol>		
<b>Assignment (20 Marks)</b> Students can select any topic related to the syllabus or can do the assignment based on problem solving related to syllabus.		