



ST. XAVIER'S COLLEGE

(AUTONOMOUS)

5, Mahapalika Marg, Mumbai - 400 001,
INDIA.

☎ 2262 0661/65

❖ Minutes and/or Resolutions of Board of Studies meetings held in the last five years for:

• Department of Statistics

Programme/s: Statistics courses for

1. BA (Economics and Statistics)
2. BSc Statistics

• Summary

Academic Year	Dates of BoS meetings	Revision in syllabus
2019 - 2020	31-08-2019	✓
2018 - 2019	11-08-2018	✓
2017 - 2018	15-07-2017	✗
2016 - 2017	16-07-2016	✓
2015 - 2016	20-02-2016	✓
2014-2015	24-01-2015	✓



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2019-2020



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BOARD OF STUDIES (STATISTICS)
ST. XAVIER'S COLLEGE - AUTONOMOUS, MUMBAI.

Date... 31/8/19

Time... 11 am

S.No	Name of Member		Signature
1.	Prof. Myrtle C Fernandes, Associate Prof & Head, Dept. of Statistics, St. Xavier's College, Mumbai.	Chairman	<i>mfernandes</i>
2.	Dr. Santosh Gite Head, Dept. of Statistics, University of Mumbai, Kalina.	University Representative	<i>Santosh Gite</i>
3.	Dr. Manisha Sane, Associate Prof, Modern College of Arts, Sc & Com, Shivaji Nagar, Pune 411005	Subject Expert	—
4.	Dr. Rita Abbi, Prof & HOD, Dept. of Bio-Statistics MGM Institute of Health Sciences, (Deemed University), Sector 1, Kamote, Navi Mumbai 410209	Subject Expert	<i>Rita Abbi</i>
5.	Mr. V. Deshpande Director, Sankhya Analytical Research Pvt. Ltd.	Industry Representative	<i>V. Deshpande</i>
6.	Mr. Brian Almeida, MD, Strategic Caravan (I) Pvt Ltd.	Alumnus	<i>Brian Almeida</i>
7.	Prof. Pooja Ochaney, Associate Prof, Dept. of Statistics, St. Xavier's College, Mumbai.	Faculty Member Dept of Statistics	<i>P. H. O</i>
8.	Prof. Ayesha Dias, Associate Prof, Dept. of Statistics, St. Xavier's College, Mumbai.	Faculty Member Dept of Statistics	<i>Ayesha Dias</i>
9.	Dr. S. Annapurna V.P. (Arts) & Associate Prof Dept of Statistics St. Xavier's College, Mumbai.	Faculty Member Dept of Statistics	<i>S. Annapurna</i> 31/08/2019
10.	Prof. Saju George, Associate Prof, Dept. of Statistics, St. Xavier's College, Mumbai.	Faculty Member Dept of Statistics	<i>S. George</i>
11.	Prof. Piyali Unnikrishnan, Associate Prof, Dept. of Statistics, St. Xavier's College, Mumbai.	Faculty Member Dept of Statistics	<i>Piyali</i>

Brian Almeida

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NAAC SSR Cycle 4 (2015-2020) :
1_1_2_BoS Minutes - Statistics



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Minutes of the Statistics Board of Studies meeting held on 31st August, 2019 held at the
Statistics Department at 11.00am.

Present: Dr. Santosh Gite, Dr. Rita Abbi, Mr. Vinayak Deshpande, Mr. Brian Almeida,
Ms. Myrtle Fernandes, Ms. Pooja Ochaney, Ms. Ayesha Dias, Dr. S. Annapurna,
Mr. Saju George, Ms. Piyali Unnikrishnan.

Matters Discussed.

- The FYBA syllabus was reviewed and the following changes were made:

Unit – 1

- The title of Unit – 1 was changed to:
Data: Types, Collection & Management, Presentation & Visualization.
- Under sub-section 'Types of data from a population' Illustrations of **Likert scale** was included.
- Under sub-section 'Collection of data' **Concept of validation of questionnaire** was included
- 'Diagrammatic representation' was changed to **Data Presentation and Visualization**

Unit – 3


- The title of Unit - 3 was changed to:
Measures of Dispersion, Skewness & Kurtosis

- The book **Marketing Research by Naresh Malhotra** was included in the list of Recommended Books.
- Students can be introduced to event infography, pictorial graphs, hitmap, motion chart etc
- No changes made in the Sem – II syllabus.**
- This syllabus will be effective from academic year 2020-21

Prof. Myrtle C. Fernandes.
(HOD – Statistics)



NAAC SSR Cycle 4 (2015-2020) :
1_1_2_BoS Minutes – Statistics


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RESOLUTION

BOARD OF STUDIES (STATISTICS)

The Subject Board in Statistics for St. Xavier's College, Autonomous, hereby approves the decisions taken at the session reviewing the syllabus of First Year (Arts) and recommendations are to be implemented from the Academic Year 2020-21.

S.No	Name of Member		Signature
1.	Prof. Myrtle C Fernandes, Associate Prof & Head, Dept. of Statistics, St. Xavier's College, Mumbai.	Chairman	
2.	Dr. Santosh Gite Head, Dept. of Statistics, University of Mumbai, Kalina.	University Representative	
3.	Dr. Manisha Sane, Associate Prof, Modern College of Arts, Sc & Com, Shivaji Nagar, Pune 411005	Subject Expert	—
4.	Dr. Rita Abbi, Prof & HOD, Dept. of Bio-Statistics MGM Institute of Health Sciences, (Deemed University), Sector 1, Kamote, Navi Mumbai 410209	Subject Expert	
5.	Mr. V. Deshpande Director, Sankhya Analytical Research Pvt. Ltd.	Industry Representative	
6.	Mr. Brian Almeida, MD, Strategic Caravan (I) Pvt Ltd.	Alumnus	
7.	Prof. Pooja Ochaney, Associate Prof, Dept. of Statistics, St. Xavier's College, Mumbai.	Faculty Member Dept of Statistics	
8.	Prof. Ayesha Dias, Associate Prof, Dept. of Statistics, St. Xavier's College, Mumbai.	Faculty Member Dept of Statistics	
9.	Dr. S. Annapurna V.P. (Arts) & Associate Prof Dept of Statistics St. Xavier's College, Mumbai.	Faculty Member Dept of Statistics	 31/05/2019
10.	Prof. Saju George, Associate Prof, Dept. of Statistics, St. Xavier's College, Mumbai.	Faculty Member Dept of Statistics	
11.	Prof. Piyali Unnikrishnan, Associate Prof, Dept. of Statistics, St. Xavier's College, Mumbai.	Faculty Member Dept of Statistics	



Dept. of Statistics.

Date... 31/5/19

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2018-2019



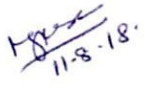

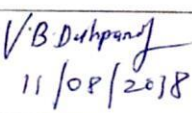

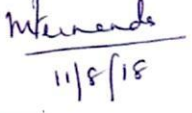
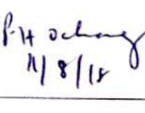
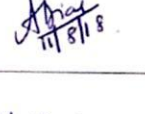




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BOARD OF STUDIES (STATISTICS)
ST. XAVIER'S COLLEGE - AUTONOMOUS, MUMBAI.


Date...11/8/18.....

Time.....10 am.....

S. No	Name of Member		Signature
1.	Dr. Santosh Gite Head, Dept. of Statistics, University of Mumbai, Kalina.	University Representative	 11.08.18
2.	Prof. Prasad Patki, Associate Professor & Head, Dept of Statistics. Bhavan's College Andheri (W)	Subject Expert	 11/8/18
3.	Prof. Pallavi Rege, Associate Professor & Head, Dept of Statistics, S.I.E.S. College, Sion.	Subject Expert	 11-8-18.
4.	Prof. Leena Kulkarni Assistant Professor NMIMS's SDSOS Vile Parle (W)	Subject Expert	 11/08/2018
5.	Mr. V. Deshpande Director, Sankhya Analytical Research Pvt. Ltd.	Industry Representative	 11/08/2018
6.	Mr. Brian Almeida, MD, Strategic Caravan (I) Pvt Ltd.	Industry Representative	
7.	Prof. Myrtle C Fernandes, Head, Dept. of Statistics, St. Xavier's College, Mumbai.	College Dept, Head.	 11/8/18
8.	Prof. Pooja Ochaney, Dept. of Statistics, St. Xavier's College, Mumbai.	College Dept, Sr. Teacher	 11/8/18
9.	Prof. Ayesha Dias, Dept. of Statistics, St. Xavier's College, Mumbai.	College Dept, Sr. Teacher	 11/8/18
10.	Mr. Abeer Bhatia T.Y.B.Sc - Statistics St. Xavier's College, Mumbai.	Student Representative	
11.	Mr. Arnav Sheth T.Y.B.A - Statistics St. Xavier's College, Mumbai.	Student Representative	



NAAC SSR Cycle 4 (2015-2020) :
1_1_2_BoS Minutes - Statistics


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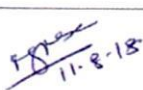
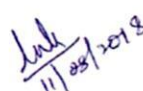
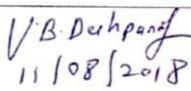

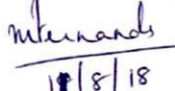
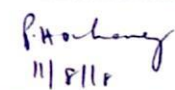





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RESOLUTION

BOARD OF STUDIES (STATISTICS)

The Subject Board in Statistics for St. Xavier's College, Autonomous, hereby approves the decisions taken at the session reviewing the syllabus of Third Year (Arts & Science) and recommendations are to be implemented from the Academic Year 2019-20.

S. No	Name of Member		Signature
1.	Dr. Santosh Gite Head, Dept. of Statistics, University of Mumbai, Kalina.	University Representative	 11/8/18
2.	Prof. Prasad Patki, Associate Professor & Head, Dept of Statistics. Bhavan's College Andheri (W)	Subject Expert	 11/8/18
3.	Prof. Pallavi Rege, Associate Professor & Head, Dept of Statistics, S.I.E.S. College, Sion.	Subject Expert	 11-8-18
4.	Prof. Leena Kulkarni Assistant Professor NMIMS's SDSOS Vile Parle (W)	Subject Expert	 11/08/2018
5.	Mr. V. Deshpande Director, Sankhya Analytical Research Pvt. Ltd.	Industry Representative	 11/08/2018
6.	Mr. Brian Almeida, MD, Strategic Caravan (I) Pvt Ltd.	Industry Representative	
7.	Prof. Myrtle C Fernandes, Head, Dept. of Statistics, St. Xavier's College, Mumbai.	College Dept, Head.	 10/8/18
8.	Prof. Pooja Ochaney, Dept. of Statistics, St. Xavier's College, Mumbai.	College Dept, Sr. Teacher	 11/8/18
9.	Prof. Ayesha Dias, Dept. of Statistics, St. Xavier's College, Mumbai.	College Dept, Sr. Teacher	 11/8/18
10.	Mr. Abeer Bhatia T.Y.B.Sc - Statistics St. Xavier's College, Mumbai.	Student Representative	
11.	Mr. Arnav Sheth T.Y.B.A - Statistics St. Xavier's College, Mumbai.	Student Representative	

Dept. of Statistics.

Date...11/8/2018



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NAAC SSR Cycle 4 (2015-2020) :
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Minutes of the Statistics Board of Studies meeting held on 11th August, 2018 held at the
 Statistics Department at 11.20am.

Present: Dr Santosh Gite, Mr. Vinayak Deshpande, Mr. Brian Almeida,
 Prof(s) Prasad Patki, Pallavi Rege, Leena Kulkarni, Myrtle Fernandes, Pooja Ochaney,
 Ayesha Dias.
 Student Representatives: Mr. Abeer Bhatia (TYBSc), Mr. Arnav Sheth (TYBA).

Matters Discussed.

Aug 2018	TYBSc (Effective 2019 -20)		
		5.01	Unit 1 <ul style="list-style-type: none"> The name of the Unit is 'Probability' The word 'Occupancy Problems' was introduced (It was being done earlier as well) 'Urn Model probability, Conditional probability and application of Bayes' theorem' from Unit 2 has been put into this unit. Unit 2 <ul style="list-style-type: none"> Name of unit changed to 'Inequalities and Law of Large Numbers' Inequalities introduced (Markov's, Boole's & Cauchy Schwartz's) Conditional probability & Application of Baye's thrm removed. Unit 3 unchanged. Unit 4 unchanged.
		5.02	Unit 1 unchanged. Unit 2 unchanged. <ul style="list-style-type: none"> Prof should use the term 'Method of Scoring' for the Trial & Error Method Unit 3 unchanged. Unit 4 <ul style="list-style-type: none"> Derivation of $100(1-\alpha)\%$ equal tailed confidence intervals for population median (Concept of Bootstrapping) has been introduced. Prof should mention that Bootstrapping is useful for small non normal data, Bootstrapping estimator is asymptotically unbiased. References – A new book by Rohatgi has been included.
		5.03	Unit 1 unchanged. Unit 2 unchanged. Unit 3 In Clinical Trials-I, 'Introduction to ICH E9 guidelines' has been introduced. Unit 4 <ul style="list-style-type: none"> The name of the unit has changed to 'Clinical Trials – II & Bioequivalence' 'Concept of Repeated Measures ANOVA, Survival analysis for estimating Median survival time, Kaplan- Miere approach for survival analysis' has been introduced . References A new book by Charles S. Davis has been included
		5.04	Unit 1 unchanged. Unit 2 unchanged. Unit 3 unchanged. Unit 4 unchanged. References A new book by Srivastava & Agarwal has been included
		6.01	Unit 1 unchanged. Unit 2 unchanged. Unit 3 unchanged. Unit 4 unchanged.






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		6.02	Unit 1 – 'Randomized test' has been introduced. Unit 3 – Name of a topic reworded as: 'One sample and Two sample non parametric test' References A new book by Gibbons has been included.
		6.03	Earlier Unit 1 & 2 are combined as Unit 1 Unit 2 unchanged. Earlier Unit 3 has been segregated as Units 3 & 4 Unit 3 – Theory of Games 'Reduction of Game Theory to LPP' has been introduced. Unit 4 - Simulation
		6.04	Unit 1 The following have been introduced <ul style="list-style-type: none">• Concept of General Linear Model• Introduction to Binary Logistic Regression• Residual analysis using graphs Unit 2 The wording 'Concept of Tolerance' was introduced (It was being done earlier as well) Unit 3 is unchanged. Unit 4 is unchanged.

Prof. Myrtle C. Fernandes.
(HOD – Statistics)



NAAC SSR Cycle 4 (2015-2020) :
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2017-2018



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Minutes of the Statistics Board of Studies meeting held on Saturday, 15th July, 2017 held at the Statistics Department at 11.20am.

Present: Dr (Mrs) Dixt, Mr. Vinayak Deshpande, Mr. Brian Almeida,
Prof(s) R.J. Pawar, Leela Subramanian, Pooja Ochaney, Myrtle Fernandes, Ayesha
Dias.
Student Representatives: Ms. Anushka Naruka, Ms. Tanvi Singh.
Apologies: Prof. Phatak.

Matters Discussed.

1. **Review of SYBA syllabus**

SYBA Sem -3: A.STA.3.01

Unit1 changes to Sem 2 Unit 2

Unit2 changes to Sem 1 Unit 3

Unit3 changes to Sem 2 Unit 3

SYBA Sem - 3: A.STA.3.02 unchanged

SYBA Sem - 4: A.STA.4.01 & A.STA.4.02 unchanged.

2. **Review of SYBSc syllabus**

SYBSc Sem -3: S.STA.3.01

Unit1 unchanged.

Unit2 unchanged.

Unit3 changes to Only Normal distribution from prior syllabus Sem 4 Unit 1.

SYBSc Sem - 3: S.STA.3.02 & S.STA.3.03 unchanged

SYBSc Sem -4: S.STA.4.01

Unit1 changes to prior syllabus of Sem 3 Unit 3 + Transformation of variables. from prior syllabus of Sem 4 unit 1

Unit2 unchanged.

Unit3 unchanged..

SYBSc Sem - 4: S.STA.4.02 & S.STA.4.03 unchanged

Prof. Myrtle C. Fernandes.
(HOD – Statistics)



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1_1_2_BoS Minutes – Statistics

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2016-2017



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Attendance

BOARD OF STUDIES (STATISTICS)
ST. XAVIER'S COLLEGE - AUTONOMOUS, MUMBAI.

Date...^{16th} July 2016

Time... 11-30 am

S. No	Name of Member		Signature
1.	Dr (Mrs.).Dixit Head, Dept. of Statistics, University of Mumbai, Kalina.	University Representative	<i>V.Dixit</i>
2.	Prof. R.J Pawar, Head, Dept of Statistics. K.C. College, Churchgate.	Subject Expert	<i>R.Pawar</i>
3.	Prof. L. Subramanian, Dept of Statistics, S.I.E.S. College, Sion.	Subject Expert	-
4.	Prof. (Mrs) Phatak, Dept. of Statistics, B.N. Bandodkar College of Arts & Science. Thane.	Subject Expert	-
5.	Mr. V. Deshpande Director, Sankhya Analytical Research Pvt. Ltd.	Industry Representative	<i>V.Deshpande</i>
6.	Mr. Brian Almeida, MD, Strategic Caravan (I) Pvt Ltd.	Industry Representative	-
7.	Prof. Myrtle Fernandes, Head, Dept. of Statistics, St. Xavier's College, Mumbai.	College Dept, Head.	<i>M.Fernandes</i>
8.	Prof. Pooja Ochaney, Dept. of Statistics, St. Xavier's College, Mumbai.	College Dept, Sr. Teacher	<i>P.H.ochaney</i>
9.	Prof. Ayesha Dias, Dept. of Statistics, St. Xavier's College, Mumbai.	College Dept, Sr. Teacher	<i>A.Dias</i>
10.	Mr. Mudit Mall T.Y.BSc St. Xavier's College, Mumbai.	Student Representative	<i>M.Mall</i>
11.	Mr. Dhairy Dodiya T.Y.B.A. St. Xavier's College, Mumbai.	Student Representative	<i>D.Dodiya</i>



NAAC SSR Cycle 4 (2015-2020) :
1_1_2_BoS Minutes - Statistics

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Minutes of the Statistics Board of Studies meeting held on Saturday, 16th July, 2016 held at the Statistics Department at 11.30am.

Present: Dr (Mrs) Dixt, Mr. Vinayak Deshpande.
Prof(s) R.J. Pawar, Pooja Ochaney, Myrtle Fernandes, A. Dias.
Student Representatives: Mr. Dhairya Dodiya, Mr. Mudit Mall
Apologies: Mr. Brian Almeida, Prof(s) Leela Subramanian, Phatak,

Matters Discussed.

1. Review of FYBA/BSc syllabi

FYBA Sem -1

Unit 1 & 2 unchanged;
Unit 3 changes to Unit 1 of Sem 2

FYBA Sem -2

Unit1 changes to Sem 3 Unit 1;
Unit 2 changes to Sem 3 Unit 2;
Unit3 changes to Sem 3 Unit 3

FYBSc syllabus remains unchanged.

2. Review of SYBA syllabus

SYBA Sem -3: A.STA.3.01

Unit1 changes to Sem 2 Unit 2
Unit2 changes to Sem 1 Unit 3
Unit3 changes to Sem 2 Unit 3

SYBA Sem - 3: A.STA.3.02 unchanged

SYBA Sem - 4: A.STA.4.01 & A.STA.4.02 unchanged.

3. Review of SYBSc syllabus

SYBSc Sem -3: S.STA.3.01

Unit1 unchanged.
Unit2 unchanged.
Unit3 changes to Only Normal distribution from prior syllabus Sem 4 Unit 1.

SYBSc Sem - 3: S.STA.3.02 & S.STA.3.03 unchanged

SYBSc Sem -4: S.STA.4.01

Unit1 changes to prior syllabus of Sem 3 Unit 3 + Transformation of variables, from prior syllabus of Sem 4 unit 1
Unit2 unchanged.
Unit3 unchanged..

SYBSc Sem - 4: S.STA.4.02 & S.STA.4.03 unchanged

4. Review of TYBA syllabus

TYBA Sem -5: A.STA.5.01

Unit1 unchanged.
Unit2 unchanged.
Unit3 changes to Only Normal distribution from prior syllabus Sem 6 Unit 1.

TYBA Sem - 5: A.STA.5.02 & A.STA.5.03 unchanged

TYBA Sem - 4: A.STA.6.01

Unit1 changes to prior syllabus of Sem 5 Unit 3 + Transformation of variables, from prior syllabus of Sem 6 Unit 1
Unit2 unchanged.
Unit3 unchanged..

TYBA Sem - 6: A.STA.6.02 & A.STA.6.03 unchanged






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5. Those students interested in learning PYTHON can use the free download.
6. Give demos of practicals on EXCEL.
Take contact person's name from Prof. Pawar, who will conduct a 2 day workshop on EXCEL & R
7. Inform students
 - Refer to MOSPI site for data on CPI and Time Series.
 - Daily Return data can be obtained from NIFT & SENSEX.
 - Examples on Biological data (which mostly use Normal distribution) and examples on financial data (which mostly use Lognormal distribution) are available on the internet.
 - R-Norm in R- Programming can generate a Normal distribution for a specified mean and variance
 - Moment based measures of skewness and kurtosis in R, use package E1071
8. Mr. Vinayak will inform us of the sites and sources for R which can be included in the syllabi..

Prof. Myrtle C. Fernandes.
(HOD – Statistics)



NAAC SSR Cycle 4 (2015-2020) :
1_1_2_BoS Minutes – Statistics


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Resolution

RESOLUTION

BOARD OF STUDIES (STATISTICS)

The Subject Board in Statistics for St. Xavier's College, Autonomous, hereby approves the decisions taken at the session reviewing the syllabus of all three years of Arts & Science and recommendations are to be implemented from the Academic Year 2017-18. (FYA), 2018-19 (SY) + 2019-20 (TY)

S. No	Name of Member		Signature
1.	Dr(Mrs.) Dixit Head, Dept. of Statistics, University of Mumbai, Kalina.	University Representative	<i>V Dixit</i>
2.	Prof. R.J Pawar, Head, Dept of Statistics. K.C. College, Churchgate.	Subject Expert	<i>R Pawar</i>
3.	Prof. L. Subramanian, Dept of Statistics, S.I.E.S. College, Sion.	Subject Expert	—
4.	Prof. (Mrs) Phatak, Dept. of Statistics, B.N. Bandodkar College of Arts & Science. Thane.	Subject Expert	—
5.	Mr. V. Deshpande Director, Sankhya Analytical Research Pvt. Ltd.	Industry Representative	<i>V Deshpande</i>
6.	Mr. Brian Almeida, MD, Strategic Caravan (I) Pvt Ltd.	Industry Representative	—
7.	Prof. Myrtle Fernandes, Head, Dept. of Statistics, St. Xavier's College, Mumbai.	College Dept, Head.	<i>M Fernandes</i>
8.	Prof. Pooja Ochaney, Dept. of Statistics, St. Xavier's College, Mumbai.	College Dept, Sr. Teacher	<i>P. H. Ochaney</i>
9.	Prof. Ayesha Dias, Dept. of Statistics, St. Xavier's College, Mumbai.	College Dept, Sr. Teacher	<i>A Dias</i>
10.	Mr. Mudit Mall T.Y.BSc St. Xavier's College, Mumbai.	Student Representative	<i>M. Mall</i>
11.	Mr. Dhairya Dodiya T.Y.B.A. St. Xavier's College, Mumbai.	Student Representative	<i>D. Dodiya</i>

Dept. of Statistics.

Date... 16th July 2016



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2015-2016



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BOARD OF STUDIES (STATISTICS)
ST. XAVIER'S COLLEGE - AUTONOMOUS, MUMBAI.

Date...20.02.16...

Time...11am:.....

S. No	Name of Member		Signature
1.	Dr (Mrs.)Dixit Head, Dept. of Statistics, University of Mumbai, Kalina: Vidyanagari	University Representative	VUDixit
2.	Prof. R.J Pawar, Head, Dept of Statistics. K.C. College, Churchgate.	Subject Expert	R. Pawar 20/2/16
3.	Prof. L. Subramanian, Dept of Statistics, S.I.E.S. College, Sion.	Subject Expert	L. Sub 20/2/16
4.	Prof. (Mrs) Phatak, Dept. of Statistics, B.N. Bandodkar College of Arts & Science. Thane.	Subject Expert	—
5.	Mr. V. Deshpande Director, Sankhya Analytical Research Pvt. Ltd.	Industry Representative	V. B. Deshpande 20/02/2016
6.	Mr. Brian Almeida, MD, Strategic Caravan (I) Pvt Ltd.	Industry Representative	B. Almeida
7.	Prof. Pooja Ochaney, Head, Dept. of Statistics, St. Xavier's College, Mumbai.	College Dept, Head.	P. Ochaney 20/2/16
8.	Prof. Myrtle Fernandes, Dept. of Statistics, St. Xavier's College, Mumbai.	College Dept, Sr. Teacher	M. Fernandes 20/2/16
9.	Prof. Ayesha Dias, Dept. of Statistics, St. Xavier's College, Mumbai.	College Dept, Sr. Teacher	A. Dias 20/2/16
10.	Ms. Kanika Nahata, T.Y.B.Sc St. Xavier's College, Mumbai.	Student Representative	Kanika Nahata
11.	Ms. Miloni Doshi T.Y.B.A. St. Xavier's College, Mumbai.	Student Representative	Miloni D



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**Minutes of the Statistics Board of Studies meeting held on Saturday, 20th February, 2016
held at the Statistics Department at 11am.**

Present: Dr (Mrs) Dixt, Mr. Vinayak Deshpande, Mr. Brian Almeida.
Prof(s) R.J. Pawar, Leela Subramanian, Pooja Ochaney, Myrtle Fernandes, A. Dias.
Student Representatives: Ms.Kanika Nahata, Ms. Miloni Doshi.
Apologies: Prof. Phatak

Matters Discussed.

1. **Review of SEM-V: T.Y.B.A. (A.STA.5.01, A.STA.5.02)**
Unchanged
2. **Review of SEM-V : T.Y.B.A (A.STA.5.03)**
Unit 1: Vital Statistics has been added.
No change in Units 2 & 3.
Topics for Practicals: Introduce a practical on Vital Stats.
3. **Review of SEM-VI: T.Y.B.A. (A.STA.6.01, A.STA.6.02)**
Unchanged
4. **Review of SEM-VI: T.Y.B.A. (A.STA.6.03)**
Unit 1 & 3 are unchanged.
Unit 2: Time Series has been deleted.
5. **Review of SEM-V: T.Y.B.Sc. (S.STA.5.01, S.STA.5.02)**
Unchanged
6. **Review of SEM-V: T.Y.B.Sc. (S.STA.5.03)**
Unit 1: Deterministic model with removals, Threshold theorem & Host vector model are deleted
Unit 2, 3 & 4 are unchanged.
7. **Review of SEM-V: T.Y.B.Sc. (S.STA.5.04)**
Unit 1: Vital Statistics has been added.
Unit 2, 3 & 4 are unchanged
Topics for Practicals: Introduce a practical on Vital Stats
8. **Review of SEM-VI: T.Y.B.Sc. (S.STA.6.01, S.STA.6.03)**
Unchanged
9. **Review of SEM-VI: T.Y.B.Sc. (S.STA.6.02)**
Unit 1 & 4 are unchanged.
Unit 2: Derivation of the test procedure for testing a composite hypothesis against a composite alternative hypothesis for the parameters of Binomial, Poisson, Discrete & Continuous Uniform distribution.
Unit 3: Kolmogrov-Smirnov test for single and double sample is added.
10. **Review of SEM-VI: T.Y.B.Sc. (S.STA.6.04)**
Unit 1, 2 & 3 are unchanged
Unit 4: The following addition was made to Reliability:
Observations schemes and censoring: left and right censoring, interval censoring, Type I, Type II, random right censoring. Concept of truncation.
Kaplan-Meier estimator of survival function and median survival time.
Plotting of K-M estimator. Kolmogrov-Smirnov goodness of fit test.
Reliability: Structure function, coherent system, k-out-of-n system of independent components having exponential life distributions.


Additional Points.

1. To introduce case studies in Clinical trials and include ANOVA & ANACOVA.
2. Refer to the Bio Statistics books by Daniel and by Zar.
3. Makeham and Gompertz laws to be self study topics, not to be tested in the exam.
4. Mr. Vinayak stressed that Bubble chart and Hit Maps be mentioned in class as they are being used in industry.
5. Refer to Biostatistics: A Foundation for Analysis in the Health Sciences by Wayne.W.Daniel
6. To show Q-Q plots for identifying distributions in Reliability, but students are not to be tested on this in the exam.

Prof. Pooja Ochaney
(HOD – Statistics)



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RESOLUTION

RESOLUTION

BOARD OF STUDIES (STATISTICS)

The Subject Board in Statistics for St. Xavier's College, Autonomous, hereby approves the syllabus of the Third Year (BA / B.Sc) Course of studies for the Fifth and Sixth Semester, which is being implemented from the Academic Year 2016-17.


S. No	Name of Member		Signature
1.	Dr(Mrs.) Dixit Head, Dept. of Statistics, University of Mumbai, Kalina: Vidyanagari	University Representative	VUDixit
2.	Prof. R.J Pawar, Head, Dept of Statistics. K.C. College, Churchgate.	Subject Expert	R. Pawar 20/2/16
3.	Prof. L. Subramanian, Dept of Statistics, S.I.E.S. College, Sion.	Subject Expert	L. Sub 20/2/16
4.	Prof. (Mrs) Phatak, Dept. of Statistics, B.N. Bandodkar College of Arts & Science. Thane.	Subject Expert	—
5.	Mr. V. Deshpande Director, Sankhya Analytical Research Pvt. Ltd.	Industry Representative	V. Deshpande 20/02/16
6.	Mr. Brian Almeida, MD, Strategic Caravan (I) Pvt Ltd.	Industry Representative	B. Almeida
7.	Prof. Pooja Ochaney, Head, Dept. of Statistics, St. Xavier's College, Mumbai.	College Dept, Head.	P. Ochaney 20/2/16
8.	Prof. Myrtle Fernandes, Dept. of Statistics, St. Xavier's College, Mumbai.	College Dept, Sr. Teacher	M. Fernandes 20/2/16
9.	Prof. Ayesha Dias, Dept. of Statistics, St. Xavier's College, Mumbai.	College Dept, Sr. Teacher	A. Dias 20/2/16
10.	Miss Kanika Nahata T.Y.BSc St. Xavier's College, Mumbai.	Student Representative	Kanika Nahata
11.	Ms. Miloni Doshi T.Y.B.A. St. Xavier's College, Mumbai.	Student Representative	Miloni D.



Dept. of Statistics.

Date.....20.02.16

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Attendance

BOARD OF STUDIES (STATISTICS)
ST. XAVIER'S COLLEGE - AUTONOMOUS, MUMBAI.

Date 24th Jan 2015

Time 11am.....

S. No	Name of Member		Signature
1.	Dr U.D. Dixit Head, Dept. of Statistics, University of Mumbai, Kalina.	University Representative	
2.	Prof. R.J Pawar, Head, Dept of Statistics. K.C. College, Churchgate.	Subject Expert	
3.	Prof. L. Subramanian, Dept of Statistics, S.I.E.S. College, Sion.	Subject Expert	
4.	Prof. (Mrs) Phatak, Dept. of Statistics, B.N. Bhandarkar College of Arts & Science, Thane.	Subject Expert	S. M Phatak
5.	Mr. V. Deshpande Director, Sankhya Analytical Research Pvt. Ltd.	Industry Representative	
6.	Mr. Brian Almeida, MD, Strategic Caravan (I) Pvt Ltd.	Industry Representative	
7.	Prof. Pooja Ochaney, Head, Dept. of Statistics, St. Xavier's College, Mumbai.	College Dept, Head.	
8.	Prof. Myrtle Fernandes, Dept. of Statistics, St. Xavier's College, Mumbai.	College Dept, Sr. Teacher	
9.	Prof. Ayesha Dias, Dept. of Statistics, St. Xavier's College, Mumbai.	College Dept, Sr. Teacher	
10.	Ms. Vedashree Agashe, S.Y.B.Sc St. Xavier's College, Mumbai.	Student Representative	
11.	Ms. Vedangini Singh T.Y.B.A. St. Xavier's College, Mumbai.	Student Representative	



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**Minutes of the Statistics Board of Studies meeting held on Saturday, 24th January, 2015
held at the Statistics Department at 11am.**

Present : Dr. Dixt, Mr. Vinayak Deshpande, Mr. Brian Almeida,
Prof(s) Phatak, Leela Subramanian, Pooja Ochaney, Myrtle Fernandes, Ayesha Dias.
Student Representatives: Ms. Vedangini Singh, Ms. Vedashree Agashe.
Apologies : Prof. Pawar.

Matters Discussed.

- 1. Review of SEM-III : S.Y.B.Sc (S.STA.3.01, S.STA.3.02, S.STA.3.03)**
Unchanged
- 2. Review of SEM-III : S.Y.B.A (A.STA.3.01)**
No change in Units 1, 2, & 3.
Topics for Practicals: Introduce a practical on one or more of the existing topics using R-Studio software.
- 3. Review of SEM-III : S.Y.B.A (A.STA.3.02)**
Unit 1 : Concept of Duality & its economic interpretation to be deleted.
Unit 2 : Delete North – West Corner Rule & Matrix Minima Method.
Unit 3 : 'Gantt Chart' to replace the term 'Bar Diagram' -
Resource Leveling & Resource Allocation – Concept only
Topics for Practicals : Introduce a practical for solving LPP using EXCEL / R-Optimization.
- 4. Review of SEM-IV : S.Y.B.Sc (S.STA.4.01, S.STA.4.03)**
Unchanged
- 5. Review of SEM-IV : S.Y.B.Sc (S.STA.4.02)**
Unit 1 : Dunnet's Test – Only where/when it is used to be mentioned.
Unit 2 : Replace word 'over' with 'relative to' to read as 'Efficiency of RBD relative to CRD'
Unit 3 : Replace words 'Efficiency of CRD over RBD' with 'Efficiency of LSD relative to RBD / CRD'
- 6. Review of SEM-IV : S.Y.B.A (A.STA.4.01)**
Unchanged
- 7. Review of SEM-IV : S.Y.B.A (A.STA.4.02)**
Unit 1 : Unchanged
Unit 2 : Earlier Unit 3
Unit 3 : Obtain Mark : Research Techniques syllabus from PGDASS syllabus and select suitable components for this Unit in consultation with Mr. Vinayak, Ms Maria Peres & Mr. Pradip Nair.


Additional Points.

1. B-Group should be mentioned for Arts in the courses offered by the Department.
2. Mr. Vinayak to send a Presentation for R-software, which can be used as a practical. R-Studio software should be used to write programmes, not R, as errors get highlighted in the adjacent window.
3. EXCEL – Solver should be used to obtain solutions in place of North West Corner Rule & Matrix Minima Method.
4. It would be useful to discuss with the Mathematics Department the possibility of including some of the following in the Applied Component syllabus:
Python / Advanced EXCEL / TORA / EXCEL - Solver
5. Mr. Vinayak stressed that R-Optimization is a growing area in Health Care and needs to be taken into consideration when discussing the syllabus.
6. Inform students that there are job opportunities in government services like ISS (Indian Statistical Services) and RBI-as Research Investigators/Officers.
Posts are going unfilled due to lack of candidates.
7. Invite people from NSSO to take guest lectures for our students on use of statistical techniques in Sampling.
8. The decision taken at the Sept 2013 BOS meeting to shift Index Numbers to 1.01 Unit 3 of FYBSc was reverted, due to time constraint, and it was decided that Time Series would not be introduced in 2.01 Unit 3.

Prof. Pooja Ochaney
(HOD – Statistics)



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BOARD OF STUDIES (STATISTICS)

RESOLUTION

The Subject Board in Statistics for St. Xavier's College, Autonomous, hereby approves the syllabus of the Second Year (BA / B.Sc) Course of studies for the First and Second Semester, which is being implemented from the Academic Year 2015-16.

S. No	Name of Member		Signature
1.	Dr U.T. Dixit Head, Dept. of Statistics, University of Mumbai, Kalina.	University Representative	
2.	Prof. R.J Pawar, Head, Dept of Statistics. K.C. College, Churchgate.	Subject Expert	
3.	Prof. L. Subramanian, Dept of Statistics, S.I.E.S. College, Sion.	Subject Expert	
4.	Prof. (Mrs) Phatak, Dept. of Statistics, B.N. Bandodkar College of Arts & Science. Thane.	Subject Expert	
5.	Mr. V. Deshpande Director, Sankhya Analytical Research Pvt. Ltd.	Industry Representative	
6.	Mr. Brian Almeida, MD, Strategic Caravan (I) Pvt Ltd.	Industry Representative	
7.	Prof. Pooja Ochaney, Head, Dept. of Statistics, St. Xavier's College, Mumbai.	College Dept. Head.	
8.	Prof. Myrtle Fernandes, Dept. of Statistics, St. Xavier's College, Mumbai.	College Dept, Sr. Teacher	
9.	Prof. Ayesha Dias, Dept. of Statistics, St. Xavier's College, Mumbai.	College Dept, Sr. Teacher	
10.	Ms. Vedashree Agashe, S.Y.B.Sc St. Xavier's College, Mumbai.	Student Representative	
11.	Ms. Vedangini Singh T.Y.B.A. St. Xavier's College, Mumbai.	Student Representative	



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Date...24.01.15

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Syllabi changes since 2010



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BoS file

Department Of Statistics.

SYLLABI CHANGES SINCE AUTONOMY.

(June 2010 - May 2016)

(Initial changes were made to the existing Mumbai University Syllabus)

Year	Class	Course	Details
Aug 2010	FYBA	2.01	Vital Statistics was introduced in place of Linear Regression in Unit 2. Linear Regression was shifted to SYBA.
	FYBSc	1.02	Hypergeometric Distribution was introduced in Unit 3.
Dec 2010	SYBA	3.01	(i) Mgf and its properties was introduced in Unit 2. (ii) Hypergeometric Distribution was introduced in Unit 3.
		3.02	Network Analysis introduced in placed of Sequencing.
		4.01	Mgf and its properties was introduced in Unit 1.
		4.02	(i) Linear Regression was introduced in Unit 2. (ii) Independence of Attributes –An application of Chi Square was introduced in Unit 3.
	SYBSc	3.03	Decision Theory was introduced in place of Sequencing in Unit 3.
		4.01	Test of significance for correlation coefficient was introduced as an application of t-distribution in Unit 3.
		4.02	Least Significant difference test, Tukey's test and Dunnet's test for multiple comparisons of treatments was introduced in Unit 1.
		4.03	Process capability was introduced in Unit 3.
Sept 2011	TYBA	5.02	Systematic Sampling was introduced.
	TYBSc	5.01	Urn Model problem & Generating function of a compound distribution was introduced.
		5.03	Estimation of sample size in Clinical trials & Introduction to Bio-equivalence studies was introduced.
Feb 2012	TYBA	6.01	(i) Independence of Attributes –An application of Chi Square was shifted to 4.02 (SYBA) (ii) Test of significance for sample correlation coefficient was introduced as an application of t-distribution in Unit 3.
		6.02	Least Significant difference test, Tukey's test and Dunnet's test for multiple comparisons of treatments was introduced in Unit 1. The rest of the syllabus remained the same as the Mumbai University syllabus
		6.03	Time Series was introduced in Unit 2.
	TYBSc	6.01	Significance of correlation coefficient was added to Unit 2.
		6.03	Simulation was introduced in Unit 4 from Paper IV (6.04) and Decision Theory was removed.
		6.04	Multiple and Partial correlation coefficient was shifted from 6.01 to 6.04
Sept 2012	FY/SY/ TYBA/ BSc	All courses	A review of the new syllabi under autonomy, was done and it was decided to continue with the existing syllabi.
Feb 2013	FY/SY/ TYBA/ BSc	All Courses	As an outcome of discussion on how to implement the syllabus in a more meaningful way we introduced through Add on courses: (i) New technology (software like EXCEL , R & SPSS) (ii) Various additional short term courses to support the existing syllabus.

P.T.O.

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PJ/2

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Feb 2013	FY/SY/T YBA/BSc	All courses	As an outcome of discussion on how to implement the syllabus in a more meaningful way we introduced through Add on courses: (i) New technology (software like EXCEL , R & SPSS) (ii) Various additional short term courses to support the existing syllabus.
Feb 2014	FYBA	1.01	Index Numbers was shifted from Sem 2 to form Unit 3 of this course.
		1.PR	Drafting a questionnaire was introduced.
		2.01	Time Series was introduced in Unit 3 in place of Index Numbers.
	FYBSc	1.01	Index Numbers was shifted from Sem 2 to form Unit 3 of this course
		1.PR	Drafting a questionnaire was introduced.
		2.01	Time Series was introduced in Unit 3 in place of Index Numbers.
		2.02	Basic Statistics in Psychology and Education was added in Unit 3.
Jan 2015	FYBSc	1.01	The decision taken at the Feb 2014, BOS meeting to shift Index Numbers to 1.01 Unit 3 of FYBSc was reverted, due to time constraint, and it was decided that Time Series would not be introduced in 2.01 Unit 3.
	SYBA	3.02	(i) Concept of Duality & its economic interpretation to be deleted from Unit 1. (ii) Delete North – West Corner Rule & Matrix Minima Method from Unit 2. (iii) In Unit 3 'Gantt Chart' to replace the term 'Bar Diagram' (iv) Resource Leveling & Resource Allocation – Concept only
		3.PR	Introduce a practical on one or more of the existing topics using EXCEL / R-Optimization / R-Studio software
		4.02	(i) Linear Regression (Unit 2) was shifted to FYBA Sem 2 , hence Unit 3 of 4.02 was shifted to Unit 2 in the same paper. (ii) Applications using R software was introduced as Unit 3.
	SYBSc	4.02	(i) In Unit 1, Dunnet's Test – Only where/when it is used to be is to be mentioned. (ii) In Unit 2, Replace the word 'over' with 'relative to' to read as 'Efficiency of RBD relative to CRD' (iii) In Unit 3, Replace the words 'Efficiency of CRD over RBD' with 'Efficiency of LSD relative to RBD / CRD'
Feb 2016	TYBSc	5.03	Unit 1: Deterministic model with removals, Threshold theorem & Host vector model are deleted
		5.04	Unit 1: Vital Statistics has been added.
	TYBA	5.03	Unit 1: Vital Statistics has been added.
	TYBSc	6.02	Unit 2: Derivation of the test procedure for testing a composite hypothesis against a composite alternative hypothesis for the parameters of Binomial, Poisson, Discrete & Continuous Uniform distribution. Unit 3: Kolmogrov-Smirnov test for single and double sample is added.
		6.04	Unit 4: The following addition was made to Reliability: Observations schemes and censoring: left and right censoring, interval censoring, Type I, Type II, random right censoring. Concept of truncation. Kaplan-Meier estimator of survival function and median survival time. Plotting of K-M estimator. Kolmogrov-Smirnov goodness of fit test. Reliability: Structure function, coherent system, k-out-of-n system of independent components having exponential life distributions



TYBA 6:03 Unit 2: Time Series has been deleted

pg 2/2

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SYLLABI CHANGES SINCE AUTONOMY.

Year	Class	Course	Details
July 2016	FYBA (Effective 2017-18)	1.01	Unit 1 & 2 unchanged. Unit 3 changes to Unit 1 of Sem 2
		2.01	Unit1 changes to Sem 3 Unit 1. Unit 2 changes to Sem 3 Unit 2. Unit3 changes to Sem 3 Unit 3.
	FYBSc	No change in any course.	
	SYBA (Effective 2018-19)	3.01	Unit1 changes to Sem 2 Unit 2 Unit2 changes to Sem 1 Unit 3 Unit3 changes to Sem 2 Unit 3
	SYBSc (Effective 2018-19)	3.01	Unit1 unchanged. Unit2 unchanged. Unit3 changes to Only Normal distribution from prior syllabus Sem 4 Unit 1.
		4.01	Unit1 changes to prior syllabus of Sem 3 Unit 3 + Transformation of variables, from prior syllabus of Sem 4 unit 1 Unit2 unchanged. Unit3 unchanged..
	TYBA (Effective 2019-20)	5.01	Unit1 unchanged. Unit2 unchanged. Unit3 changes to Only Normal distribution from prior syllabus Sem 6 Unit 1.
		6.01	Unit1 changes to prior syllabus of Sem 5 Unit 3 + Transformation of variables, from prior syllabus of Sem 6 Unit 1 Unit2 unchanged. Unit3 unchanged..
Aug 2018	TYBSc (Effective 2019 -20)	5.01	Unit 1 <ul style="list-style-type: none"> The name of the Unit is 'Probability' The word 'Occupancy Problems' was introduced (It was being done earlier as well) 'Urn Model probability, Conditional probability and application of Bayes'theorem' from Unit 2 has been put into this unit. Unit 2 <ul style="list-style-type: none"> Name of unit changed to 'Inequalities and Law of Large Numbers' Inequalities introduced (Markov's, Boole's & Cauchy Schwartz's) Conditional probability & Application of Baye's thrm removed. Unit 3 unchanged. Unit 4 unchanged.
		5.02	Unit 1 unchanged. Unit 2 unchanged. <ul style="list-style-type: none"> Prof should use the term 'Method of Scoring' for the Trial & Error Method Unit 3 unchanged. Unit 4 <ul style="list-style-type: none"> Derivation of $100(1-\alpha)\%$ equal tailed confidence intervals for population median (Concept of Bootstrapping) has been introduced. Prof should mention that Bootstrapping is useful for small non normal data. Bootstrapping estimator is asymptotically unbiased. References – A new book by Rohatgi has been included.
	5.03	Unit 1 unchanged.	



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			<p>Unit 2 unchanged.</p> <p>Unit 3 In Clinical Trials-I, 'Introduction to ICH E9 guidelines' has been introduced.</p> <p>Unit 4</p> <ul style="list-style-type: none"> The name of the unit has changed to 'Clinical Trials – II & Bioequivalence' 'Concept of Repeated Measures ANOVA, Survival analysis for estimating Median survival time, Kaplan- Miere approach for survival analysis' has been introduced . <p>References A new book by Charles S. Davis has been included</p>
		5.04	<p>Unit 1 unchanged.</p> <p>Unit 2 unchanged.</p> <p>Unit 3 unchanged.</p> <p>Unit 4 unchanged.</p> <p>References A new book by Srivastava & Agarwal has been included</p>
		6.01	<p>Unit 1 unchanged.</p> <p>Unit 2 unchanged.</p> <p>Unit 3 unchanged.</p> <p>Unit 4 unchanged.</p>
		6.02	<p>Unit 1 – 'Randomized test' has been introduced.</p> <p>Unit 3 – Name of a topic reworded as: 'One sample and Two sample non parametric test'</p> <p>References A new book by Gibbons has been included.</p>
		6.03	<p>Earlier Unit 1 & 2 are combined as Unit 1</p> <p>Unit 2 unchanged.</p> <p>Earlier Unit 3 has been segregated as Units 3 & 4</p> <p>Unit 3 – Theory of Games 'Reduction of Game Theory to LPP' has been introduced.</p> <p>Unit 4 - Simulation</p>
		6.04	<p>Unit 1 The following have been introduced</p> <ul style="list-style-type: none"> Concept of General Linear Model Introduction to Binary Logistic Regression Residual analysis using graphs <p>Unit 2 The wording 'Concept of Tolerance' was introduced (It was being done earlier as well)</p> <p>Unit 3 is unchanged.</p> <p>Unit 4 is unchanged.</p>
Aug 2019	FYBA (Effective 2020-21)	1.01	<p>Unit 1</p> <ul style="list-style-type: none"> The title of Unit – 1 was changed to: 'Data: Types, Collection & Management, Presentation & Visualization' Under sub-section: Types of data from a population 'Illustrations of Likert scale' was included. Under sub-section: Collection of data 'Concept of validation of questionnaire' was included 'Diagrammatic representation' was changed to 'Data Presentation and Visualization' <p>Unit 2 is unchanged</p> <p>Unit 3 The title of Unit - 3 was changed to: 'Measures of Dispersion, Skewness & Kurtosis'</p> <p>References The book 'Marketing Research by Naresh Malhotra' was included in</p>






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			the list of Recommended Books.
		1.02	Unit 1 unchanged. Unit 2 unchanged. Unit 3 unchanged



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1_1_2_BoS Minutes – Statistics


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