

## As Per NEP 2020

# University of Mumbai

## Syllabus for Basket of Minor

|   |                     |
|---|---------------------|
| <b>Board of Studies in Statistics</b>   |                     |
| <b>UG First Year Programme</b>          |                     |
| <b>Semester - II</b>                    |                     |
| <b>Title of Paper</b>                   | <b>Credits 2/ 4</b> |
| <b>I) Statistics Minor practical-II</b> | <b>2 credit</b>     |
| <b>II)</b>                              |                     |
| <b>III)</b>                             |                     |
| <b>From the Academic Year</b>           | <b>2024-25</b>      |

**Semester-II**  
**Minor-III**  
**Name of the course: Statistical Practical-II**

| <b>Sr. No.</b> | <b>Heading</b>   | <b>Particulars</b>   |
|----------------|--|--|
| 1              | <b>Description the course :</b><br><br><b>Including but Not limited to :</b> | <p>Introduction:</p> <p>Statistical practical-II will be based on semeseter-II two minor theory papers. This paper will cover all real life problem based on minor-1 and minor-II. Student will conduct practical using statistical software's. Student will understand how to solve real life problem using theory based on two minors.</p> <p>This course will be useful for science, humanity and commerce faculty also. This course will be applicable to various fields to analyze their data.</p> <p>This course is focuses practical as well as theoretical aspects of basic statistics along with subjects from psychology, Economics, sociology, commerce , Computers , Mathematics , IT etc.</p> <p>There is growing demand for highly skilled statisticians in the 21st century in many fields including government, banking sector, health sciences, veterinary sciences, agricultural sciences, business, and social sciences etc</p> |
| 2              | <b>Vertical :</b>  | Minor  |
| 3              | <b>Type :</b>  | Practical  |
| 4              | <b>Credit:</b>   | 2 credits ( 1 credit = 15 Hours for Theory or 30 Hours of Practical work in a semester )   |
| 5              | <b>Hours Allotted :</b>  | 30 Hours   |
| 6              | <b>Marks Allotted:</b>   | 50 Marks   |

|          |  |
|----------|--|
| <b>7</b> | <p><b>Course Objectives:</b></p> <p>Students will be able to,</p> <ol style="list-style-type: none"> <li>1. Understand the basic concepts of regression analysis and correlation.</li> <li>2. Analyze and interpret data from regression and correlation techniques.</li> <li>3. Apply Uniform and Exponential and Normal distribution to solve real-life problems.</li> </ol>   |
| <b>8</b> | <p><b>Course Outcomes:</b></p> <p><b>: on completion of this course Students Should be able to,</b></p> <ol style="list-style-type: none"> <li>1. Apply concepts of the probability distributions</li> <li>2. Write pdf for some standard probability distributions.</li> <li>3. Compute and interpret the regression equation, regression coefficients and correlation coefficients</li> <li>4. Analyze and interpret real – world data using regression and correlation techniques.</li> </ol> |

| <b>List of Practicals</b>  |    |
|--|----|
| <b>Practical Based on Minor paper-I and II.</b>  |    |
| <ol style="list-style-type: none"> <li>1. Correlation analysis</li> <li>2. Regression analysis</li> <li>3. Fitting of curve</li> <li>4. Time series Analysis</li> <li>5. Index number-I</li> <li>6. Index number-II</li> <li>7. Continuous Random Variable</li> <li>8. Uniform and Exponential Distribution</li> <li>9. Normal Distribution and application of central limit theorem</li> <li>10. Point and Interval Estimation.</li> <li>11. Testing of Hypothesis</li> <li>12. Large Sample Test</li> <li>13. Practical's using EXCEL</li> </ol> | 10 |

**Reference Books**

- 1 Medhi J.: Statistical Methods, An Introductory Text, Second Edition, New Age International Ltd.
- 2 Agarwal B. L.: Basic Statistics, New Age International Ltd.
- 3 Spiegel M. R.: Theory and Problems of Statistics, Schaum's Publications series. Tata McGraw-Hill.
- 4 Kothari C. R.: Research Methodology, Wiley Eastern Limited.
- 5 David S.: Elementary Probability, Cambridge University Press.
- 6 Hogg R. V. and Tannis E.P.: Probability and Statistical Inference McMillan Publishing Co. Inc.
- 7 Goon A. M., Gupta M. K., Dasgupta B.: Fundamentals of Statistics, Volume II : The World Press Private Limited, Calcutta.
- 8 Miller I. & Miller M (2006), John E. Freund's Mathematical Statistics with applications, 7<sup>th</sup> edition, Pearson Education Asia
- 9 Gupta, S. C. and Kapoor, V. K. (2002), Fundamentals of Mathematical Statistics, eighth Edition, Sultan Chand and Sons Publishers, New Delhi.
- 10 Gupta, S. C. and Kapoor, V. K. (2004), Fundamentals of Applied Statistics, Third Edition, Sultan Chand and Sons Publishers, New Delhi.
- 11 Sarma, K. V. S. (2001). Statistics Made it Simple: Do it yourself on PC. Prentice Hall of India, New Delhi.

**Practical Question Paper Pattern PER PRACTICAL COURSE:**

|  | Time : 2 hours                                   | Total marks = 50 | Marks |
|--|--|------------------|-------|
|  | Practical Based on Minor Paper I & II            |                  | 40    |
|  | Journal and viva voce                            |                  | 10    |
|  | Grand Total Practical Marks (Minor Paper I + II) |                  | 50    |

A student must have a certified journal before appearing for the practical examination. In case a student does not possess a certified journal, he/she is not qualified for journal marks. For each paper minimum 75% of the practical must be completed to the journal certified.

**Sign of the BOS  
Chairman  
Dr. Santosh Gite  
Board of Studies in  
Statistics**

**Sign of the  
Offg. Associate Dean  
Dr. Madhav R. Rajwade  
Faculty of Science &  
Technology**

**Sign of the  
Offg. Dean  
Prof. Shivram S. Garje  
Faculty of Science &  
Technology**