**Name of Course: Planning Techniques and Quantitative Methods** (MTP305)

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| Programme & Sem: | Masters in Planning Integrated Semester |
| Course Duration: | August 17, 2023 to December 2, 2023 |
| Course Coordinator: | Dr. Solanki Ghosh, Assistant Professor, Dept. of Planning, (solankiarchi@spav.edu.in) |
| Number of Credits: | 03 |
| Subject Category: | Theory |
| Total Periods/Week: | 03 (See Time Table for details) |
| Internal Assessment | 50 (minimum pass marks 50%) |
| End Evaluation | 50 (minimum pass marks 50%) – Written Exam. |
| Total Marks | 100 (to be converted to CGPA credit pattern as per regulations) |

**Subject Objective:** To acquire proficiency in statistical techniques and able to conduct empirical studies employing statistical software

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| **Week** | **Lecture / Session Topic (Teaching-Learning Objective aimed)** | **Unit and Assignment** |
| Week 1  (18 Aug) | Statistical data - Types of data: nominal, ordinal, interval and ratio; Discrete versus continuous data; Numerical data – properties and measures; Standard notation; Data collection, coding and decoding, methods, tabulation and graphic presentation of data | Unit 1: Introduction to Statistical Methods  Assignment 1:  Worksheet using Excel |
| Week 2  (25 Aug) | Frequency distribution; Measures of central tendency- mean, median, mode; Measures of dispersion – range, variance, standard deviation, skewed  distribution, kurtosis; Introduction to spread sheets and statistical software. |
| Week 3  (1 Sep) | Introduction to probability; Discrete random variables and probability distribution; Sampling distributions–T and F distribution. | Unit 2: Probability, sampling distributions and Testing of Hypothesis  Assignment 2:  Worksheet using SPSS |
| Week 4  (8 Sep) | Tests of hypothesis- type I & II errors, one-tailed and two tailed tests, chi-square test, student T test. |
| Week 5  (15 Sep) | Correlation – scatter plot diagrams, correlation coefficients, simple correlation, partial correlation; Least  square method; Assumptions of regression analysis, linear regression, multiple regressions; | Unit 3: Correlation and Regression  Assignment 3:  Worksheet using SPSS and Geoda |
| Week 6  (16 - 23 Sep) | Field Trip |  |
| Week 7  (29 Sep) | Dummy  variables; Functional forms; Binary dependent variables; Instrument variables; Time series analysis. | Unit 3: Correlation and Regression  Assignment 3:  Worksheet using SPSS and Geoda |
| Week 9  (3 - 7 Oct) | Mid- Semester Assessment week |  |
| Week 10  (13 Oct) | Elementary association models and decision making; Index numbers, weighted and un-weighted index  numbers; | Unit 4: Application of vital statistics in Spatial Planning.  Assignment 4:  Worksheet using ArcGIS and Geoda |
| Week 12  (27 Oct) | Application of index number in spatial planning; calculation techniques of vital events. |
| Week 13  (3 Nov) | Spatial Statistics, Clustering methods. |
| Week 14  (10 Nov) | Methods of demography and population studies – population projections, introduction to Census data and  sample surveys. | Unit 5: Demography  Assignment 5:  Worksheet using Excel and SPSS |
| Week 15  (17 Nov) | City Comparison exercise using statistical analysis of secondary data for 30 cities in India | Project Work (2 students per group) |
| Week 16  (24 Nov) |
| Week 17  (1 Dec) |

Reference books:

1. Agarwal B L (2007), Programmed Statistics. New Age International Publishers, New Delhi.
2. Alan C. Acock (2012), A Gentle Introduction to STATA. STATA Press, Texas, USA.
3. Gupta and Gupta (2012), Business Statistics. Sultan Chand and Sons, Delhi.
4. Wooldridge (2011), Introductory Econometrics: A Modern Approach. Thomson Press, India.

Note:

1. Any other closed holidays as declared by SPAV shall supersede the above lecture plan. Holidays shown above may alter as per Notice from time to time.
2. Assessment Sessions may be re-scheduled, with prior intimation.
3. Reading lists provided is not exhaustive and is subject to addition – students are advised to follow progression of class to keep abreast of the new reading lists, if any.