Shivaji University, Kolhapur

B. A. / B. A. B. Ed. Part – II

Geography

Semester III

SEC III: Geo-statistics and Data Visualization (Practical)

Name of the Programme	**:**	B. A. / B. A. B. Ed. (Geography)
Class	**:**	B. A. / B. A. B. Ed.-II
Year of Implementation	**:**	Revised Syllabus will be implemented from June, 2025 onwards.
Semester	**:**	III
Name of Vertical Group	**:**	SEC
Course Code	**:**	**BAU0325SEP322C03**
Course Title	**:**	**Geo-statistics and Data Visualization (Practical)-III**
Total Credit	**:**	02
Workload	**:**	Practical 02 credit (02 X 30 = 60 hours in semester)
Duration	**:**	The course shall be a full time course
Medium of instruction	**:**	Marathi / English
Eligibility of Admission	**:**	As per eligibility criteria prescribed by the University
Examination Pattern	**:**	Practical for 50 Marks, The pattern of examination will be Semester End Examination with Assessment/Evaluation.

Preamble:

Geography, as a discipline, encompasses the study of spatial patterns, processes, and phenomena across the Earth's surface. In this context, geo-statistics and data visualization play a pivotal role in analysing, interpreting, and presenting geographical data. This practical course is designed to equip students with essential skills in geo-statistical techniques and data visualization tools, enabling them to address complex geographical questions with precision and clarity. The course emphasizes the integration of statistical methods, graphical techniques, and cartographic principles to analyze spatial and temporal data effectively. Students will gain hands-on experience in collecting and organizing geographical data, applying statistical techniques for analyses the data as well as data visualization methods.

General Objectives of the Course:

The objectives of the course are as following:

1. To train the students in practical applications of geo-statistics and data analysis.
2. To acquire knowledge about various techniques for accurate and reliable data acquisition.

3. To prepare the students for analyzing spatial and non-spatial data.
4. To study and implement techniques for graphical representation and cartographic visualization for effective presentation and interpretation of geographical data.

Course Outcomes:

1. The students would demonstrate the ability to design and implement data collection methods for effective spatial and non-spatial data acquisition.
2. The students will be prepared to make practical applications of geo-statistics for proper inferences.
3. The students would develop the ability to use geo-statistical and visualization tools to address real-world geographical challenges and contribute to decision-making processes.
4. The students would able to integrate statistical analysis with cartographic tools to address complex geographical problems.

Scheme of Teaching and Examination:

(The Scheme of teaching and examination should be given as applicable to the course / paper concerned)

B. A. / B. A. B. Ed. Part –II

Sr. No.	Subjects/Course & Credit	Practical Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Practical	Term Work	Total (Semester)
1	Geo-statistics and Data Visualization - 2	04	---	04	04	50	---	50

Scheme of Examination:

- The examination shall be conducted at the end of each Semester.
- The Practical paper shall carry 50 marks.
- The evaluation of the performance of the student in practical papers shall be on the basis of semester practical examination of 50 marks.
- Question Paper will be set in the view of the / in accordance with the entire syllabus and preferably covering each Module of syllabi.

Standard of Passing:

(As prescribed under rules & regulation for each diploma / degree / program)

Nature of Question Paper and Scheme of Marking:

(As per rules & regulation of Shivaji University)

Modules: Geo-statistics and Data Visualization (Practical)				
Module No.	**Module Name**	**Sub-module**	**No. of hours & Marks**	**Credit**
1	**Basics of Geo-Statistics and Data Analysis**	**1.1 Introduction to Data:** Meaning, Definition, Types and Importance of Data **1.2 Methods of Data Collection:** Observation, Interview, Schedule & Questionnaire **Practical Exercises:** a) Array the Data b) Frequency Distribution c) Measures of Central Tendency (Mean, Median & Mode) d) Measures of Dispersion (Mean Deviation, Standard Deviation) e) Co-efficient of Correlation (Karl Person's Method)	30 (20)	01
2	**Data Visualization**	2.1 Meaning of Data Visualization 2.2 Methods of Data Visualization **Practical Exercises:** a) Construction of Histograms b) Construction of Polygraph c) Construction of Ogive Curve d) Moving Average (3 & 5 years) e) Construction of Scattered Diagram	30 (20)	01
3	**Journal & Viva Voce**		(10)	

Note :

1. Figures in the bracket indicate weightage of marks to concern module.
2. Use of stencils, log tables, computer and calculator is allowed.
3. Journal should be completed and duly certified by practical in-charge and Head of the Department.

Suggested Readings

1. Bhattacharya, B. (2020). Statistics for beginners. Amazon Digital Services LLC - KDP Print.
2. Hammond, R., & McCullagh, P. (1991). Quantitative Techniques in Geography. Clarendon Press.
3. Heywood, I., Cornelius, S., & Carver, S. (2006). An Introduction to Geographical Information Systems. Pearson.
4. Monkhouse, F.J., & Wilkinson, H.R. (1964). Maps and Diagrams. Methuen.
5. Provost, F., & Fawcett, T. (2013). Data science for business: What you need to know about data mining and data-analytic thinking. O'Reilly Media.
6. Sarkar, A. (2015). Practical Geography: A Systematic Approach. Orient BlackSwan.
7. Singh, R.L. (1979). Elements of Practical Geography. Kalyani Publishers.
8. Walpole, R. E., Myers, R. H., Myers, S. L., & Ye, K. E. (2016). Probability and statistics for engineers and scientists (9th ed.), Pearson.
9. कुंभार अर्जुन (1994) 'प्रात्यक्षिक भूगोल', सुमेरु प्रकाशन, पुणे