



Date :- 25/04/2025

### **NOTIFICATION**

Sub :- CBCS Syllabi of B. A. in Geography (Sem. V & VI)

Ref. :- Decision of the Academic Council at its meeting held on 22/04/2025.

The Syllabi of B. A. in Geography (Fifth and Sixth Semesters) as per **NATIONAL EDUCATION POLICY – 2020 (2023 Pattern)** and approved by the Academic Council as referred above are hereby notified for implementation with effect from the academic year 2025-26.

Copy of the Syllabi Shall be downloaded from the College Website ([www.kcesmjcollege.in](http://www.kcesmjcollege.in))

**Sd/-**  
**Chairman,**  
**Board of Studies**

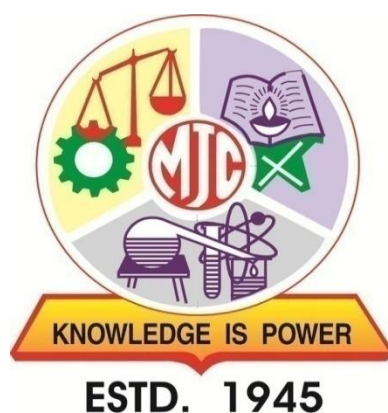
**To :**

- 1) The Head of the Dept., M. J. College, Jalgaon.
- 2) The office of the COE, M. J. College, Jalgaon.
- 3) The office of the Registrar, M. J. College, Jalgaon.

**Knowledge is Power**

**Khandesh College Education Society's**  
**Moolji Jaitha College, Jalgaon**  
**An "Autonomous College"**

**Affiliated to**  
**Kavayitri Bahinabai Chaudhari**  
**North Maharashtra University, Jalgaon-425001**



**STRUCTURE AND SYLLABUS**

**B.A. Honours / Honours with Research**  
**(T.Y.B.A. Geography)**

**AS per NEP-2020 Guidelines**  
**Under Choice Based Credit System (CBCS)**

**[w.e.f. Academic Year: 2025-26]**

## Preface

Geography, as a subject, is an ancient discipline that explores the interactions between humans and their environment. Over the years, geography has evolved and incorporated various technological advancements, leading to significant developments in the field. One such noteworthy transformation has been the integration of Remote Sensing (RS), Geographic Information Systems (GIS), and Global Positioning System (GPS) technologies. These cutting-edge tools have revolutionized how geographers collect, analyze, and interpret spatial data, making geography an even more dynamic and relevant subject in contemporary times.

The Department of Geography at M. J. College (Autonomous), Jalgaon, is at the forefront of embracing these recent trends in geography. Through the courses offered, including B.A. Geography, B.Sc. Geography, M.A/M.Sc. Geography, and Ph.D., the department equips students with comprehensive knowledge and practical skills to navigate the complexities of modern geography. Additionally, the Certificate Course in Geoinformatics serves as a valuable platform for students to delve deeper into the applications of RS, GIS, and GPS technologies.

One of the standout characteristics of the Department is its team of expert and qualified faculties. These educators not only possess extensive academic knowledge but also have hands-on experience in utilizing geospatial technologies effectively. Their guidance empowers students to explore and understand the intricacies of geographical phenomena using the latest tools and methodologies.

The Department boasts state-of-the-art facilities, including smart laboratories for practicals, a central library supplemented with a departmental library, and a well-equipped GIS computer lab with internet access. The availability of these resources ensures that students have ample opportunities to engage in hands-on learning and conduct research, contributing to a comprehensive understanding of geographic concepts. Moreover, the Department has been recognized as a research center for Ph.D. studies, encouraging scholarly pursuits in the realm of geography. This designation highlights the institution's commitment to pushing the boundaries of geographical knowledge and fostering innovative research in the field. The integration of technology in geography education is further augmented by the presence of smart classrooms and advanced geographical instruments. These resources enable interactive learning and support students in developing a deep appreciation for the spatial dimensions of various phenomena.

In addition to academic excellence, the Department is devoted to providing specialized coaching for national-level exams such as NET/SET and competitive examinations. This emphasis on exam preparation equips students with the necessary skills to excel in their careers and become leading professionals in the field of geography. The collaboration with the Indian Institute of Remote Sensing (IIRS) as an Outreach Training Program center is a testament to the Department's commitment to keeping abreast of the latest advancements in geospatial technology. This association allows students and faculties to participate in training programs conducted by experts in the field, enhancing their knowledge and skills in RS, GIS, and GPS applications. Furthermore, the Department of Geography at M. J. College (Autonomous), Jalgaon, proudly boasts access to the best telescopes for sky watching. This unique feature provides students with an opportunity to explore celestial phenomena and their connections with the Earth, bridging the gap between the terrestrial and astronomical realms.

Finally, the Department's focus on career opportunities in geography ensures that graduates are

well-prepared to enter various professional fields. The interdisciplinary nature of geography opens doors to careers in environmental management, urban planning, disaster management, cartography, geospatial analysis, and more. The versatility of geography as a subject makes it a rewarding and promising choice for students seeking diverse and impactful career paths.

The Department of Geography at M. J. College (Autonomous), Jalgaon, stands as a vibrant and progressive hub for geography education. The integration of RS, GIS, and GPS technologies, coupled with expert faculty, modern facilities, and extensive research opportunities, equips students to become adept geographers, ready to address the pressing challenges of our ever-changing world.

### Programme Specific Outcome (PSO) for B.A. Geography Honours/Honours with Research:

After completion of this course, students are expected to:

| PSO No. | PSO                                                                                                          |
|---------|--------------------------------------------------------------------------------------------------------------|
| 1       | Understand the basic ideas and concept of physical and human aspect of Geography                             |
| 2       | Developing, analyzing and mapmaking based on the on the themes and issues of geography.                      |
| 3       | Principle and applications of geospatial techniques like Remote sensing GIS and GPS                          |
| 4       | Use traditional and advance geographical techniques like geospatial for surveying                            |
| 5       | Explain the causes and effects of change over space and time on physical and human environments              |
| 6       | Improve tradition geographical knowledge along with advance contemporary skills like remote sensing and GIS. |

### Multiple Entry and Multiple Exit options:

The multiple entry and exit options with the award of UG certificate/ UG diploma/ or three- year degree depending upon the number of credits secured;

| Levels | Qualification Title                                                       | Credit Requirements |         | Semester | Year |
|--------|---------------------------------------------------------------------------|---------------------|---------|----------|------|
|        |                                                                           | Minimum             | Maximum |          |      |
| 4.5    | UG Certificate                                                            | 40                  | 44      | 2        | 1    |
| 5.0    | UG Diploma                                                                | 80                  | 88      | 4        | 2    |
| 5.5    | Three Year Bachelor's Degree                                              | 120                 | 132     | 6        | 3    |
| 6.0    | Bachelor's Degree-Honors<br>Or<br>Bachelor's Degree-Honours with Research | 160                 | 176     | 8        | 4    |

| NHEQF level | Examples of higher education qualifications located within each level                                                                                                                           |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Level 4.5   | Undergraduate Certificate. Programme duration: First year (first two semesters) of the undergraduate programme, followed by an exit 4-credit skills-enhancement course(s).                      |
| Level 5     | Undergraduate Diploma. Programme duration: First two years (first four semesters) of the undergraduate programme, followed by an exit 4-credit skills-enhancement course(s) lasting two months. |
| Level 5.5   | Bachelor's Degree. Programme duration: First three years (Six semesters) of the four-year undergraduate programme.                                                                              |
| Level 6     | Bachelor's Degree (Honours/ Honours with Research). Programme duration: Four years (eight semesters).                                                                                           |
| Level 6     | Post-Graduate Diploma. Programme duration: One year (two semesters) for those who exit after successful completion of the first year (two semesters) of the 2-year master's programme.          |

**Department of Geography**  
**T.Y.B.A. Structure as per NEP 2020**  
**w.e.f. 2025-26**

| Semester V  |        |               |                   |                   |                                                    |
|-------------|--------|---------------|-------------------|-------------------|----------------------------------------------------|
| Course      | Credit | Hour per week | Theory/ Practical | Paper Code        | Title of Paper                                     |
| DSC         | 2      | 2             | TH                | GEOG-DSC-351      | Ancient to modern Indian Geography (IKS)           |
| DSC         | 4      | 4             | TH                | GEOG-DSC-352      | Remote Sensing and Aerial Photography              |
| DSC         | 2      | 4             | PR                | GEOG-DSC-353      | Practical on Remote Sensing and Aerial Photography |
|             |        | 4             | PR                | GEOG-DSC-354      | Practical on Statistical Methods in Geography      |
| DSE         | 4      | 4             | TH                | GEOG-DSE-351 (A)  | (A) Geography of Resources                         |
|             | OR     |               |                   |                   |                                                    |
|             | 4      | 4             | TH                | GEOG-DSE-351 (B)  | (B) Industrial Geography                           |
| VSC         | 2      | 2             | TH                | GEOG-VSC-351      | Soil Geography                                     |
| VSC         | 2      | 4             | PR                | GEOG-VSC-352      | Soil Analysis                                      |
| OJT         | 4      | 8             | OJT/INT           | GEOG-OJT/INT-351  | OJT/INT                                            |
| Semester VI |        |               |                   |                   |                                                    |
| Course      | Credit | Hour per week | Theory/ Practical | Paper Code        | Title of Paper                                     |
| DSC         | 2      | 2             | TH                | GEOG-DSC-361      | Natural Disaster Management                        |
| DSC         | 4      | 4             | TH                | GEOG-DSC-362      | Geography of Settlement                            |
| DSC         | 4      | 4             | TH                | GEOG-DSC-363      | Agricultural Geography                             |
| DSC         | 2      | 4             | PR                | GEOG-DSC-364      | Practical on Dumpy Level and Clinometer            |
|             |        | 4             | PR                | GEOG-DSC-365      | Computer Skills for Geography                      |
| DSE         | 4      | 4             | TH                | GEOG-DSE-361 (A)  | (A) Geography of India                             |
|             | OR     |               |                   |                   |                                                    |
|             | 4      | 4             | TH                | GEOG-DSE-361 (B)* | (B) Remote Sensing and GIS for Rural Development   |
| VSC         | 2      | 2             | TH                | GEOG-VSC-361      | Geographic Information System                      |
| VSC         | 2      | 4             | PR                | GEOG-VSC-362      | Practical on GIS                                   |

\* Shows the SWAYAM – NPTEL online Course

# **SEMESTER - V**

**T.Y.B.A (Geography)**  
**Semester V**  
**GEOG-DSC-351: Ancient to Modern Indian Geography (IKS)**

**Credit: 2**

**Internal Examination: 20**

**Marks: 50**

**External Examination: 30**

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |              |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <b>Learning objectives</b> | <ul style="list-style-type: none"> <li>To understand the fundamental concepts of the Indian Knowledge System (IKS) in geography.</li> <li>To explore ancient Indian texts and their geographical interpretations.</li> <li>To analyze the contributions of Indian scholars to geographical thought.</li> <li>To examine the relevance of traditional geographical knowledge in contemporary studies.</li> </ul>                                    |              |
| <b>Course outcomes</b>     | After completing this course, students will be able to: <ul style="list-style-type: none"> <li>Explain the core principles of the Indian Knowledge System in geography.</li> <li>Identify and interpret geographical concepts from ancient Indian texts.</li> <li>Evaluate the contributions of Indian scholars to geographical thought.</li> <li>Apply traditional geographical knowledge to modern environmental and spatial studies.</li> </ul> |              |
| <b>Unit</b>                | <b>Contents</b>                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Hours</b> |
| <b>Unit I</b>              | <b>Introduction to Indian Knowledge System (IKS) in Geography</b> <ul style="list-style-type: none"> <li>Concept and scope of the Indian Knowledge System</li> <li>Geographical knowledge in ancient Indian texts: Vedas, Puranas, and Epics</li> <li>Traditional Indian worldview of land, water, and environment</li> <li>Philosophical perspectives on nature and human interaction</li> </ul>                                                  | 08           |
| <b>Unit II</b>             | <b>Ancient Indian Geographical Thought</b> <ul style="list-style-type: none"> <li>Contributions of ancient Indian scholars: Aryabhata, Varahamihira, and Bhaskaracharya</li> <li>Geographic concepts in ancient texts: Desha, Bhumi, Jambu Dweepa</li> <li>Mapping and cartographic traditions in ancient India</li> <li>Ancient Indian approaches to environmental sustainability</li> </ul>                                                      | 06           |
| <b>Unit III</b>            | <b>Traditional Environmental and Spatial Knowledge</b> <ul style="list-style-type: none"> <li>Indigenous knowledge of land use and agriculture</li> <li>Water management systems: step wells, tanks, and canals</li> <li>Sacred geography: pilgrimage routes and spiritual landscapes</li> <li>Traditional weather forecasting methods</li> </ul>                                                                                                  | 08           |
| <b>Unit IV</b>             | <b>Relevance of IKS in Modern Geography</b> <ul style="list-style-type: none"> <li>Role of GIS and Remote Sensing</li> <li>Application of traditional geographical knowledge in sustainable development</li> <li>Role of IKS in disaster management and climate resilience</li> <li>Reviving traditional agricultural and water management</li> </ul>                                                                                              | 08           |

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|                        | <ul style="list-style-type: none"> <li>practices</li> <li>Case studies of IKS-based environmental conservation initiatives</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |
| <b>Study Resources</b> | <ul style="list-style-type: none"> <li><b>Agarwal, D. P. (2009):</b> The History of Indian Science and Technology. Rupa Publications.</li> <li><b>Bhattacharya, P. (2019):</b> Indian Knowledge Systems. Pearson India.</li> <li><b>Dikshit, R. D. (2001):</b> Geographical Thought: A Contextual History of Ideas. Prentice-Hall of India.</li> <li><b>Iyengar, P. T. S. (2008):</b> History of Indian Astronomy. Asia Publishing House.</li> <li><b>Majumdar, R. C. (2016):</b> Ancient India. Motilal Banarsidass Publishers.</li> <li><b>Mukherjee, S. (2017):</b> Indian Cartography: Past, Present, and Future. Concept Publishing Company.</li> <li><b>Sharma, P. R. (2018):</b> Traditional Knowledge Systems and Geographical Perspectives. Rawat Publications.</li> <li><b>Srivastava, V. K. (2020):</b> Indigenous Knowledge and Sustainable Development. Sage Publications.</li> </ul> |  |

**T.Y.B.A (Geography)**  
**Semester V**  
**GEOG-DSC-352: Remote Sensing and Aerial Photography**

**Credit: 4**

**Internal Examination: 40**

**Marks: 100**

**External Examination: 60**

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <b>Learning objectives</b> | <ul style="list-style-type: none"> <li>To study the basic concept of Remote Sensing.</li> <li>To study types of Remote Sensing sensor and platforms.</li> <li>To study the basics of aerial photography</li> <li>To learn visual interpretation of aerial photography.</li> </ul>                                                                                                                                                                                                              |              |
| <b>Course outcomes</b>     | After successful completion of this course, students are expected to: <ul style="list-style-type: none"> <li>Gain knowledge of basic concept of Remote Sensing.</li> <li>Understand the Remote Sensing sensor and platforms in detail.</li> <li>Critically assess basics of aerial photography.</li> <li>Understand the visual interpretation of aerial photography.</li> </ul>                                                                                                                |              |
| <b>Unit</b>                | <b>Contents</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Hours</b> |
| <b>Unit I</b>              | <b>Remote Sensing</b> <ul style="list-style-type: none"> <li>Remote sensing – definition, concept and principles, national and international scenario</li> <li>Energy resources, radiation principles, EM radiation and EM spectrum</li> <li>Black body radiation, laws of radiation, spectral signature</li> <li>Interaction of EMR with atmosphere and earth's surface</li> </ul>                                                                                                            | 15           |
| <b>Unit II</b>             | <b>Remote Sensing Sensor and Platforms</b> <ul style="list-style-type: none"> <li>Sensors: introduction, sensor resolution- spectral, spatial, radiometric and temporal</li> <li>Remote sensing platforms: introduction, types - ground borne, air borne and space borne</li> <li>Sensors – types and their characteristics, across track (Whiskbroom) and along track (Push broom) scanning</li> <li>Basic principles, types, steps and elements of satellite image interpretation</li> </ul> | 15           |
| <b>Unit III</b>            | <b>Aerial photography</b> <ul style="list-style-type: none"> <li>Definition, Scope, Advantages and Limitation; Specifications of aerial photographs (Vertical and Oblique)</li> <li>Flight planning, Aerial cameras types and their characteristics</li> <li>Types and geometry of aerial photographs, Aerial photography, Season and time, Photo Index, Scale of aerial photographs and its determination, Comparison of aerial photographs and Map.</li> </ul>                               | 15           |
| <b>Unit IV</b>             | <b>Interpretation of aerial photograph</b> <ul style="list-style-type: none"> <li>Principle of stereoscope, Pocket and Mirror stereoscopes</li> <li>Interpretation of single aerial photograph and comparison with a stereo pair</li> </ul>                                                                                                                                                                                                                                                    | 15           |

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Study Resources</b> | <ul style="list-style-type: none"> <li>• <b>Lillesand, T.M., and Kieffer, R.M., 1987:</b> Remote Sensing and Image Interpretation, John Wiley. N</li> <li>• <b>Bhatta, Basudeb., 2011:</b> Remote Sensing and GIS. Oxford University Press, New Delhi.</li> <li>• <b>F. Sabins, 1987:</b> Remote Sensing: Principles and Interpretation: Freeman Publication.</li> <li>• <b>Moffitt, F.H. and Mikhail, E.M., 1980.</b> Photogrammetry, Harper and Row,</li> <li>• <b>Paine, D.P.,1981:</b> Aerial Photography and Image Interpretation for Resource Management. John Wiley.</li> <li>• <b>Pandey, S.N.,1987:</b> Principles and Applications of Photo geology. Wiley Eastern.</li> <li>• <b>Rampal K.K. 1999:</b> Hand book of aerial photography and interpretation. Concept publication</li> </ul> |
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## T.Y.B.A (Geography)

### Semester V

#### GEOG-DSC-353: Practical on Remote Sensing and Aerial Photography

(12 students per batch and 4 Hours per week per Batch)

Credit: 2

Internal Examination: 20

Marks: 50

External Examination: 30

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                   |              |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <b>Learning objectives</b> | <ul style="list-style-type: none"><li>• To learn the basics of aerial photography</li><li>• To study the interpretation techniques for aerial photographs</li><li>• To learn basics of satellite imageries</li><li>• To study the element of interpretation of satellite imageries</li></ul>                                                                                                                                      |              |
| <b>Course outcomes</b>     | After successful completion of this course, students are expected to: <ul style="list-style-type: none"><li>• To understand the basics of aerial photography</li><li>• To understand the interpretation of aerial photography</li><li>• To understand types of satellite images and its application</li><li>• Develop the skill of interpretation.</li></ul>                                                                      |              |
| <b>Unit</b>                | <b>Contents</b>                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Hours</b> |
| <b>Unit I</b>              | <b>Introduction to Aerial Photography</b> <ul style="list-style-type: none"><li>• Definition and Concept, History, significance of Aerial Photographs</li><li>• Importance of Aerial photograph</li><li>• Types of Aerial photographs</li><li>• Geometric calculations</li><li>• Photo Scale</li><li>• Focal length</li><li>• Flying Height</li><li>• Height from object</li><li>• flight line</li><li>• overlap region</li></ul> | 15           |
| <b>Unit II</b>             | <b>Interpretation of aerial photograph</b> <ul style="list-style-type: none"><li>• Stereoscopic Coverage</li><li>• Pocket stereoscope</li><li>• Mirror stereoscope</li><li>• Elements of Aerial Photo Interpretation</li><li>• Visual Interpretation of single image. (Each one Physical and cultural)</li><li>• Visual Interpretation of pairs image. (Each two Physical and cultural)</li></ul>                                 | 15           |
| <b>Unit III</b>            | <b>Introduction to Satellite Images</b> <ul style="list-style-type: none"><li>• Study of satellite image, Basic information and reference system of satellite image</li><li>• Study of spectral reflectance curves</li></ul>                                                                                                                                                                                                      | 15           |
| <b>Unit IV</b>             | <b>Interpretation of Satellite Images</b> <ul style="list-style-type: none"><li>• Elements of Visual interpretation of satellite images</li><li>• Interpretation of different resolution IRS satellite images – LISS III, PAN and WIFS</li></ul>                                                                                                                                                                                  | 15           |

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Study Resources</b> | <ul style="list-style-type: none"> <li>• <b>Lillesand, T.M., and Kieffer, R.M., 1987:</b> Remote Sensing and Image Interpretation, John Wiley. N</li> <li>• <b>Bhatta, Basudeb., 2011:</b> Remote Sensing and GIS. Oxford University Press, New Delhi.</li> <li>• <b>F. Sabins, 1987:</b> Remote Sensing: Principles and Interpretation: Freeman Publication.</li> <li>• <b>Moffitt, F.H. and Mikhail, E.M., 1980.</b> Photogrammetry, Harper and Row,</li> <li>• <b>Paine, D.P.,1981:</b> Aerial Photography and Image Interpretation for Resource Management. John Wiley.</li> <li>• <b>Pandey, S.N.,1987:</b> Principles and Applications of Photo geology. Wiley Eastern.</li> <li>• <b>Rampal K.K. 1999:</b> Hand book of aerial photography and interpretation. Concept publication</li> </ul> |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Examination and Evaluation

| Sr. No. | Particulars                 | Internal Marks | External Marks |
|---------|-----------------------------|----------------|----------------|
| 01      | Journal and Viva-voce       | 05             | 05             |
| 02      | Class Practical performance | 05             | 00             |
| 03      | Practical Examination       | 10             | 25             |

**T.Y.B.A (Geography)**  
**Semester V**  
**GEOG-DSC-354: Practical on Statistical Methods in Geography**  
*(12 students per batch and 4 Hours per week per Batch)*

**Credit: 2**

**Internal Examination: 20**

**Marks: 50**

**External Examination: 30**

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |              |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <b>Learning objectives</b> | <ul style="list-style-type: none"> <li>To understand the significance of statistical methods in geographical studies and spatial data analysis.</li> <li>To develop skills in organizing, presenting, and interpreting geographical data using statistical tools.</li> <li>To apply various statistical techniques for analysing spatial and temporal patterns in geography.</li> <li>To enhance the ability to make informed geographical inferences through quantitative analysis.</li> </ul>             |              |
| <b>Course outcomes</b>     | After successful completion of this course, students are expected to: <ul style="list-style-type: none"> <li>Understand the role of statistical methods in analyzing and interpreting geographical data.</li> <li>Organize and represent geographical data using appropriate statistical techniques.</li> <li>Apply correlation and regression analysis to examine relationships between geographical variables.</li> <li>Conduct hypothesis testing to validate geographical research findings.</li> </ul> |              |
| <b>Unit</b>                | <b>Contents</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Hours</b> |
| <b>Unit I</b>              | <b>Introduction to Statistical Methods in Geography</b> <ul style="list-style-type: none"> <li>Meaning and Importance of Statistics in Geography</li> <li>Types of Data: Spatial and Non-Spatial</li> <li>Levels of Measurement: Nominal, Ordinal, Interval, and Ratio</li> <li>Sources of Geographical Data</li> </ul>                                                                                                                                                                                     | 15           |
| <b>Unit II</b>             | <b>Data Presentation and Measures of Central Tendency</b> <ul style="list-style-type: none"> <li>Tabulation and Graphical Representation (Bar Graph, Histogram, Pie Chart)</li> <li>Measures of Central Tendency: Mean, Median, Mode</li> <li>Applications of Central Tendency in Geographical Studies</li> <li>Practical Exercises on Data Presentation</li> </ul>                                                                                                                                         | 15           |
| <b>Unit III</b>            | <b>Measures of Dispersion and Correlation Analysis</b> <ul style="list-style-type: none"> <li>Measures of Dispersion: Range, Mean Deviation, Standard Deviation, Variance</li> <li>Significance of Dispersion in Geographical Data</li> <li>Correlation: Meaning, Types (Positive, Negative, No Correlation)</li> <li>Pearson's Product-Moment Correlation and Spearman's Rank Correlation (Calculation and Interpretation)</li> </ul>                                                                      | 15           |
| <b>Unit IV</b>             | <b>Regression Analysis and Hypothesis Testing in Geography</b> <ul style="list-style-type: none"> <li>Concept and Application of Regression in Geography</li> </ul>                                                                                                                                                                                                                                                                                                                                         | 15           |

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|                        | <ul style="list-style-type: none"> <li>• Simple Linear Regression: Least Square Method</li> <li>• Introduction to Hypothesis Testing: Null and Alternative Hypothesis</li> <li>• Application of t-Test and Chi-Square Test in Geographical Research</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
| <b>Study Resources</b> | <ul style="list-style-type: none"> <li>• <b>Burt, J. E., Barber, G. M., &amp; Rigby, D. L. (2009).</b> <i>Elementary statistics for geographers</i> (3rd ed.). The Guilford Press.</li> <li>• <b>Gregory, S. (2000).</b> <i>Statistical methods and the geographer</i>. Routledge.</li> <li>• <b>King, L. J. (2013).</b> <i>Statistical analysis in geography</i>. Pearson Education.</li> <li>• <b>Pal, S. K. (2020).</b> <i>Statistics for geoscientists: Techniques and applications</i>. Concept Publishing Company.</li> <li>• <b>Hammond, R., &amp; McCullagh, P. (1978).</b> <i>Quantitative techniques in geography: An introduction</i>. Oxford University Press.</li> </ul> |  |

### Examination and Evaluation

| Sr. No. | Particulars                 | Internal Marks | External Marks |
|---------|-----------------------------|----------------|----------------|
| 01      | Journal and Viva-voce       | 05             | 05             |
| 02      | Class Practical performance | 05             | 00             |
| 03      | Practical Examination       | 10             | 25             |

**T.Y.B.A (Geography)**  
**Semester V**  
**GEOG-DSE-351 (A): Geography of Resources**

**Credit: 4**

**Internal Examination: 40**

**Marks: 100**

**External Examination: 60**

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <b>Course Objectives</b> | <ul style="list-style-type: none"> <li>Students will be able to understand the basic concepts and issues of resources in different parts of the globe.</li> <li>To enable the pupils with the living conditions of men in different parts of the globe.</li> <li>To enable the pupils to acquire a knowledge of natural resources.</li> <li>Students will be able to understand the significance of planning of resources.</li> </ul> |              |
| <b>Course Outcomes</b>   | After successful completion of this course, students are expected to: <ul style="list-style-type: none"> <li>Develop an idea about resource.</li> <li>Acquire knowledge about different types of resources.</li> <li>Acquire knowledge about population - resource relationship.</li> <li>This course will provide insight to students to use this knowledge in building their career.</li> </ul>                                     |              |
| <b>Unit</b>              | <b>Contents</b>                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Hours</b> |
| <b>Unit I</b>            | <b>Introduction to Geography of Resources.</b> <ul style="list-style-type: none"> <li>Definitions of Resource and Geography of Resources.</li> <li>Meaning and Concept of Geography of Resources.</li> <li>Nature and scope of Geography of Resources.</li> <li>Importance of Resources in Geography of Resources.</li> </ul>                                                                                                         | 15           |
| <b>Unit II</b>           | <b>Classification of Resources.</b> <ul style="list-style-type: none"> <li>Classification of Resources on the basis of Renewability.</li> <li>Biotic and abiotic Renewable Resources and its Importance.</li> <li>Biotic and abiotic Non-Renewable Resources and its Importance.</li> </ul>                                                                                                                                           | 15           |
| <b>Unit III</b>          | <b>Resources.</b> <ul style="list-style-type: none"> <li>Land Resources: Importance and use, Land Degradation.</li> <li>Forest Resources: Definitions, Importance and use, Effect of Deforestation.</li> <li>Food Resources: Definitions, Sources of Food Resources- (Vegetarian and Non-Vegetarian)</li> </ul>                                                                                                                       | 15           |
| <b>Unit IV</b>           | <b>Planning of Resources.</b> <ul style="list-style-type: none"> <li>Concept and Regions of Resource Planning.</li> <li>Need of Resources Planning.</li> <li>Resource Planning in India.</li> </ul>                                                                                                                                                                                                                                   | 15           |
| <b>Study Resources</b>   | <ul style="list-style-type: none"> <li><b>प्रा. संभाजी पाटील</b> - साधन व जलसंपदा भूगोल, प्रशांत पब्लिकेशन्स: 3, प्रताप नगर, श्री संत ज्ञानेश्वर मंदिर रोड, नूतन मराठा महाविद्यालयाजवळ, जळगाव 425001, 2017.</li> <li><b>A.Das Gupta, 1978:</b> Economic and Commercial Geography, Mukhrjee and Co. Pvt.Ltd.-</li> <li><b>B.S.Negi, 1980:</b> Economic and Commercial Geography of the World, S.Chand and Co.Ltd..</li> </ul>          |              |

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|  | <ul style="list-style-type: none"> <li>• <b>M.C.Agarwal, 1981:</b> Commercial Geography, Himalaya Publishing House.</li> <li>• Prithvish Roy &amp; Somnath mukerjee – Economic geography an appraisal of resources, new central book agency, culcutta - 700 009.</li> <li>• <b>S.K. Sadhukhan 1982:</b> Economic Geography an Appraisal of resources, S.Chand and company Ltd.</li> <li>• <b>V.K. Gupta 1977:</b> Economic and Commercial Geography, Sultan Chand and Sons.</li> </ul> |
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**T.Y. B.A. (Geography)**  
**Semester-V**  
**GEOG-DSE-351 (B): Industrial Geography**

**Credit: 4**  
**Marks: 100**

**Internal Examination: 40**  
**External Examination: 60**

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |              |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <b>Course Objectives</b> | <ul style="list-style-type: none"> <li>Students will be able to understand the basic concepts and issues of resources in different parts of the globe.</li> <li>To enable the pupils with the living conditions of men in different parts of the globe.</li> <li>To enable the pupils to acquire a knowledge of natural resources.</li> <li>Students will be able to understand the significance of planning of resources.</li> </ul>                             |              |
| <b>Course Outcomes</b>   | After successful completion of this course, students are expected to: <ul style="list-style-type: none"> <li>Develop an idea about resource.</li> <li>Acquire knowledge about different types of resources.</li> <li>Acquire knowledge about population - resource relationship.</li> <li>This course will provide insight to students to use this knowledge in building their career.</li> </ul>                                                                 |              |
| <b>Unit</b>              | <b>Contents</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Hours</b> |
| <b>Unit I</b>            | <b>Introduction to Industrial Geography</b> <ul style="list-style-type: none"> <li>Definition, Nature, and Scope of Industrial Geography</li> <li>Approaches to the Study of Industrial Geography</li> <li>Classification of Industries: Primary, Secondary, and Tertiary</li> <li>Industrialization and Economic Development</li> </ul>                                                                                                                          | 15           |
| <b>Unit II</b>           | <b>Location and Distribution of Industries</b> <ul style="list-style-type: none"> <li>Factors Influencing Industrial Location: Physical, Economic, Social, and Political</li> <li>Theories of Industrial Location: Alfred Weber's Least Cost Theory, Losch's Profit Maximization Theory, and August Lösch's Market Area Theory</li> <li>Case Studies of Major Industrial Regions in India and the World</li> <li>Industrial Development in Maharashtra</li> </ul> | 15           |
| <b>Unit III</b>          | <b>Industrialization and Its Impact</b> <ul style="list-style-type: none"> <li>Industrial Pollution and Environmental Degradation</li> <li>Impact of Industrialization on Urbanization and Employment</li> <li>Special Economic Zones (SEZs) and Industrial Clusters</li> <li>Industrial Policies and Government Initiatives in India</li> </ul>                                                                                                                  | 15           |
| <b>Unit IV</b>           | <b>Sustainable Industrial Development</b> <ul style="list-style-type: none"> <li>Concepts of Sustainable Industrialization</li> <li>Green Industries and Eco-friendly Industrial Practices</li> <li>Corporate Social Responsibility (CSR) and Environmental Management in Industries</li> <li>Future Trends in Industrial Geography and Technological Advancements</li> </ul>                                                                                     | 15           |
| <b>Study</b>             | <ul style="list-style-type: none"> <li><b>Alexander, J. W. (1988): <i>Economic Geography</i>.</b> Prentice Hall.</li> </ul>                                                                                                                                                                                                                                                                                                                                       |              |

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| <b>Resources</b> | <ul style="list-style-type: none"> <li>• <b>Gunnar, A. (1992):</b> <i>Industrial Location and Economic Development</i>. Routledge.</li> <li>• <b>Isard, W. (1956):</b> <i>Location and Space-Economy: A General Theory Relating to Industrial Location, Market Areas, Land Use, Trade, and Urban Structure</i>. MIT Press.</li> <li>• <b>Weber, A. (1929):</b> <i>Theory of the Location of Industries</i>. University of Chicago Press.</li> <li>• <b>Smith, D. M. (1981):</b> <i>Industrial Location: An Economic Geographical Analysis</i>. John Wiley &amp; Sons.</li> <li>• <b>Chand, M., &amp; Puri, V. K. (2012):</b> <i>Regional Planning in India</i>. Allied Publishers.</li> <li>• <b>Dicken, P. (2015):</b> <i>Global Shift: Mapping the Changing Contours of the World Economy</i> (7th ed.). Guilford Press.</li> <li>• <b>Sharma, T. C. (2017):</b> <i>Economic Geography of India</i>. Rawat Publications.</li> </ul> |
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**T.Y. B.A. (Geography)**  
**Semester-V**  
**GEOG-VSC-351: Soil Geography**

**Credit: 2**

**Internal Examination: 20**

**Marks: 50**

**External Examination: 30**

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |              |
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| <b>Course Objectives</b> | <ul style="list-style-type: none"> <li>To understand the definition, nature, and scope of soil geography.</li> <li>To learn the processes and factors of soil formation and the concept of soil profile.</li> <li>To identify the physical and chemical properties of soil and classify different soil types.</li> <li>To know the causes and effects of soil degradation and methods of soil conservation.</li> </ul>                                                                                            |              |
| <b>Course Outcomes</b>   | After successful completion of this course, students are expected to: <ul style="list-style-type: none"> <li>Gain knowledge of the fundamentals and approaches of soil geography.</li> <li>Analyze the processes and factors influencing soil formation and profiles.</li> <li>Differentiate soil properties and apply soil classification systems.</li> <li>Evaluate soil erosion, degradation issues, and implement conservation techniques.</li> </ul>                                                         |              |
| <b>Unit</b>              | <b>Contents</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Hours</b> |
| <b>Unit I</b>            | <b>Introduction</b> <ul style="list-style-type: none"> <li>Definition of Soil Geography.</li> <li>Nature &amp; Scope of Soil Geography.</li> <li>Approaches to the Study of Soil Geography.</li> </ul>                                                                                                                                                                                                                                                                                                            | 8            |
| <b>Unit II</b>           | <b>Soil Formation &amp; Soil Profile</b> <ul style="list-style-type: none"> <li>Physical Factors</li> <li>Chemical Factors</li> <li>Biological Factors: Plants, Animals &amp; Micro Organisms</li> <li>Soil Profile: Meaning &amp; Concept.</li> </ul>                                                                                                                                                                                                                                                            | 8            |
| <b>Unit III</b>          | <b>Soil Properties and Classification</b> <ul style="list-style-type: none"> <li>Soil Physical Properties</li> <li>Chemical Properties of Soil</li> <li>Indian Soil Classification.</li> </ul>                                                                                                                                                                                                                                                                                                                    | 7            |
| <b>Unit IV</b>           | <b>Soil Degradation &amp; Conservation</b> <ul style="list-style-type: none"> <li>Soil Erosion: Meaning, Causes and Effects</li> <li>Soil Degradation: Soil Salinization</li> <li>Soil Conservation: Meaning &amp; Methods of Soil Conservation.</li> </ul>                                                                                                                                                                                                                                                       | 7            |
| <b>Study Resources</b>   | <ul style="list-style-type: none"> <li><b>Backman, H.O and Brady, N.C.( 1960):</b> The Nature and Properties of Soils, Mc Millan NewYork.</li> <li><b>Bennet, Hugh H.:</b> Soil Conservation, McGraw Hill, New York .</li> <li><b>Bunting, B.T.(1973):</b> The Geography of Soils, Hutchinson, London.</li> <li><b>Chairas, D. D., Reganold, J. P., and Owen, O. S., (2002):</b> National Resource Conservation and Management for a Sustainable Future, 8th edition, Prentice Hall, Englewood Cliffs.</li> </ul> |              |

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|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  | <ul style="list-style-type: none"> <li>• <b>Clarke G.R.(1957):</b> Study of the Soil in the Field, Oxford University Press, Oxford.</li> <li>• <b>Daji, J. A., (1970):</b> A Text Book of Soil Science, Asia Publishing House, Londaon.</li> <li>• <b>Foth H.D. and Turk, L.M.(9172):</b> Fundamentals of Soil science, John Wiley, New York. 8.</li> <li>• <b>GovindaRajan, S.V. and Gopala Rao, H.G.(9178):</b> Studies on Soils of India Vikas, New Delhi.</li> <li>• <b>MathurNeeru, (2012):</b> Soils, Rajat Publications, New Delhi-02 (India).</li> <li>• <b>Mc. Bride, M.B.(1999):</b> Environmental Chemistry of Soils, Oxford University Press, New York.</li> <li>• <b>Morgan, R. P. C., (1995):</b> Soil Erosion and Conservation, 2nd edition, Longman, London.</li> <li>• <b>Nye, P.H. and Greene, D.J. (1960):</b> The Soil under Shifting Cultivation Commonwealth Bureau of Soil Science, Technical Communication, No. 51; Harpender, England.</li> <li>• <b>Plaster, E. J., (2009):</b> Soil Science and Management, Cengage Learning, Boston.</li> <li>• <b>Raychoudhuri, S.P., (1958):</b> Soils of India, ICAR, New Delhi.</li> <li>• <b>Russell, Sir Edward J.:(1961)</b> Soil Conditions and Plant Growth, Wiley, New York.</li> <li>• <b>Sarkar, D., (2003):</b> Fundamentals and Applications of Pedology, Kalyani Publishers, New Delhi.</li> <li>• <b>Sehgal, J., (1996):</b> Pedology: Concepts and Applications, Kalyani Publishers, New Delhi.</li> </ul> |  |
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**T.Y. B.A. (Geography)**  
**Semester-V**  
**GEOG-VSC-352: Soil Analysis**

*(12 students per batch and 4 Hours per week per Batch)*

**Credit: 2**

**Internal Examination: 20**

**Marks: 50**

**External Examination: 30**

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |              |
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| <b>Course Objectives</b> | <ul style="list-style-type: none"> <li>To understand the concept and methods of soil sampling.</li> <li>To learn techniques for determining soil texture, moisture, bulk density, and specific gravity.</li> <li>To investigate soil chemical properties such as pH, calcium, and nutrient content.</li> <li>To study the soil analysis in agriculture for crops like cotton, maize, wheat and sugarcane</li> </ul>                             |              |
| <b>Course Outcomes</b>   | After successful completion of this course, students are expected to: <ul style="list-style-type: none"> <li>Gain skill in various soil sampling techniques.</li> <li>Accurately measure soil physical properties and analyze soil grain size.</li> <li>Evaluate chemical properties of soil and their implications for soil health.</li> <li>Implement soil analysis results to optimize agricultural practices for specific crops.</li> </ul> |              |
| <b>Unit</b>              | <b>Contents</b>                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Hours</b> |
| <b>Unit I</b>            | <ul style="list-style-type: none"> <li>Concept of Soil and soil Sampling</li> <li>Type and Methods of Soil Sampling</li> <li>Sampling By Using Soil Augur</li> <li>Sampling By Core Tubes</li> <li>Collection and handling of Soil Sample before analysis</li> </ul>                                                                                                                                                                            | 15           |
| <b>Unit II</b>           | <ul style="list-style-type: none"> <li>Determination of Soil Texture and Soil Moisture</li> <li>Determination of Bulk Density and Specific Gravity</li> <li>Determination of Percentage Porosity</li> <li>Determination of organic matter</li> </ul>                                                                                                                                                                                            | 15           |
| <b>Unit III</b>          | <ul style="list-style-type: none"> <li>Mechanical Analysis of Soil Grain size analysis</li> <li>Preparation of soil triangle and it's analysis</li> <li>Determination of water percolation</li> </ul>                                                                                                                                                                                                                                           | 15           |
| <b>Unit IV</b>           | <ul style="list-style-type: none"> <li>Determination of Chemical Properties: PH, Nitrogen, Phosphorous, Calcium</li> <li>Application in Agriculture for Following Crops Cotton, Maiz</li> <li>Application in Agriculture for Following Crops Wheat, Sugarcane</li> </ul>                                                                                                                                                                        | 15           |
| <b>Study Resources</b>   | <ul style="list-style-type: none"> <li><b>Backman, H.O and Brady, N.C. 1960:</b> The Nature and Properties of Soils, McMillan New York,</li> <li><b>Bennet, Hugh H.:</b> Soil Conservation, McGraw Hill, New York.</li> <li><b>Bunting, B.T.:</b> The Geography of Soils, Hutchinson, London, 1973.</li> <li><b>Clarke G.R. 1957:</b> Study of the Soil in the Field, Oxford University Press, Oxford.</li> </ul>                               |              |

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|  | <ul style="list-style-type: none"> <li>• <b>Foth H.D. and Turk, L.M. 1972:</b> Fundamentals of Soil science, John Wiley, New York.</li> <li>• <b>Govinda Rajan, S.V. and Gopala Rao, H.G.1978.:</b> Studies on Soils of India Vikas, New Delhi,.</li> <li>• <b>Ghosh R. K. and Swain S. 1993:</b> Practical Agricultural Engineering Vol. I &amp;II., Naya Prakash, Calcutta.</li> <li>• <b>Raychaudhuri, S.P. 1958:</b> Soils of India, ICAR, New Delhi.</li> <li>• <b>Russell, Sir Edward J. 1961:</b> Soil Conditions and Plant Growth, Wiley, New York.</li> <li>• <b>Suresh R1997:</b> Soil &amp; Water Conservation Engineering Standard Publishers &amp; Distributors.</li> </ul> |  |
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### Examination and Evaluation

| Sr. No. | Particulars                 | Internal Marks | External Marks |
|---------|-----------------------------|----------------|----------------|
| 01      | Journal and Viva-voce       | 05             | 05             |
| 02      | Class Practical performance | 05             | 00             |
| 03      | Practical Examination       | 10             | 25             |

**T.Y. B.A. (Geography)**  
**Semester-V**  
**GEOG-OJT/INT-351: On Job Training (OJT)**

**Credit: 4**

**Marks: 100**

**Internal Examination: 40**

**External Examination: 60**

**Course objectives:**

- To provide the students with actual work experience
- To make aware prescribe standards and guidelines at work
- To develop the employability of participating student
- To avail an opportunity to eventually acquire job experiences

**Course outcomes:**

- After successful completion of this course, students are expected to:
- Get actual work experience with office and virtual exposure to various management styles, technical, industrial, and procedural systems
- Acquaint the knowledge related to working hours, work protocols and guidelines
- Understand the roles and responsibilities of employee as well as team work Justify job experiences that match their potentials, skills, and competencies

**Internship:**

An internship is a professional learning experience that offers meaningful, practical work related to a student's field of study or career interest. An internship gives a student the opportunity for career exploration and development, and to learn new skills.

**On the job training:**

On the job training is a form of training provided at the workplace. During the training, employees are familiarized with the working environment they will become part of. Employees also get hands-on experience using machinery, equipment, tools, materials, etc.

**Internship / OJT Mechanism:**

1. Pre-Approval: Students should seek approval from the college before starting the Internship /OJT. This ensures that the Internship / OJT aligns with the curriculum and meets the necessary criteria.
2. Mentor and Supervisor: Each student should have an assigned mentor at the organization/industry where they are interning. Additionally, an Internship / OJT supervisor from the college will be appointed to guide and monitor the progress.
3. Regular Reporting: Students should maintain regular communication with their supervisor and mentor, providing progress reports and seeking feedback.
4. Professional Conduct: Students must adhere to professional conduct throughout the Internship /OJT, including punctuality, respect for colleagues, and adherence to the organization's/industry's policies and guidelines.
5. Student Diary: Students should maintain a diary to document their experiences, challenges faced, and lessons learned during the Internship / OJT.
6. Final Report: At the end of the Internship / OJT, students should submit a comprehensive final report, summarizing their accomplishments, contributions, and key takeaways.
7. Evaluation: The Internship / OJT is worth 4 credits (equivalent to 100 marks), and the evaluation will be divided into two categories: one by the mentor and the other by the Internship / OJT supervisor. The mentor's evaluation (internal examination) will carry 40 marks, and it will be based on the student's performance during the Internship / OJT. External examination will be conducted by mentor and supervisor which will be based on the student's diary, the final report prepared by the student, and their performance in the final viva voce, and will carry 60 marks. The total marks obtained by the students in both evaluations will be added together for the purpose of final evaluation. The evaluation of the students will be conducted by the mentor using the valuation sheet provided by the college.

**Internal Evaluation Criteria for Students by the Mentor:**

1. Quality of Work (10 marks): How well did the student perform their assigned tasks during the Internship / OJT? Evaluate the accuracy, thoroughness, and attention to detail in their work.
2. Initiative and Proactiveness (10 marks): Did the student show initiative in taking on additional responsibilities or tasks beyond their assigned role? Did they demonstrate a proactive attitude towards problem-solving?
3. Communication Skills (10 marks): Assess the student's ability to communicate effectively with colleagues, superiors, and clients (if applicable). Consider both written and verbal communication.
4. Problem-Solving Skills and Time Management (10 marks): Evaluate the student's ability to analyze problems, propose solutions, and implement effective strategies to overcome challenges. How well did the student manage their time during the Internship / OJT? Were they able to meet project deadlines and handle multiple tasks efficiently?

**External Evaluation Criteria for Students by the Supervisor and Mentor:**

1. Student Diary (15 marks): Review the student's diary to understand their reflections, insights gained, and self-assessment of their performance during the Internship / OJT.
2. Final Report (15 marks): Evaluate the quality and comprehensiveness of the student's final report, including the clarity of their achievements and contributions.
3. Presentation of Student in Viva Voce (30 marks): Evaluate the responses given by the student to the questions asked by the faculty in the Viva Voce.

**Evaluation Criteria for Final Viva Voce:**

1. Presentation Skills
2. Knowledge of the Internship / OJT Project
3. Practical Application and Work Experience
4. Problem-Solving and Critical Thinking
5. Communication and Professionalism

# **SEMESTER - VI**

**T.Y. B.A. (Geography)**  
**Semester-VI**  
**GEOG-DSC-361: Natural Disaster Management**

**Credit: 2**

**Internal Examination: 20**

**Marks: 50**

**External Examination: 30**

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |              |
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| <b>Course Objectives</b> | <ul style="list-style-type: none"> <li>To acquaint the students with basic knowledge of natural and manmade disasters.</li> <li>To know the fundamental concepts of disaster management.</li> <li>To acquire the knowledge of preparedness and mitigation.</li> <li>To know the role of individual in disaster management.</li> </ul>                                                                                                           |              |
| <b>Course Outcomes</b>   | After successful completion of this course, students are expected to: <ul style="list-style-type: none"> <li>To create awareness among students about disasters.</li> <li>Understand impacts of disasters.</li> <li>Understand manifesting the mitigation.</li> <li>Understand role of government agencies.</li> </ul>                                                                                                                          |              |
| <b>Unit</b>              | <b>Contents</b>                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Hours</b> |
| <b>Unit I</b>            | <b>Introduction</b> <ul style="list-style-type: none"> <li>Introduction to disaster</li> <li>Concept and definitions of disaster, hazards, risk and vulnerability</li> <li>Classification of disaster</li> <li>Importance of the study of disaster - management</li> <li>Difference between disaster and hazards.</li> </ul>                                                                                                                    | 7            |
| <b>Unit II</b>           | <b>Physical and atmospheric disaster</b> <ul style="list-style-type: none"> <li>Causes, impact, management, distribution and mapping of following disaster in India</li> <li>Physical               <ul style="list-style-type: none"> <li>Earthquake</li> <li>Landslide</li> <li>Tsunami</li> </ul> </li> <li>Atmospheric               <ul style="list-style-type: none"> <li>Flood</li> <li>Droughts</li> </ul> </li> <li>Cyclone</li> </ul> | 8            |
| <b>Unit III</b>          | <b>Manmade disaster</b> <ul style="list-style-type: none"> <li>Causes, impact, management, distribution and mapping of following disaster in India</li> <li>Terrorism</li> <li>Fire</li> <li>Accidents</li> <li>Chemical disaster</li> </ul>                                                                                                                                                                                                    | 7            |
| <b>Unit IV</b>           | <b>Disaster risk reduction</b> <ul style="list-style-type: none"> <li>Mitigation and preparedness: Survival Kit, medicinal kit, warning and alarm system</li> </ul>                                                                                                                                                                                                                                                                             | 8            |

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|                        | <ul style="list-style-type: none"> <li>• Community based disaster management: Do's and don'ts</li> <li>• Role and responsibilities of GO's and NGO's.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
| <b>Study Resources</b> | <ul style="list-style-type: none"> <li>• <b>Government of India. (1997):</b> Vulnerability Atlas of India. New Delhi, Building Materials &amp; Technology Promotion Council, Ministry of Urban Development, Government of India.</li> <li>• <b>Kapur, A. (2010):</b> Vulnerable India: A Geographical Study of Disasters, Sage Publication, New Delhi.</li> <li>• <b>Singh, R.B. (2005):</b> Risk Assessment and Vulnerability Analysis, IGNOU, New Delhi.</li> <li>• <b>Singh, R. B. (ed.), (2006):</b> Natural Hazards and Disaster Management: Vulnerability and Mitigation, Rawat Publications, New Delhi.</li> <li>• <b>Sinha, A. (2001):</b> Disaster Management: Lessons Drawn and Strategies for Future, New United Press, New Delhi.</li> <li>• <b>Singh Jagbir (2007):</b> Disaster Management Future Challenges and Opportunities, Publisher- I.K. International Pvt. Ltd. New Delhi, India.</li> </ul> |  |

**T.Y.B.A (Geography)**  
**Semester VI**  
**GEOG-DSC-362: Geography of Settlement**

**Credit: 4**

**Internal Examination: 40**

**Marks: 100**

**External Examination: 60**

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                     |              |
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| <b>Learning objectives</b> | <ul style="list-style-type: none"> <li>To study the basic concept of settlement Geography.</li> <li>To learn the origin and classification of rural settlement.</li> <li>To learn the origin and classification of urban settlement.</li> <li>To study Rural and Urban Settlements in India.</li> </ul>                                                                                                             |              |
| <b>Course outcomes</b>     | After successful completion of this course, students are expected to: <ul style="list-style-type: none"> <li>Understand the basic concept of settlement Geography.</li> <li>Understand the origin and classification of rural settlement.</li> <li>Understand the origin and classification of urban settlement.</li> <li>Understand Rural and Urban Settlements in India.</li> </ul>                               |              |
| <b>Unit</b>                | <b>Contents</b>                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Hours</b> |
| <b>Unit I</b>              | <b>Introduction of Settlement Geography:</b> <ul style="list-style-type: none"> <li>Settlement Geography: Definitions, Nature, and Scope</li> <li>Branches of Settlement Geography</li> <li>Settlement Types, Their characteristics, and Differences</li> <li>Factors Influencing Growth and Distribution of Settlements</li> </ul>                                                                                 | 15           |
| <b>Unit II</b>             | <b>Geography of Rural Settlements:</b> <ul style="list-style-type: none"> <li>Origin and Growth of Settlements - The Evolution of Rural Settlements</li> <li>Site and Situation of Rural Settlements</li> <li>Classification of Rural Settlements Based on Population and Patterns</li> <li>Classification of Rural Settlements Based on Spacing and Functions</li> </ul>                                           | 15           |
| <b>Unit III</b>            | <b>Geography of Urban Settlements</b> <ul style="list-style-type: none"> <li>Origin and Growth of Urban Settlements</li> <li>Classification of Urban Settlements Based on Culture and Functions</li> <li>Hierarchy of Urban Settlement: Rank-Size Rule</li> </ul>                                                                                                                                                   | 15           |
| <b>Unit IV</b>             | <b>Rural and Urban Settlements in India</b> <ul style="list-style-type: none"> <li>Distribution and Density of Rural Settlements in India</li> <li>Structure of House and Building Materials in India</li> <li>Smart Village</li> <li>Urbanization in India: Trends, patterns and types of towns</li> <li>Urban problems in Indian cities</li> <li>Smart city: Concept, need and implementation in India</li> </ul> | 15           |
| <b>Study Resources</b>     | <ul style="list-style-type: none"> <li>Gharpure, V. (2013): "Nagari Bhugol", (Marathi) Pimpalpure and Company Publishers, Nagpur</li> <li>Gharpure, V. (2013): "Vasti Bhugol", (Marathi) Pimpalpure and Company Publishers, Nagpur.</li> </ul>                                                                                                                                                                      |              |

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|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <ul style="list-style-type: none"> <li>• <b>Hudson, (2003):</b> "Settlement Geography", McGraw hill UK.</li> <li>• <b>A Das Gupta. (1975):</b> Economic and Commercial Geography. A Mukherji and Co. Pvt., Kolkata.</li> <li>• <b>King, Leslie, J., 1986:</b> Central Place Theory, Saga Publications, New Delhi.</li> <li>• <b>Mayer &amp; Kohn (1998):</b> "Reading in Urban Geography", Chicago Univ; Press.</li> <li>• Mitra, Ashok, Mukherjee, S and Bose R., Indian Cities, Abhinav Pub., New Delhi.</li> <li>• <b>Prakasa, Rao, V.L.S., 1983:</b> Urbanization in India; Spatial Dimensions, Concept Publishing Co., New Delhi.</li> <li>• <b>Singh, R.L. and Kashi Nath Singh (editors), 1975:</b> Readings in Rural Settlement Geography, National Geographical Society of India, Varanasi.</li> </ul> |
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**T.Y.B.A (Geography)**  
**Semester VI**  
**GEOG-DSC-363: Agricultural Geography**

**Credit: 4**

**Internal Examination: 40**

**Marks: 100**

**External Examination: 60**

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |              |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <b>Course Objectives</b> | <ul style="list-style-type: none"> <li>To understand the relationship between agriculture and geography, including the physical, economic, and cultural factors influencing agricultural practices.</li> <li>To explore different types of agricultural systems and their global distribution across developed and developing countries.</li> <li>To analyse the role of agricultural geography in land use, resource management, and food security.</li> <li>To examine the changing global patterns in agriculture, including the impact of technological advancements and environmental challenges.</li> </ul>                                           |              |
| <b>Course Outcomes</b>   | <p>After successful completion of this course, students are expected to:</p> <ul style="list-style-type: none"> <li>Identify and explain the key factors influencing agricultural practices, such as climate, soil, and technology.</li> <li>Develop an understanding of various agricultural systems (subsistence, commercial, mixed farming, etc.) and their relevance in different regions.</li> <li>Analyse global agricultural patterns and trends, including the distinctions between developed and developing countries.</li> <li>Evaluate the environmental, social, and economic impacts of modern agricultural practices and policies.</li> </ul> |              |
| <b>Unit</b>              | <b>Contents</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Hours</b> |
| <b>Unit I</b>            | <b>Unit I: Introduction to Agricultural Geography</b> <ul style="list-style-type: none"> <li>Definition and Scope of Agricultural Geography</li> <li>Evolution of Agriculture and its role in human development</li> <li>Relationship between Geography and Agriculture</li> <li>The significance of Agricultural Geography in contemporary society</li> </ul>                                                                                                                                                                                                                                                                                              | 15           |
| <b>Unit II</b>           | <b>Unit II: Factors Affecting Agriculture</b> <ul style="list-style-type: none"> <li>Physical Factors: Climate, Soil, Water, Relief</li> <li>Economic Factors: Capital, Technology, and Market Access</li> <li>Social and Cultural Factors: Population, Education, and Labor</li> <li>Political and Institutional Factors: Government Policies, Land Ownership</li> </ul>                                                                                                                                                                                                                                                                                   | 15           |
| <b>Unit III</b>          | <b>Unit III: Types of Agriculture</b> <ul style="list-style-type: none"> <li>Subsistence Agriculture: Types and Characteristics</li> <li>Commercial Agriculture: Features and Examples</li> <li>Intensive vs. Extensive Farming Systems</li> <li>Shifting Cultivation, Mixed Farming, and Plantation Agriculture</li> </ul>                                                                                                                                                                                                                                                                                                                                 | 15           |
| <b>Unit IV</b>           | <b>Unit IV: Agricultural Systems and Global Patterns</b> <ul style="list-style-type: none"> <li>Agricultural Regions and Zoning: Agricultural Land Use and Classification</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 15           |

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|                        | <ul style="list-style-type: none"> <li>• Agricultural Systems in Developed vs. Developing Countries</li> <li>• Crop and Livestock Distribution</li> <li>• Changing Global Trends in Agriculture: Green Revolution and its Impacts</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |
| <b>Study Resources</b> | <ul style="list-style-type: none"> <li>• <b>Baylis Smith T.P. (1987):</b> “The Ecology of Agricultural System”, Cambridge University Press, London</li> <li>• <b>Gregory H. P. (1970):</b> “Geography of Agricultural”, Prentice Hall New York</li> <li>• <b>Hartshorn T. N. and Alexander J.W. (1988):</b> “Economic Geography”, Prentice Hall New York</li> <li>• <b>Terrnt J. R. (1974):</b> “Agricultural Geography”. Wiley Publications, New York</li> <li>• <b>L. J. Symon (1978):</b> “Agricultural Geography”, Bell and hyman, London</li> <li>• <b>Husain, Majid. (1999):</b> “Agricultural Geography”, Rawat Pub. New Delhi</li> <li>• <b>Singh, J. and Dhillon, S.S. (1984):</b> “Agricultural Geography”, 2nd edition, Tata McGraw-Hill, New Delhi.</li> <li>• <b>Wigley, G. (1981):</b> Tropical Agriculture: The Development of Production, 4th edition, Arnold, London.</li> <li>• <b>Saptarshi P. G., More J. C., Ugale V.R., Musmade A. H. (2009):</b> “India A Geographical Analysis”. Diamond, Pune.</li> </ul> |  |

**T.Y.B.A (Geography)**  
**Semester VI**  
**GEOG-DSC-364: Practical on Dumpy Level and Clinometer**  
*(12 students per batch and 4 Hours per week per Batch)*

**Credit: 2**

**Internal Examination: 20**

**Marks: 50**

**External Examination: 30**

|                            |                                                                                                                                                                                                                                                                                                                                                                             |              |
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| <b>Learning objectives</b> | <ul style="list-style-type: none"> <li>To learn the basics of Dumpy level surveying.</li> <li>To study the Dumpy level practical exercises in the field.</li> <li>To learn basics of Clinometer.</li> <li>To study the Clinometer used for contouring and profile drawing.</li> </ul>                                                                                       |              |
| <b>Course outcomes</b>     | After successful completion of this course, students are expected to: <ul style="list-style-type: none"> <li>To understand the basics of Dumpy level surveying.</li> <li>To understand the Dumpy level practical exercises in the field.</li> <li>To understand the Clinometer.</li> <li>To impart knowledge Clinometer used for contouring and profile drawing.</li> </ul> |              |
| <b>Unit</b>                | <b>Contents</b>                                                                                                                                                                                                                                                                                                                                                             | <b>Hours</b> |
| <b>Unit I</b>              | <b>Dumpy level</b> <ul style="list-style-type: none"> <li>Use of Dumpy level as an instrument of leveling and adjustment of the dumpy level</li> <li>Principles: Calculation of difference of level, series leveling, back sights, foresights, intermediate sights</li> </ul>                                                                                               | 15           |
| <b>Unit II</b>             | <b>Dumpy level Methods</b> <ul style="list-style-type: none"> <li>Level book and computation of reduced level: Rise and fall and collimation method</li> <li>Conducting practical exercises in the field</li> <li>Contouring and profile drawing</li> </ul>                                                                                                                 | 15           |
| <b>Unit III</b>            | <b>Clinometer</b> <ul style="list-style-type: none"> <li>Use of Clinometer as instrument of leveling</li> <li>Measuring spot heights</li> <li>Conducting practical exercises in the field</li> </ul>                                                                                                                                                                        | 15           |
| <b>Unit IV</b>             | <b>Clinometer used for Contouring and Profile drawing</b> <ul style="list-style-type: none"> <li>Contouring and interpolation of contours</li> <li>Drawing of profiles</li> <li>Application of Clinometer</li> </ul>                                                                                                                                                        | 15           |
| <b>Study Resources</b>     | <ul style="list-style-type: none"> <li><b>Sarkar, A., 2015:</b> Practical Geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi</li> <li><b>Mishra, R. P., and Ramesh, A., 1989:</b> Fundamentals of Cartography, Concept, New Delhi</li> <li><b>Singh, R. L., and Singh, R. P. B., 1999:</b> Elements of Practical Geography,</li> </ul>             |              |

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|  | <p>Kalyani Publishers</p> <ul style="list-style-type: none"> <li>• <b>Duggal S. K., 2017:</b> Surveying Vol. I&amp; II, McGraw Hill Education; Fourth edition</li> <li>• <b>Subramanian R., 2012:</b> Surveying and Levelling, second edition, Oxford University Press.</li> </ul> |
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### Examination and Evaluation

| Sr. No. | Particulars                 | Internal Marks | External Marks |
|---------|-----------------------------|----------------|----------------|
| 01      | Journal and Viva-voce       | 05             | 05             |
| 02      | Class Practical performance | 05             | 00             |
| 03      | Practical Examination       | 10             | 25             |

**T.Y.B.A (Geography)**  
**Semester VI**  
**GEOG-DSC-365: Computer Skills for Geography**  
*(12 students per batch and 4 Hours per week per Batch)*

**Credit: 2**

**Internal Examination: 20**

**Marks: 50**

**External Examination: 30**

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |
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| <b>Learning objectives</b> | <ul style="list-style-type: none"> <li>To develop fundamental computer skills for data processing and analysis in geography.</li> <li>To learn spreadsheet applications for handling geographic data.</li> <li>To apply basic statistical and graphical techniques using software tools.</li> <li>To introduce students to GIS, remote sensing, and mapping software.</li> </ul>                                                                      |              |
| <b>Course outcomes</b>     | After successful completion of this course, students are expected to: <ul style="list-style-type: none"> <li>Apply computer skills for geographic data processing and analysis.</li> <li>Use spreadsheet software for statistical and graphical data representation.</li> <li>Perform basic GIS tasks, including mapping and spatial analysis.</li> <li>Develop presentations and reports using computer-based tools for geography studies</li> </ul> |              |
| <b>Unit</b>                | <b>Contents</b>                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Hours</b> |
| <b>Unit I</b>              | <b>Basic Computer Skills for Geographers</b> <ul style="list-style-type: none"> <li>Introduction to Computer Hardware and Software</li> <li>File Management and Data Storage Techniques</li> <li>Word Processing for Report Writing (MS Word, Google Docs)</li> <li>Basics of Internet browsing and Online Geographic Data Sources</li> </ul>                                                                                                         | 15           |
| <b>Unit II</b>             | <b>Spreadsheet Applications in Geography</b> <ul style="list-style-type: none"> <li>Introduction to Spreadsheets (MS Excel, Google Sheets)</li> <li>Data Entry, Formatting, and Basic Formulas</li> <li>Statistical Analysis and Descriptive Statistics in Excel</li> <li>Graphs and Charts for Geographical Data Representation</li> </ul>                                                                                                           | 15           |
| <b>Unit III</b>            | <b>Introduction to GIS and Mapping Software</b> <ul style="list-style-type: none"> <li>Understanding Geographic Data Formats (Vector and Raster)</li> <li>Basics of Mapping in Open-Source GIS Software (QGIS)</li> <li>Data Importing, Layer Management, and Map Creation</li> <li>Simple Spatial Analysis and Thematic Mapping</li> </ul>                                                                                                           | 15           |
| <b>Unit IV</b>             | <b>Presentation and Report Writing for Geographic Studies</b> <ul style="list-style-type: none"> <li>Creating Effective Presentations (MS PowerPoint, Canva)</li> <li>Data Visualization Techniques for Geography</li> <li>Standard formatting Research Reports and Documentation</li> <li>Final Project: Practical Application of Computer Skills in Geography</li> </ul>                                                                            | 15           |
| <b>Study Resources</b>     | <ul style="list-style-type: none"> <li><b>Law, M., &amp; Collins, A. (2021):</b> <i>Getting to know ArcGIS Pro</i> (2nd ed.). Esri Press.</li> <li><b>Chang, K. (2019):</b> <i>Introduction to geographic information systems</i> (9th ed.). McGraw-Hill.</li> <li><b>de Smith, M. J., Goodchild, M. F., &amp; Longley, P. A. (2020):</b></li> </ul>                                                                                                  |              |

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|  | <p><i>Geospatial analysis: A comprehensive guide to principles, techniques, and software tools</i> (6th ed.). Winchelsea Press.</p> <ul style="list-style-type: none"> <li>• <b>Harris, R., &amp; Jarvis, C. (2011):</b> <i>Statistics for geography and environmental science</i> (1st ed.). Routledge.</li> <li>• <b>Few, S. (2012):</b> <i>Show me the numbers: Designing tables and graphs to enlighten</i> (2nd ed.). Analytics Press.</li> </ul> |  |
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### Examination and Evaluation

| Sr. No. | Particulars                 | Internal Marks | External Marks |
|---------|-----------------------------|----------------|----------------|
| 01      | Journal and Viva-voce       | 05             | 05             |
| 02      | Class Practical performance | 05             | 00             |
| 03      | Practical Examination       | 10             | 25             |

**T.Y.B.A (Geography)**  
**Semester VI**  
**GEOG-DSE-361 (A): Geography of India**

**Credit: 4**

**Internal Examination: 40**

**Marks: 100**

**External Examination: 60**

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| <b>Course Objectives</b> | <ul style="list-style-type: none"> <li>To understand the location, extent, and administrative divisions of India and its adjoining countries.</li> <li>To study India's physiographic divisions, climate, drainage, and natural vegetation.</li> <li>To analyze the growth and distribution of population in India and its impact on agriculture.</li> <li>To explore India's mineral resources, industries, and the distribution of major crops and industries.</li> </ul>                                                                                                                                                              |              |
| <b>Course Outcomes</b>   | After successful completion of this course, students are expected to: <ul style="list-style-type: none"> <li>To identify the geographical location, extent, and administrative divisions of India.</li> <li>Understand the factors influencing population growth and distribution across India.</li> <li>Develop knowledge of the geographical conditions affecting agricultural production and distribution of major crops like rice and cotton.</li> <li>Gain insights into India's mineral resources, key industries, and industrial policies.</li> </ul>                                                                             |              |
| <b>Unit</b>              | <b>Contents</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Hours</b> |
| <b>Unit I</b>            | <b>Introduction</b> <ul style="list-style-type: none"> <li>Location, extent and Geographical area</li> <li>Administrative divisions of India</li> <li>Adjoining countries</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 10           |
| <b>Unit II</b>           | <b>Physiographic division</b> <ul style="list-style-type: none"> <li>Drainage</li> <li>Climate</li> <li>Natural vegetation</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 10           |
| <b>Unit III</b>          | <b>Population and Agriculture</b> <ul style="list-style-type: none"> <li><b>Population:</b> <ul style="list-style-type: none"> <li>Growth of population in India Since 1901</li> <li>Factors affecting the distribution of population in India (Physical and Cultural)</li> <li>State – wise Density distribution of</li> <li>Population in India.</li> <li>Sex Ratio - its regional variation and associate problems of low Sex Ratio.</li> </ul> </li> <li><b>Agriculture:</b> <ul style="list-style-type: none"> <li>Study of geographical condition,</li> <li>Production and distribution of following crops:</li> </ul> </li> </ul> | 20           |

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|                        | <ul style="list-style-type: none"> <li>• Rice</li> <li>• Cotton</li> <li>• Argo-climatic Regions of India</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |
| <b>Unit IV</b>         | <b>Minerals and Industries</b> <ul style="list-style-type: none"> <li>• <b>Mineral and Power Resources:</b> <ul style="list-style-type: none"> <li>○ Production and distribution of resources</li> <li>○ Iron ore</li> <li>○ Bauxite</li> <li>○ Coal</li> <li>○ Hydel Power</li> </ul> </li> <li>• <b>Industries:</b> <ul style="list-style-type: none"> <li>○ Distribution and Production of following Industries</li> <li>○ Cotton Textile industries</li> <li>○ Sugar Industries</li> <li>○ Major Industrial Belts in India.</li> <li>○ Industrial Policy of India</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 20 |
| <b>Study Resources</b> | <ul style="list-style-type: none"> <li>• <b>Dastane:</b> “Bharat Ek Pahani”, Dastane Ramchandra and Company.</li> <li>• <b>Gharpure V.T. (2004):</b> “Bharatacha Bhugol”, Pimplapure Prakashan, Nagpur (Marathi Medium)</li> <li>• <b>Hussain M. (1992):</b> “Geography of India”, Tata Mac Graw Hill Education.</li> <li>• <b>Miller F.P. and et. Al. (2009):</b> “Geography of India”, Alpha script Publishing.</li> <li>• <b>Nag P. and Sengupta S.:</b> “Geography of India”, Concept Publishing Company.</li> <li>• <b>Patil V.J., Sandanshiv L.P. &amp; Mrs. Jangale P.P. (2017):</b> “Physical Geography of India”, Prashant Publication, Jalgaon (MS).</li> <li>• <b>Patil V.J., Sandanshiv L.P. &amp; Mrs. Jangale P.P. (2017):</b> “Economic Geography of India”, Prashant Publication, Jalgaon (MS).</li> <li>• <b>Puranik Madhav (2005):</b> “Bharatacha Bhugol”, Vidya Prakashan, Nagapur.</li> <li>• <b>Rana, Tejbir Singh (2015):</b> “Diversity of India”, R.K. Book, Delhi.</li> <li>• <b>Sandanshiv L.P. and et. al. (2015):</b> “NET/ SET Geography”, Prashant Publication, Jalgaon (Marathi).</li> </ul> |    |

**T.Y.B.A (Geography)**  
**Semester VI**  
**GEOG-DSE-361 (B): Remote Sensing and GIS for Rural Development**  
**(SWAYAM – NPTEL online Course)**

**Credit: 4**

**Internal Examination: 40**

**Marks: 100**

**External Examination: 60**

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| <b>Learning objectives</b> | <ul style="list-style-type: none"> <li>To understand rural development concepts and linkages to water and food security.</li> <li>To learn the basics of RS &amp; GIS and their role in rural development.</li> <li>To develop skills in GIS operations and image processing.</li> <li>To apply RS &amp; GIS for rural water, agriculture, and impact assessment.</li> </ul>                                                                                                                                                                          |              |
| <b>Course outcomes</b>     | <p>After completing this course, students will be able to:</p> <ul style="list-style-type: none"> <li>Explain the role of geospatial technology in addressing rural development challenges.</li> <li>Perform basic operations on vector and raster datasets using GIS software.</li> <li>Apply RS &amp; GIS techniques for water resource management, agricultural mapping, and rural infrastructure planning.</li> <li>Analyze and interpret case studies on the impact assessment of rural development schemes using RS &amp; GIS tools.</li> </ul> |              |
| <b>Unit</b>                | <b>Contents</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Hours</b> |
| <b>Unit I</b>              | <ul style="list-style-type: none"> <li>Introduction to rural development; concepts, issues, and linkages to water and food security</li> <li>Introduction to geospatial technology (RS&amp;GIS) and its importance in rural development</li> <li>Introduction to open-source software for RS&amp; GIS applications</li> <li>Introduction to GIS Part -I (Operations on vector data sets)</li> <li>Introduction to GIS Part -II (Operations on raster data sets)</li> </ul>                                                                            | 15           |
| <b>Unit II</b>             | <ul style="list-style-type: none"> <li>Digital remote sensing image processing Part -I (Georeferencing of map data, cartographic maps, shape file creation)</li> <li>Digital remote sensing image processing Part -II (Digital elevation model, land use land cover change analysis)</li> <li>RS &amp; GIS for rural water resources management – (surface water management, groundwater management)</li> </ul>                                                                                                                                       | 15           |
| <b>Unit III</b>            | <ul style="list-style-type: none"> <li>RS &amp; GIS for agriculture and soil management (farm linkages, irrigation, crop management, and mapping of storage infrastructure)</li> <li>RS &amp; GIS application for rural healthcare, education, connectivity, and communication</li> </ul>                                                                                                                                                                                                                                                             | 15           |

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| <b>Unit IV</b>    | <ul style="list-style-type: none"> <li>• RS &amp; GIS for impact assessment of government rural development schemes</li> <li>• Applications and examples of RS &amp; GIS for rural development: Selected case studies</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 15 |
| <b>References</b> | <ul style="list-style-type: none"> <li>• <b>Bhatta, B. (2011):</b> <i>Remote Sensing and GIS</i>. Oxford University Press.</li> <li>• <b>Choudhury, S., &amp; Jansen, L. J. M. (2019):</b> <i>Geospatial Technologies for Land Degradation Assessment and Management</i>. Springer.</li> <li>• <b>Lillesand, T., Kiefer, R., &amp; Chipman, J. (2015):</b> <i>Remote Sensing and Image Interpretation</i> (7th ed.). Wiley.</li> <li>• <b>Kumar, S. (2019):</b> <i>Basics of Remote Sensing and GIS</i>. New India Publishing Agency.</li> <li>• <b>Roy, P. S., Dwivedi, R. S., &amp; Vijayan, D. (2010):</b> <i>Remote Sensing Applications</i>. National Remote Sensing Centre (NRSC), Indian Space Research Organisation (ISRO).</li> <li>• <b>Jensen, J. R. (2013):</b> <i>Remote Sensing of the Environment: An Earth Resource Perspective</i> (2nd ed.). Pearson Education.</li> <li>• <b>Gupta, R. P. (2018):</b> <i>Remote Sensing Geology</i> (2nd ed.). Springer.</li> <li>• <b>Mather, P. M., &amp; Koch, M. (2011):</b> <i>Computer Processing of Remotely Sensed Images: An Introduction</i> (4th ed.). Wiley-Blackwell.</li> </ul> |    |

**T.Y. B.A. (Geography)**  
**Semester- VI**  
**GEOG-VSC-361: Geographic Information System**

**Credit: 2**

**Internal Examination: 20**

**Marks: 50**

**External Examination: 30**

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |              |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <b>Course Objectives</b> | <ul style="list-style-type: none"> <li>To understand the fundamentals knowledge of GIS.</li> <li>To acquaint the students about the components and data models of GIS.</li> <li>To learn the map making technics</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                     |              |
| <b>Course Outcomes</b>   | After successful completion of this course, students are expected to: <ul style="list-style-type: none"> <li>It helps in preparation of thematic maps.</li> <li>It is helpful in Data analysis, management and map preparation.</li> <li>To understand the application of GIS in various fields.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                     |              |
| <b>Unit</b>              | <b>Contents</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Hours</b> |
| <b>Unit I</b>            | <b>Introduction of GIS</b> <ul style="list-style-type: none"> <li>Introduction, Meaning and Definitions</li> <li>Basics of GIS</li> <li>Components</li> <li>GIS Tasks</li> <li>Importance of GIS Historical Background &amp; Development of GIS</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                      | 07           |
| <b>Unit II</b>           | <b>Spatial Data Model</b> <ul style="list-style-type: none"> <li>Introduction</li> <li>Stages of GIS Data Modeling</li> <li>Raster Data Models               <ul style="list-style-type: none"> <li>Field Based Raster Model</li> <li>Simple Raster Arrays</li> <li>Hierarchical Raster Structures</li> <li>Types of Raster GIS Models</li> </ul> </li> <li>Vector Data Model               <ul style="list-style-type: none"> <li>Object based vector data model</li> <li>Field based vector model</li> </ul> </li> <li>Raster versus vector               <ul style="list-style-type: none"> <li>Advantages and disadvantages raster and vector models</li> </ul> </li> </ul> | 08           |
| <b>Unit III</b>          | <b>Attribute Data Management</b><br>Introduction <ul style="list-style-type: none"> <li>Concept of Database and DBMS</li> <li>Advantages of DBMS</li> <li>Functions of DBMS</li> <li>File and Data Access</li> <li>Database Models               <ul style="list-style-type: none"> <li>Hierarchical Database Models</li> <li>Network Systems</li> <li>Relational Database Models</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                        | 08           |

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |    |
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| <b>Unit IV</b>         | <b>Modern Trends in GIS and Applications</b> <ul style="list-style-type: none"> <li>• Introduction</li> <li>• Local to global concept in GIS</li> <li>• Increase in dimensions in GIS</li> <li>• Development of common techniques in GIS</li> <li>• Integration of GIS and Remote Sensing</li> <li>• Applications of GIS in different fields</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 07 |
| <b>Study Resources</b> | <ul style="list-style-type: none"> <li>• <b>Basudeb Bhatta. (2011):</b> Remote Sensing and GIS, 2nd ed., Oxford University Press.</li> <li>• <b>C. P. Lo &amp; Albert K. W. Yeung (2002):</b> Concepts and techniques of Geographic Information System, Prentice Hall, India.</li> <li>• <b>Chanda B. Dattaa D., 2001:</b> Mujumdar: Digital Image Processing and Analysis, Prentice- Hall of India.</li> <li>• <b>Demers M. N. (2008):</b> Fundamentals of Geographic Information Systems 2nd ed., John Wiley &amp; Sons.</li> <li>• <b>Michael F. Goodchild (2002):</b> Introduction to Geographic Information System and Science, John Wiley &amp; Sons.</li> <li>• <b>Kang- Tsung Chang (2002):</b> Introduction to Geographical Information System, McGraw Hill.</li> <li>• <b>P. A. Burrough &amp; R.A. McDonnell (2000):</b> Principles of Geographical Information System, Oxford University Press.</li> <li>• <b>Roy P. S. (2000):</b> Geographical Information Science Vol. I, IIRS.</li> <li>• <b>Dr. Shrikant Karlekar (2015):</b> Bhaugolik Mahiti Pranali (GIS) (Marathi), Diamond Publications.</li> <li>• <b>डॉ. डी एस् सूर्यवंशी ., डॉ. जे. पाटील .:</b> दूर संवेदन आणि भौगोलिक माहिती प्रणाली प्रशांत पब्लिकेशन.</li> </ul> |    |

**T.Y. B.A. Geography**  
**Semester-VI**  
**GEOG.VSC. 362: Practical on GIS**

*(12 students per batch and 4 Hours per week per Batch)*

**Credit: 2**

**Internal Examination: 20**

**Marks: 50**

**External Examination: 30**

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |              |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <b>Course Objectives</b> | <ul style="list-style-type: none"> <li>To understand the process of analog to digital conversion and scanning methods.</li> <li>To gain proficiency in using GIS software for georeferencing and data editing.</li> <li>To learn techniques for data collection, integration, and advanced GIS analyses.</li> <li>To develop skills in map making, layout generation, and report writing.</li> </ul>                                                                                         |              |
| <b>Course Outcomes</b>   | <p>After successful completion of this course, students are expected to:</p> <ul style="list-style-type: none"> <li>Perform analog to digital conversion and georeferencing using GIS software.</li> <li>Edit and manage GIS data, including removing errors and attaching non-spatial data.</li> <li>Apply various GIS analysis techniques such as buffering, clipping, and network analysis.</li> <li>Create detailed maps and layouts, and generate comprehensive GIS reports.</li> </ul> |              |
| <b>Unit</b>              | <b>Contents</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Hours</b> |
| <b>Unit I</b>            | <b>Introduction</b> <ul style="list-style-type: none"> <li>Introduction to GIS software</li> <li>Analog to Digital Conversion – Scanning methods</li> <li>Georeferencing GIS Entities and Feature Data Base Point features, Line features, and Polygon features</li> </ul>                                                                                                                                                                                                                   | 15           |
| <b>Unit II</b>           | <b>Database creation and analysis</b> <ul style="list-style-type: none"> <li>Data Editing-Removal of errors – Overshoot &amp; Undershoot, Snapping</li> <li>Data Collection and Integration, Non-spatial data attachment working with tables</li> </ul>                                                                                                                                                                                                                                      | 15           |
| <b>Unit III</b>          | <b>Data Management and editing</b> <ul style="list-style-type: none"> <li>Dissolving and Merging</li> <li>Clipping, Intersection and Union</li> <li>Buffering techniques</li> <li>Spatial and Attribute query and Analysis</li> <li>Contouring and DEM</li> </ul>                                                                                                                                                                                                                            | 15           |
| <b>Unit IV</b>           | <b>Advance technique in GIS</b> <ul style="list-style-type: none"> <li>Advanced Analyses in GIS</li> <li>Network analyses</li> <li>Layout Generation and report</li> <li>Map Making</li> </ul>                                                                                                                                                                                                                                                                                               | 15           |

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|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Study Resources</b> | <ul style="list-style-type: none"> <li>• <b>Thomas M. Lillesand &amp; Ralph W. Keifer, 2000:</b> Remote Sensing and image interpretation (John Wiley &amp; sons, Inc).</li> <li>• <b>Chang, K. T. 2008:</b> Introduction to Geographic Information Systems, Avenue of the Americas, McGraw-Hill, New York</li> <li>• <b>Environmental Systems Research Institute, Inc. 1998:</b> Understanding GIS: The ARC/INFO Method, ESRI Press, Redland</li> <li>• <b>Ahmed, E. L., Rabbani 2002:</b> Introduction to Global Positioning System, Artech House, Boston</li> <li>• <b>Kresse, W. and Danko, D. 2002:</b> Springer Handbook of Geographic Information, Springer Drecht, London</li> <li>• <b>Bao, J., Tsui, Y. 2005:</b> Fundamentals of Global Positioning System Receivers, John Wiley Sons, Inc., Hoboken</li> </ul> |  |
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### Examination and Evaluation

| Sr. No. | Particulars                 | Internal Marks | External Marks |
|---------|-----------------------------|----------------|----------------|
| 01      | Journal and Viva-voce       | 05             | 05             |
| 02      | Class Practical performance | 05             | 00             |
| 03      | Practical Examination       | 10             | 25             |

**K.C.E. Society's**  
**M. J. College (Autonomous), Jalgaon**  
**Department of Geography**  
**Board of Studies in Geography**

|    |                           |          |                                                                                                             |
|----|---------------------------|----------|-------------------------------------------------------------------------------------------------------------|
| 01 | Prof. S. N. Bharambe      | Chairman | M. J. College (Autonomous), Jalgaon                                                                         |
| 02 | Dr. B. L. Kambale         | Member   | M. J. College (Autonomous), Jalgaon                                                                         |
| 03 | Dr. S. B. Dongare         | Member   | M. J. College (Autonomous), Jalgaon                                                                         |
| 04 | Dr. C. D. Mahajan         | Member   | M. J. College (Autonomous), Jalgaon                                                                         |
| 05 | Prof. Parag Khadke        | Member   | School of Earth Sciences, Swami Ramanand Teerth Marathwada University, Nanded                               |
| 06 | Prof. V. R. Nagrale       | Member   | Department of Geography, Dept. of P.G.S.R. S.N.D.T. Women's University, Pune                                |
| 07 | Dr. D. G. Bhole           | Member   | ASPM's Women's College of Arts, Commerce And Computer Applications, Dongar Kathore, Tal Yawal, Dist Jalgaon |
| 08 | Prof. V. J. Patil         | Member   | Department of Geography, Dr. Annasaheb G.D. Bendale Mahila Mahavidyalaya, Jalgaon                           |
| 09 | Dr. Vikram Madhukar Agone | Member   | VIKRAM GEOINFO TECH<br>Chalisgaon, Dist: Jalgaon, Maharashtra, India.                                       |