

**Kavayitri Bahinabai Chaudhari**  
**North Maharashtra University, Jalgaon**



'A' Grade  
NAAC Re-Accredited  
(3<sup>rd</sup> Cycle)

**SYLLABUS**

**For**

**M.A. / M. Sc.- II<sup>nd</sup> YEAR (Sem. III<sup>rd</sup> and IV<sup>th</sup>)**

**Subject: Geography**

**Under**

***Choice Based Credit System***

**(With Effect from June - 2022)**

**Summary of Distribution of Credits under CBCS Scheme  
for  
M. A /M.Sc. (Geography)**

Sr. No	Type of course	Sem I	Sem II	Sem III	Sem IV
01	Core	16	16	16	12
02	Skill based	04	04	-	-
03	Elective	-	-	04	04
04	Project	-	-	-	04
05	Audit	02	02	02	02
06	Total Credits	22	22	22	22

Subject Type	Core	Skill based	School Elective	Project	Audit	Total
Credits	60	08	08	04	08	88

**Total Credits = 88**

# Kavayitri Bahinabai Chaudhari North Maharashtra University Jalgaon

## M.A / M. Sc. Geography

Choice Based Credit System (Outcome Based Curriculum) with effect from 2021 -2022

### Course credit scheme

Semester	(A) Core Courses			(B) Skill Based / Elective Course			(C) Audit Course (No weightage in CGPA)			Total Credits (A+B+C)
	No. of Courses	Credits (T+P)	Total Credits	No. of Courses	Credits (T+P)	Total Credits	No. of Courses	Credits (Practical)	Total Credits	
I	4	8 + 8	16	1	4 + 0	4	1	2	2	22
II	4	12 + 4	16	1	0 + 4	4	1	2	2	22
III	4	8 + 8	16	1	4 + 0	4	1	2	2	22
IV	4	8 + 8	16	1	4 + 0	4	1	2	2	22
Total Credits	64			16			8			88

(T, Theory; P, Practical)

### Structure of Curriculum

		First Year				Second Year				Total Credit Value
		Semester I		Semester II		Semester III		Semester IV		
		Credit	Course	Credit	Course	Credit	Course	Credit	Course	
(A)	<b>Prerequisite and Core Courses</b>									
	Theory	4	2	4	3	4	2	4	2	36
	Practical	4	2	4	1	4	2	4	2	28
(B)	<b>Skill Based / Subject Elective Courses</b>									
1	Theory /Practical	4	1	4	1	4	1	4	1	16
(C)	<b>Audit Course (No weightage in CGPA calculations)</b>									
1	Practicing Cleanliness	2	1							2
2	Personality and Cultural Development Related Course			2	1					2
3	Technology Related + Value Added Course					2	1			
4	Professional and Social + Value Added Course							2	1	2
	Total Credit Value	14	6	14	6	14	6	14	6	88

Semester III (Choose One)		Semester IV (Choose One)	
Technology + Value Added Course		Professional and Social + Value Added Course	
Course Code	Course Title	Course Code	Course Title
AC-301A	Computer Skills	AC-401A	Human Rights
AC-301B	Cyber Security	AC-401B	Current Affairs
AC-301C	Rainwater Harvesting	AC-401C	Green Audit
AC-301D	Geo-Tourism	AC-401D	Review of Research Paper

## Semester-wise Course Structure of M.A M.Sc. Geography

### Semester III

Course	Course Type	Course Title	Teaching Hours/ Week			Marks (Total 100)				Credits
			T	P	Total	Internal		External		
						T	P	T	P	
GG. -301	Core	Regional Geography of India	4	--	4	40	--	60	--	4
GG.-302	Core	Research Methodology	4	--	4	40	--	60	--	4
GG.303	Elective	<b>(Choose one out of Three.)</b>								
		<b>GG.303 A</b> Watershed Management and Planning								
		<b>GG.303 B</b> Geographical Information System	4	-	4	40	-	60	-	4
		<b>GG.303 C</b> Agricultural Geography								
GG. -304	Core	Practical in Remote Sensing - Interpretation of Aerial Photographs and Satellite Imageries	--	4+4	8	--	40	--	60	4
GG. -305	Core	Practical of Computerize Data Analysis Techniques in Geography	-	4+4	8	-	40	-	60	4
AC-301 A/B/C/D	Audit Course	<b>(Choose one out of Four )</b> AC-301A - Computer Skills / AC-301B - Cyber Security / AC-301C – Rainwater Harvesting / AC-301D- Geo-tourism		2	2		100	--	--	2
<b>Total Credit for Semester III: 22 (T = Theory: 8; P = Practical:8; Skill Based:4; Audit Course:2)</b>										

### Semester IV

Course	Course Type	Course Title	Teaching Hours/ Week			Marks (Total 100)				Credits
			T	P	Total	Internal		External		
						T	P	T	P	
GG. -401	Core	Geomorphology	4	--	4	40	--	60	--	4
GG.-402	Core	Climatology	4	--	4	40	--	60	--	4
GG.-403	Elective	<b>(Choose one out of Three.)</b>								
		<b>GG.403 A</b> Geography of Rural Settlements								
		<b>GG.403 B</b> Geography of Resources	4	-	4	40	-	60	-	4
		<b>GG.403 C</b> Industrial Geography								
GG.-404	Core	Practical in Physical Geography	--	4+4	8	--	40	--	60	4
GG.405	Core	Project work	-	4+4	8	-	40	-	60	4
AC-401 A/B/C/D	Audit Course	<b>(Choose one out of Four )</b>								
		AC-401A Human Rights /								
		AC-401B Current Affairs /								
		AC-401C Green Audit /								
		AC-401D Review of Research Paper		2	2	100	--	--		2
<b>Total Credit for Semester IV: 22 (T = Theory: 8; P = Practical:8; Skill Based:4; Audit Course:2)</b>										

**Equivalences for old courses of M.A / M.Sc Geography  
(Part I and II)**

**Semester – I<sup>st</sup>**

Old Courses (June 2017)		New Courses (June 2021)	
Code of Courses	Title of the courses	Code of Course	Title of the courses
Gg.111	Principles of Economic Geography	GG. 101	Principles of Economic Geography
Gg.112	Principles of Population and Settlement Geography.	GG.102	Principles of Population Geography
Gg.113	Principles of Climatology.	GG.402	Climatology
Gg.114	Principles of Geomorphology.	GG. 401	Geomorphology
Gg.115	Practical in Geography	GG.103	Practical in Interpretation of SOI Topographical maps and Surveying by GPS

**Semester – II<sup>nd</sup>**

Old Courses (June 2017)		New Courses (June 2021)	
Code of Courses	Title of the courses	Code of Courses	Title of the courses
Gg.211	Geographical Thoughts	GG. 201	Geographical Thoughts
Gg.212	Social and Cultural Geography	GG.202	Social and Cultural Geography
Gg.213	Remote Sensing.	GG.203	Remote Sensing
Gg.214	Geo-Statistical Methods		#
Gg.215	Practical of Computerize Data Analysis Techniques in Geography	GG.204	Practical in Cartographic Techniques with the help of GIS

**Semester – III<sup>rd</sup>**

Old Courses (June 2017)		New Courses (June 2022)	
Code of Courses	Title of the courses	Code of Course	Title of the courses
Gg.311(A) Gg.311(B)	Regional Geography of U. S. A OR Regional Geography of Asia.	GG. 301	Regional Geography of India
Gg.312	Environmental Geography.	#	
Gg.313	.Geographical Informational System.	#	
Gg.314	Watershed Management and Planning	#	
Gg.315	Practical of Physical Geography with the help of GIS.	#	

**Semester – IV<sup>th</sup>**

Old Courses (June 2017)		New Courses (June 2022)	
Code of Courses	Title of the courses	Code of Courses	Title of the courses
Gg.411(A)	Fluvial Geomorphology. OR	#	
Gg.411(B)	Industrial Geography. OR	GG. 403 (C)	Industrial Geography
Gg. 411(C)	Geography of Rural Settlement.	GG.403(A)	Geography of Rural Settlements.
Gg.412(A)	Tropical Geomorphology. OR	#	
Gg.412(B)	Geography of Trade and Transport. OR	#	
Gg. 412(C)	Urban Geography.	#	
Gg. 413(A)	Research Methodology. OR	GG. 302	Research Methodology
Gg. 413 (B)	Dissertation.	GG.405	Project Work
Gg.414(A)	Geography of Tourism. OR GG.105		GG.105- Tourism Management
Gg.414(B)	Coastal Geomorphology. OR	#	
Gg. 414 (C)	Agricultural Geography.		GG.303 ( C ) Agricultural Geography.
Gg.415	Interpretation of Topographical Maps, Aerial Photographs , Satellite Imageries , Surveying.	#	

# No equivalent course is available for this paper, so # No equivalent course is available for this paper, so students may be allowed to appear by old course.

**Distribution of Course papers for M.A / M. Sc. Part II (Geography)**

Subject Code	Title of the Paper		Duration (Hrs./Wk)	Max. Mark	Exam. Time (Hrs.)
<b>M.A / M.Sc. Part II</b>					
<b>Semester III</b>					
GG.-301	Regional Geography of India	Core course	04	100	03
GG -302	Research Methodology	Core course	04	100	03
GG -303	<b>Choose one out of Three</b> GG- 303A - Watershed Management and Planning. / GG- 303B - Geographical Information System ./ GG- 303C - Agricultural Geography /		04	100	03
GG -304	Practical in Remote Sensing – Interpretation of Aerial Photographs and Satellite Imageries	Core course	<b>04+04</b>	<b>100</b>	06
GG -305	Practical of Computerize Data Analysis Techniques in Geography	Core course	<b>04+04</b>	<b>100</b>	06
AC-301	<b>Choose one out of Four</b> AC-301A – Computer Skills / AC-301B – Cyber Security/ AC-301C -Rain water harvesting / AC-301D- Geo-tourism	Audit Course	<b>02</b>	<b>100</b>	
<b>Semester IV</b>					
GG -401	Geomorphology	Core course	<b>04</b>	<b>100</b>	03
GG -402	Climatology	Core course	<b>04</b>	<b>100</b>	03
GG -403	<b>Choose one out of Three</b> GG- 403A - Geography of Rural Settlements / GG- 403B - Geography of Resources / GG- 403C - Industrial Geography		<b>04</b>	<b>100</b>	03
GG -404	Practical in Physical Geography	Core course	<b>04+04</b>	<b>100</b>	06
GG -405	Project work		<b>04+04</b>	<b>100</b>	06
AC-401A/B/C/D	<b>Choose one out of Four</b> AC-401A - Human Rights / AC-401B - Current Affairs / AC-401C- Green Audit / AC-401D - Review of Research Paper -	Audit Course	<b>02</b>	<b>100</b>	

**Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon**  
**New Syllabus M.A./M.Sc. Geography**  
**Semester-III (CBCS Pattern)**  
*Theory - Core-Course*

**Gg. 301: Regional Geography of India**

(With Effect from June 2022)

**Total Marks-100**

**Credit Points- 04**

**Teaching Hours/Week: 04**  
**Clock Hours : 60**

**Course Objectives:**

1. To acquaint the students with basic knowledge of our country.
2. To aware the students about physiography, drainage, climate, soils and natural vegetation of India.
3. To aware the students with natural resources available in the country and need of conservation and protection of them.
4. To make the students ready for NET, SET and competitive examinations.

**Course Outcomes:**

After completion of this course, the students will be able to

1. Know about their own country regarding physical and cultural aspects.
2. Examine the regional differentiation in the study of India.

Unit no.	Units	Sub-Units	Lectures
1	<b>Introduction of Physiography Drainage Systems</b>	i. Geographical and relative location of India Main physiographic divisions & their importance <ol style="list-style-type: none"> <li>i. The northern mountains</li> <li>ii. The north Indian Plain</li> <li>iii. The peninsular plateau</li> <li>iv. The coastal lowlands</li> <li>v. The islands</li> </ol> A) Himalayan drainage systems: <ol style="list-style-type: none"> <li>i. Ganga</li> <li>ii. Brahmaputra</li> <li>iii. Indus</li> </ol> B) Peninsular drainage system <ol style="list-style-type: none"> <li>1. East Flowing Rivers:               <ol style="list-style-type: none"> <li>i. Godavari</li> <li>ii. Krishna</li> <li>iii. Mahanadi</li> </ol> </li> <li>2. West Flowing Rivers:               <ol style="list-style-type: none"> <li>i. Narmada</li> <li>ii. Tapi</li> </ol> </li> </ol>	14

2	<b>Climate</b>	<p>A) Main Seasons &amp; Associated weather conditions:</p> <ol style="list-style-type: none"> <li>i. The winter</li> <li>ii. The summer</li> <li>iii. The rainy/monsoon</li> <li>iv. The retreat monsoon</li> </ol> <p>B) Origin and mechanism of monsoon:</p> <ol style="list-style-type: none"> <li>i. Traditional concept: Halley's view</li> <li>ii. Recent Concept: <ol style="list-style-type: none"> <li>a. Role of Tibet plateau</li> <li>b. ITCZ</li> <li>c. Jet Stream</li> <li>d. El-Nino</li> </ol> </li> </ol>	08
3	<b>Soils and Agriculture</b>	<p>A) Major soil types and their distribution in India:</p> <ol style="list-style-type: none"> <li>i. Alluvial soil</li> <li>ii. Black soil</li> <li>iii. Red soil</li> <li>iv. Arid and Desert soils</li> <li>v. Saline and Alkaline soils</li> <li>vi. Peaty and Marshy soils</li> <li>iii. Soil degradation and soil conservation</li> </ol> <p>B) Distribution and Production of Major Crops:</p> <ol style="list-style-type: none"> <li>i. Rice</li> <li>ii. Wheat</li> <li>iii. Cotton</li> <li>iv. Sugarcane</li> </ol> <p>C) Factors affecting Indian Agriculture:</p> <ol style="list-style-type: none"> <li>i. Environmental Factors</li> <li>ii. Technological Factors</li> <li>iii. Institutional Factors</li> </ol>	12
4	<b>Forest</b>	<p>A) Main forest types and their distribution in India:</p> <ol style="list-style-type: none"> <li>i. Moist Tropical forests</li> <li>ii. Dry Tropical forests</li> <li>iii. Montane Sub-tropical forests</li> <li>iv. Montane Temperate forests</li> <li>v. Alpine forests</li> </ol>	06
5	<b>Minerals, Energy Resources and Industries</b>	<p>A) Distribution and Utilization of Minerals:</p> <ol style="list-style-type: none"> <li>i. Iron Ore</li> <li>ii. Manganese</li> <li>iii. Bauxite</li> </ol> <p>B) Distribution and Utilization of Energy Resources:</p> <ol style="list-style-type: none"> <li>i. Coal</li> <li>ii. Petroleum</li> <li>iii. Natural gas</li> </ol> <p>C) Major power projects in India:</p> <ol style="list-style-type: none"> <li>i. Hydro electric</li> <li>ii. Thermal Power</li> </ol>	12

		iii. Atomic power A) Major Industries in India: i. Cotton Textile ii. Iron and Steel B) Major Industrial Regions in India	
6	<b>Population</b>	A) Growth and distribution of population in India B) Composition and structure of Population: i. Age-sex ii. Religious iii. Marital status iv. Occupational structure	08

N.B.: According need of topics, maps are expected.

#### Weightage

Marks	
<b>Internal Assessment</b>	<b>40 marks</b>
<b>External Assessment</b>	<b>60 marks</b>

#### Suggested readings:

1. Agrawal A. N. (2019): "Indian economy, Developmental Problems and policies" New Age International Pvt. Ltd.
2. Bhende, Asha A and Kanitkar Tara (2015): "Principles of Population Studies", Himalaya Pub. House, New Delhi.
3. Chandana R. C. (2016): "Geography of population", Kalyani Publishers, New Delhi.
4. Chopra S. N. - India, an Area Study.
5. Deshpande C. D. (1992): "India: A Regional Interpretation", Indian Council of Social Science Research and National Book Centre, New Delhi
6. Dubey and Negi - Economic Geography of India.
7. Gopal Singh (1976): "Geography of India" Atma Ram Pub., Delhi
8. Khullar D. R. (2018) : "India: a Comprehensive Geography" Kalyani Publishers
9. Majid Husain (2008): "Geography of India", Tata McGraw Hill, New Delhi
10. Mathur, S. M. (1994): Physical Geology of India, National Book Trust, New Delhi, India.
11. Memoria, I. B. - Geography of India.
12. Singh R. L. (1971): "India-A Regional Geography". NGSI, Varanasi.

**Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon**  
**New Syllabus M.A./M.Sc. Geography**  
**Semester-III (CBCS Pattern)**  
*Theory - Core-Course*

**Gg. 302: Research Methodology**  
**(With Effect from June 2022)**

**Total Marks-100**

**Credit Points- 04**

**Teaching Hours/Week: 04**  
**Clock Hours : 60**

**Course Objectives:**

1. To create an awareness about research in the field.
2. To make a scientific view about the geographical phenomenon.
3. To develop the research ability and get solution on various problems.

**Course Outcomes:**

1. Student will acquire skills related to research methodology.
2. Students have been getting an advanced information and techniques in research.
3. Capability to acquire and apply fundamental principles of research methodology.

Unit No.	Units	Sub Units	Lectures
1	<b>Concept Research &amp; Research Problem</b>	A) Concept of Research- I. Definition and Significance of Research. II. Motivation in Research. III. Types of Research. IV. Criteria of Good Research. V. Plagiarism -Concepts B) Research Problem- I. Meaning of Research Problem. II. Selecting the Problem. III. Techniques involved in defining a problem. IV. Literature Survey: Library and Documentation.	<b>14</b>
2	<b>Hypothesis</b>	A) Characteristic of usable hypothesis. B) Types of Hypothesis. C) Sources of Hypothesis. D) Formulation of Hypothesis. E) Testing of Hypothesis.	<b>8</b>
3	<b>Research Design</b>	A) Meaning of Research Design. B) Need of Research Design. C) Features of a Good Design. D) Important Concepts Relating to Research Design.	<b>8</b>

<b>4</b>	<b>Sampling Design</b>	A) Implications of Sample Design. B) Steps in Sampling Design. C) Criteria of selecting a Sampling Procedure. D) Characteristics of a Good Sample Design. E) Types of Sampling-Probability & Non Probability Sampling. F) Complex Random Sampling Design.	<b>10</b>
<b>5</b>	<b>Data Collection Methods</b>	A) Collection of Primary Data through- a. Observation b. Interview c. Questionnaires d. Schedules B) Collection of Secondary Data C) Guidelines for Constructing Questionnaire	<b>8</b>
<b>6</b>	<b>Interpretation And report writing</b>	A) Interpretation of Data – I. Techniques of Interpretation II. Precautions in Interpretation. B) Report Writing- I. Significance of Report writing. II. Types of Research Report. III. Different Steps in Writing Report. IV. Layout of the Research Report. V. Precautions for Writing Research Report.	<b>12</b>

### Weightage

Marks	
<b>Internal Assessment</b>	<b>40 marks</b>
<b>External Assessment</b>	<b>60 marks</b>

### Suggested readings:

1. Kothari, C, R, (2004II Edn): Research Methodology Methods and Techniques, New Age International Publishers, New Delhi.
2. Mishra, R, P. (1989): Research Methodology A Hand Book, Concept Publishing Co, New Delhi.
3. Nayak J, k. And Singh, Priyanka (2004II Edn): Fundamentals of Research Methodology Problems and Prospectus, SSDN Publishers and Distributors, New Delhi.
4. Nicholas Walliman (2011): Research Methods the Basics, Routledge Taylor and Francis Group, London & New York.
5. Pandey, Prabhat and Pandey, Meenu M, (2015): Research Methodology Tools and Techniques, Bridge Centre, Buzau, Romania.
6. Ranjit Kumar (2011 III Edn): Research Methodology A Step-by-Step Guide for Beginners, SAGE Publishers, Los Angeles, New Delhi.
7. Tiwari R, N. and Shukla, D, P. (2003): Research Methodology, College Book Depot, Tripolia, Jaipur.

**Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon**  
**New Syllabus M.A./M.Sc. Geography**  
**Semester-III (CBCS Pattern)**  
*Theory – Elective - Course*

**Gg. 303 A : Watershed Management and Planning**

(With Effect from June 2022)

**Total Marks-100**

**Credit Points- 04**

**Teaching Hours/Week: 04**  
**Clock Hours : 60**

**Course Objectives:**

1. To know the concept of watershed management
2. To learn the technique of watershed demarcation
3. To study the morphometric parameters
4. To learn the techniques of water conservation

**Course Outcomes:**

At the end of the course, the student will be able to -

1. Understand the concept of watershed management and planning
2. Demarcate the watershed boundary using toposheet
3. Analyze the morphometric parameters
4. Learn the hydrogeology term and application of GIS.

Unit no.	Units	Sub-Units	Lectures
1	<b>Introduction and Characteristics of Watershed</b>	a) Concept of Watershed b) Types of Watershed c) Need and Importance for watershed management d) Demarcation of Watershed e) Channel geometry i. Cross profile ii. Longitudinal Profile f) Types of Channel	<b>10</b>
2	<b>Basin Morphometry Linear Aspects</b>	Morphometric Parameters a) Stream order b) Stream Length c) Mean stream length d) Stream length ratio e) Bifurcation Ratio f) Sinuosity Index	<b>12</b>
3	<b>Basin Morphometry Aerial Aspects</b>	Morphometric Parameters a) Aerial Aspects i) Stream Frequency ii) Drainage Density b) Drainage analysis on the basis of	<b>10</b>

		i) Horton's Form Factor ii) Miller's Circularity Ratio iii) Strahler's Ruggedness Index iv) Elongation ratio by Schumn v) Texture ratio by Hortan	
<b>4</b>	<b>Relief Aspect</b>	Morphometric Parameters a) Basin relief b) Absolute relief ratio c) Relative relief ratio d) Relief ratio e) Ruggedness Number f) Dissection Index	<b>08</b>
<b>5</b>	<b>Hydrogeology</b>	a) Water Budgeting b) Hydrological Characteristics i) Infiltration ii) Porosity iii) Runoff c) Aquifer and types of Aquifer	<b>08</b>
<b>6</b>	<b>Watershed Management &amp; Planning</b>	a) Applications of GIS in Watershed management b) Integrated Watershed Management Programs – IWMP (India) and Jalyukt Shivar (Maharashtra) c) Perspective on recycle and reuse d) Rainwater Harvesting	<b>12</b>

#### Weightage

Marks	
<b>Internal Assessment</b>	<b>40 marks</b>
<b>External Assessment</b>	<b>60 marks</b>

#### Suggested readings:

1. Murthy J. V. S. (1994): Watershed Management in India, Wiley Eastern Ltd. New Delhi.
2. Paranjape S. and Other (1980): Water based Development, Bharat Gyan Vigyan Samithi, New Delhi.
3. Mutreja K. N. (1990): Applied Hydrology, Tata Mc Graw Hill Pub. Co. Ltd. New Delhi.
4. Shing R. J. (2000): Watershed planning and Management, Yash Publishing House, Bikaner.
5. Chanda B., Dattaa D., Mujumdar (2001): Digital Image Processing and Analysis, Prentice- Hall of India.
6. Prithvish Nag and M. Kudrat (1998): Digital Remote Sensing, Concept Publishing Co. New Delhi.
7. Basudeb Bhatta (2011): Remote Sensing and GIS, 2nd ed., Oxford University Press.
8. M. Anji Reddy: Text book of Remote Sensing and GIS, 3rd Ed., BS Publications, Hyderabad-72.

**Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon**  
**New Syllabus M.A./M.Sc. Geography**  
**Semester-III (CBCS Pattern)**  
*Theory – Elective - Course*

**Gg. 303 B : Geographical Information System .**

(With Effect from June 2022)

**Total Marks-100**

**Credit Points- 04**

**Teaching Hours/Week: 04**  
**Clock Hours : 60**

**Course Objectives:**

- 1) To understand the principles and concepts of GIS and its applications.
- 2) To acquire theoretical knowledge of coordinate systems used in GIS.
- 3) To aware the students about the data models used in GIS.
- 4) To make the students familiar with the various processes involved in GIS.
- 5) To acquaint the students with the various Geo-spatial analysis.
- 6) To make the students aware of different Geo-spatial data analysis methods used in GIS.

**Course Outcomes:**

After completing this course, the students will be able to

- 1) Acquaint with different basic concepts and applications of GIS.
- 2) Explain theoretical knowledge of coordinate systems used in GIS.
- 3) Built various data models used in GIS.
- 4) Familiar with the various processes involved in GIS.
- 5) Acquaint with the various Geo-spatial analysis.
- 6) Understand the different Geo-spatial data analysis methods used in GIS

Unit no.	Units	Sub-Units	Lectures
1	<b>Introduction to GIS</b>	1.1 Introduction and Definition 1.2 History of GIS 1.3 Components of GIS 1.4 GIS Operations 1.5 Applications of GIS in various fields	<b>10</b>
2	<b>Coordinate Systems</b>	2.1 Geographical Coordinate System 2.2 Map Projections 2.3 Commonly used Map Projections 2.4 Projected Coordinate Systems	<b>10</b>
3	<b>Data Models</b>	3.1 Spatial Data Models: 3.1.1 Raster Data Model 3.1.2 Vector Data Model 3.1.3 Comparison of Raster and Vector Data Models 3.2 Non-Spatial Data Model: 3.2.1 Data Base Management Systems 3.2.2 Attribute Data	<b>08</b>
4	<b>Process of GIS</b>	4.1 Introduction	<b>10</b>

		4.2 Data Capture/Data sources 4.3 Data Encoding Methods 4.4 Linking of Spatial & Non-Spatial Data 4.5 Organizing Data for Analysis	
<b>5</b>	<b>Geospatial Analysis</b>	5.1 Introduction 5.2 Geospatial data analysis 5.3 Integration and Modeling of spatial data	<b>10</b>
<b>6</b>	<b>Geospatial Data Analysis Methods</b>	6.1 Database Query 6.2 Geospatial Measurements 6.3 Overlay operations 6.4 Network Analysis 6.5 Surface Analysis 6.6 Geo-statistics 6.7 Geo-visualization	<b>12</b>

### Weightage

Marks	
<b>Internal Assessment</b>	<b>40</b> marks
<b>External Assessment</b>	<b>60</b> marks

### Suggested readings:

- 1) Basudeb Bhatta. (2011): Remote Sensing and GIS, 2nd ed., Oxford University Press.
- 2) C. P. Lo & Albert K. W. Yeung (2002) Concepts and techniques of Geographic Information System, Prentice Hall, India.
- 3) Chanda B. Dattaa D., Mujumdar : Digital Image Processing and Analysis, Prentice Hall of India 2001.
- 4) Demers M. N. (2008): Fundamentals of Geographic Information Systems 2nd ed., John Wiley & Sons.
- 5) Michael F. Goodchild (2002): Introduction to Geographic Information System and Science, John Wiley & Sons.
- 6) Kang- Tsung Chang (2002): Introduction to Geographical Information System, McGraw Hill.
- 7) P. A. Burrough & R.A. McDonnell (2000): Principles of Geographical Information System, Oxford University Press.
- 8) Roy P. S. (2000): Geographical Information Science

**Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon**  
**New Syllabus M.A./M.Sc. Geography**  
**Semester-III (CBCS Pattern)**  
*Theory – Elective - Course*

**Gg. 303 C: Agricultural Geography**

(With Effect from June 2022)

**Total Marks-100**

**Credit Points- 04**

**Teaching Hours/Week: 04**  
**Clock Hours : 60**

**Course Objectives:**

1. To know the students the overall importance of agriculture in global perspective.
2. To discuss environmental technological and social issues in agricultural sector with special reference to India.
3. To familiarize the students with the fundamental concepts in agricultural geography.

**Course Outcomes:**

1. To acquaint the students with the application of various theories and models in agricultural geography.
2. To understand various Determinants of agricultural activities.
3. To aware the students towards recent Trends in Agriculture.

Unit no	Units	Sub - Units	Lectures
1	<b>Introduction to Agricultural Geography</b>	1. Meaning and Definition 2 Nature, scope and significance. 3 Interdisciplinary relevance to other Branches. 4 Importance of agriculture in Indian Economy	<b>06</b>
2	<b>Fundamental Concepts</b>	Fundamental concepts in agricultural geography 2.1 Land use 2.1.1 Agricultural land use 2.1.2 Net sown area 2.1.3 Gross cropped area 2.2 Crops 2.2.1 Crop concentration 2.2.2 Crop diversification 2.2.3 Crop combination.	<b>12</b>
3	<b>Determinants of agricultural activities</b>	A) Physical determinants 1. Topography , altitude and slope 2. Climate – temperature, sunshine, frost, moisture, drought , snow, winds, non-seasonal Precipitation. 3 Soils	<b>12</b>

		B) Socio- economic determinants 1.Land tenancy 2. Size of holding and fragmentation of fields 3. Labour 4.Capital 5.Mechanization and equipments 6. Marketing facilities 7. Government policies	
4	<b>Concept &amp; Techniques of delimitation of Agricultural Regions</b>	1. Crop Combination, 2. Crop Diversification. 3. Measurement of Agricultural Productivity. 4. Agricultural Efficiency. 5. Levels of Agricultural development.	12
5	<b>Models in Agricultural Geography</b>	A) Model : i) Meaning & Concept ii) Significance of Agricultural models iii) Limitations of Agricultural Models B) Classification of agricultural models i) Normative or Economic models ii) Descriptive models C) Von Thunen's Models & its modifications	10
6	<b>Recent Trends in Agriculture</b>	1. White revolution and livestock resources 2. Tissue culture 3. Poly house 4. Organic Farming 5. Agro-tourism 6. Agro forestry	08

### Weightage

Marks	
<b>Internal Assessment</b>	<b>40 marks</b>
<b>External Assessment</b>	<b>60 marks</b>

### Suggested readings:

1. Symons, Leslie (1970) – Agricultural Geography, G. Belt and Sons Ltd, London.
2. Morgan. W.B. & S.C. Manton (1971) – Agricultural Geography Methuen, London.
3. Randhawa, M.S. (1980) – A History of Agriculture in India Vols. I,II,III,IV ICAR, New Delhi.
4. Singh. J. and Dhillon S.S (1994) – Agricultural Geography, Tata McGraw Hill, Publishing Co.Ltd.
5. Majid Husain (2010) – Systematic Agricultural Geography, Rawat Publications, Jaipur.
6. Grigg, D.B.: The Agricultural Systems of the World. Cambridge University Press, New York 1974.

7. Morgan, W.B.: Agriculture in the Third World - A Spatial Analysis. Westview Press, Boulder, 1978.
8. Tarrant, J.R.: Agricultural Geography. Wiley, New York, 1974.
9. Aher A. B., Salunkhe V. (2015): Agriculture Geography, Diamond Publication, Pune.
10. Bayliss Smith, T. P. (1987): The Ecology of Agricultural Systems, Cambridge University Press, London.
11. Brown, L. R. (1990): The Changing World Food Prospects - The Nineties and Beyond. World Watch Institute, Washington D.C.
12. Grigg, D. B. (1974): The Agricultural Systems of the World, Cambridge University Press, New York.
13. Hartshorne, T.N. and Alexander, J.W. (1988): Economic Geography, Prentice Hall, New Delhi.
14. Singh, J. and Dhillon, S. S. (2004): Agricultural Geography, Tata McGraw Hill Pub., New Delhi.
15. Wigley, G. (1981): Tropical Agriculture: The Development of Production, 4 th Edition, Arnold, London.
16. Saptarshi P. G., More J. C., Ugale V. R., Musmade A. H. (2009): India A Geographical Analysis, Diamond, Pune.
17. Symons, Leslie (1970): Agricultural Geography, G. Belt and Sons Ltd, London.
18. Randhawa, M. S. (1980): A History of Agriculture in India Vols. I, II, III, IV ICAR, New Delhi.
19. Majid Husain (2010): Systematic Agricultural Geography, Rawat Publications, Jaipur.
20. K. Siddartha (2000): Economic Geography, Kosalaya Publication Pvt. Ltd, New Delhi.

**Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon**  
**New Syllabus M.A./M.Sc. Geography**  
**Semester-III (CBCS Pattern)**  
*Practical – Core - Course*

**Gg. 304 : Practical in Remote Sensing –**  
**Interpretation of Aerial Photographs and Satellite Imageries**  
**(With Effect from June 2022)**

(10 Students Per Batch.)

**Total Marks-100**

**Credit Points- 04**

**Teaching Hours/Week: 08**  
**Clock Hours : 96**

**Course Objectives:**

1. To provide an exposure to students about fundamentals of Remote Sensing.
2. To familiarize with the different remote sensing platforms and sensors.
3. To provide with an insight in to the fundamentals of photogrammetry and satellite data.
4. To acquainted with the basic principles and procedure of visual image interpretation.
5. To identify various objects appeared on the aerial photographs and satellite image with the help of their physical characteristics.
6. To enable students to learn further in the fields and develop skills in their own way through geospatial technology.

**Course Outcomes:** On completion of the course, students are expected to:

1. Understand the fundamentals of Remote Sensing.
2. Get familiar with the different remote sensing platforms and sensors.
3. Get an insight to the fundamentals of photogrammetry and satellite data.
4. Understand the basic principles and procedure of visual image interpretation.
5. Read or Interpret remotely sensed data and identify the different cultural and natural features from an aerial photograph or satellite image and prepare thematic maps.
6. Work with geospatial data to address practical societal problems.

Unit No.	Units	Sub Units	Practical hours
1	<b>Basic Principles of Remote Sensing</b>	<b>A) Introduction</b> <b>B) Electromagnetic Remote Sensing Process</b> <b>C) Energy Source and its characteristics</b> Energy Interactions with Earth's Surface Materials. a. Spectral Reflectance Curves. <b>D) Types of Remote Sensing.</b> a. Based on Platform: Terrestrial, Airborne & Space borne b. Based on Energy Source: Active & Passive Remote Sensing <b>E) Multiband Imaging</b>	<b>14</b>

2	<b>Remote Sensing Platforms and Sensors</b>	<p><b>A)</b> Introduction</p> <p><b>B)</b> Imaging Sensor System.</p> <p>a. Multispectral Imaging Sensor Systems</p> <p>b. Thermal Sensing Systems</p> <p>c. Microwave Image Systems</p> <p><b>C)</b> Earth Resources Satellites.</p> <p>a. Landsat Satellite Programme</p> <p>b. SPOT Satellite Programme</p> <p>c. Indian Remote Sensing Satellite (IRS)</p> <p><b>D)</b> OCEANSAT-1 (IRS)</p> <p><b>E)</b> IKONOS Satellite Series</p> <p><b>F)</b> Latest Trends</p> <p>a. Quick Bird</p> <p>b. Cartosat-1</p> <p>c. Resourcesat-1</p>	14
3	<b>Fundamentals of Photogrammetry</b>	<p><b>A)</b> Introduction</p> <p><b>B)</b> Types of Aerial Photographs: Vertical, Horizontal and Oblique.</p> <p><b>C)</b> Determination of photo Scale.</p> <p><b>D)</b> Determination of height of an object.</p> <p><b>E)</b> Area measurement of photographs.</p> <p><b>F)</b> Image Parallax: Characteristics of Image Parallax, Parallax Measurement.</p> <p><b>G)</b> Relief Displacements.</p> <p><b>H)</b> Floating Marks.</p>	14
4	<b>Introduction to Visual Image Interpretation</b>	<p><b>A)</b> Introduction</p> <p><b>B)</b> Basic Visual Image Interpretation Equipment: Lens/pocket stereoscopes, Mirror Stereoscopes, Zoom Stereoscopes.</p> <p><b>C)</b> Elements of Image Interpretation: Shape, Size, Pattern, Tone, Texture, Shadow, Site</p> <p><b>D)</b> Factors governing the quality of an image and interpretability.</p>	14
5	<b>Visual Image Interpretation: Aerial Photographs</b>	<p><b>A)</b> Visual Interpretation of Aerial Photograph. (BW or colour) using Mirror Stereoscope. (Interpretation of minimum two photographs)</p> <p>a. Physiography / Relief features</p> <p>b. Vegetation</p> <p>c. Water bodies</p> <p>d. Land use Land cover</p> <p>e. Settlements</p> <p>f. Transportation</p> <p><b>B)</b> Extraction and drawing of following natural or cultural features from the given photograph.</p> <p>a. Natural features - Relief features, Water bodies, Vegetation</p> <p>b. Cultural features – Transportation, Settlement, Agriculture etc.</p>	20

<b>6</b>	<b>Visual Image Interpretation: Satellite Images</b>	<p><b>A)</b> Visual Interpretation of satellite images based on following keys -</p> <p>a. Natural Features – Relief, Water bodies, Vegetation</p> <p>b. Cultural Features – Agriculture, Settlement, Transportation, LULC (Interpretation of minimum two images)</p> <p><b>B)</b> Extraction and drawing of following natural or cultural features from the given photograph.</p> <p>a. Natural features - Relief features, Water bodies, Vegetation</p> <p>b. Cultural features – Transportation, Settlement, Agriculture etc.</p> <p><b>C)</b> Drawing land use land classification (LULC) map by tracing</p>	<b>20</b>
----------	--	--	-----------

<b>Weightage</b>	
<b>Internal Assessment</b>	<b>40 marks</b>
<b>External Assessment</b>	<b>60 marks</b>

### **Suggested Readings:**

1. Agarwal C.S. and Garg P.K. (2002): Text Book on Remote Sensing, Wheeler Publishing Delhi.
2. Basudeb Bhatta (2014): 'Remote Sensing and GIS, Oxford University Press, New Delhi.
3. Campbell, J. B. (2002): Introduction to Remote Sensing, Taylor and Francis, London
4. Joseph, G. (2003): Fundamentals of Remote Sensing, University Press, Hyderabad
5. Lillesand, Kiefer, Chipman (2008): Remote Sensing and Image Interpretation, Wiley India Pvt. Ltd.
6. M. Anji Reddy (2008): Textbook of Remote Sensing and Geographical Information Systems, B. S. Publication, Hyderabad.
7. Sabins, F. F. (1996): Remote Sensing: Principles and Interpretation, W. H. Freeman and Company, San Francisco.
8. S. Nayak · S. Zlatanova (Eds.) (2008): Remote Sensing and GIS Technologies for Monitoring and Prediction of Disasters, Springer-Verlag Berlin Heidelberg.
9. Tempfi, K., Kerle, N., Huurneman, G. and Janssen, L. F. (Eds) (2009): Principles of Remote Sensing – An Introductory Text Book, The International Institute for Geoinformation Science – Netherlands.

**Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon**  
**New Syllabus M.A./M.Sc. Geography**  
**Semester-III (CBCS Pattern)**  
*Practical – Core - Course*

**Gg. 305 : Practical of Computerize Data Analysis Techniques in**  
**Geography**  
**(With Effect from June 2022)**

(10 Students Per Batch.)

**Total Marks-100**

**Credit Points- 04**

**Teaching Hours/Week: 08**  
**Clock Hours : 96**

**Course Objectives:**

- 1) To introduce some basic computerized data analysis techniques to the students.
- 2) To understand role of computer in geographical data entry (tabulation), analysis and presentation.
- 3) To recognize and select appropriate data analysis technique for different Geographical data of various branches.

**Course Outcomes:**

- 1) Understand the excel and its function.
- 2) Enhance analytical skill of students.
- 3) Adopt computerized techniques and turn geographical data in cartographic techniques.

Unit No.	Units	Sub-Units	Practical Hours
<b>1</b>	<b>Introduction to Microsoft Excel Work Sheet and Presentation Techniques</b>	<b>A) Microsoft Excel:</b> a) Workbooks and Worksheets b) Data Analysis tools and Techniques i) Advanced Filter Command, ii) IF Condition Command iii) Conditional Formatting iv) By default Insert Function c) Development of Syntax on Formula Bar i) Mathematical and Statistical Operators ii) Application of Operators in formula development d) Data Presentation Techniques <b>B) Presentation Techniques:</b> a) Introduction to M.S. Power Point b) Preparation of Slides c) Maps and Graphs import techniques for slide show	<b>18</b>

<b>2</b>	<b>Data Analysis Techniques in Population Geography</b>	<b>A) Density:</b> i) Arithmetic Density of Population ii) Economic Density of Population iii) Agricultural Density of Population iv) Critical Density of Population <b>B) Measures:</b> i) Fertility Rates ii) Mortality Rate iii) Population Growth Rate iv) Literacy Rate v) Child-Women Ratio vi) Sex Ratio: Sex Ratio	<b>16</b>
<b>3</b>	<b>Data Analysis Techniques in Rural Settlement Geography</b>	A) Classification of Rural settlements or Villages According to Size of Population B) Dispersion of Rural Settlements: i) Bernhard's method ii) Demangeon method iii) Debouvrie's method C) Density of Rural Settlements D) Density of Urban Settlement	<b>16</b>
<b>4</b>	<b>Data Analysis Techniques in Urban Geography</b>	A) Growth of Urban Population B) Degree of Urbanization C) Functional Classification of Towns by Thompson D) Centrality Index by Christaller	<b>14</b>
<b>5</b>	<b>Data Analysis Techniques in Agricultural Geography</b>	A. Cropping Intensity B. Intensity of Irrigation C. Crop Concentration by Bhatia D. Crop Diversification by Bhatia E. Crop Combination by Weaver's	<b>18</b>
<b>6</b>	<b>Data Analysis Techniques in Climatology</b>	A) Intensity of Rainfall B) Presentation of Rainfall and Temperature Data C) Wind rose	<b>14</b>

<b>Weightage</b>	
<b>Internal Assessment</b>	<b>40 marks</b>
<b>External Assessment</b>	<b>60 marks</b>

### **Suggested Readings**

1. Edward Arnold: "The Study of Urban Geography".
2. George Omura: Mastering Auto CAD, BPB Publication, b14 Conneaut place, New Delhi.
3. Grini Courter and Annette Marquis (1999): "OFFICE 2000" BPB Publication.

4. Hudson, F. S. (1976): "Geography of Settlement".
5. Mandal, R. B.: "Statistic for Geography and Social Science".
6. Masjid Husain ": Agricultural Geography".
7. Michaele, E. and E. Hurse: 'Transportation Geography'.
8. Monkhouse: "Maps and Diagram".
9. Sing, J. and Dhillon (1984): "Agricultural Geography".
10. Sing, R. L. "Readings in Rural Settlement Geography".
11. Yeats, M. H. (1974): "An Introduction to Quantitative Analysis in Human Geography".

**Audit Course**  
**Semester - III**  
**Choose One out of**  
**AC 301 (A) , AC 301 (B), AC 301 (C), AC 301 (D)**  
**(Practical)**

**Total Marks-100 (Internal)**

**Credit Points- 02**

**Teaching Hours/Week: 02**

**Total Teaching Hours: 30**

<b>AC-301(A): Computer Skills</b>	
	<p><b>Course Objectives:</b> To inculcate different daily useful computer skills among students.</p> <p><b>Learning Outcomes:</b> Students will be able to</p> <ul style="list-style-type: none"> <li>• Identify their lacunas about some computer skills and try to overcome the same.</li> <li>• Practice the learned computer skills in real life and do their jobs more effectively.</li> </ul>
<b>Unit</b>	<b>Content</b>
1.	<p><b>Elements of Information Technology</b></p> <ul style="list-style-type: none"> <li>• Information Types: Text, Audio, Video, and Image, storage formats</li> <li>• Components: Operating System, Hardware and Software, firmware</li> <li>• Devices: Computer, Mobile Phones, Tablet, Touch Screen, Scanner, Printer, Projector, smart boards</li> <li>• Processor &amp; Memory: Processor functions, speed, Memory types: RAM /ROM /HDD /DVD-ROM/Flash drives, memory measurement metrics.</li> </ul>
2	<p><b>Office Automation-Text Processing:</b></p> <ul style="list-style-type: none"> <li>• Views: Normal View, Web Layout View, Print Layout View, Outline View, Reading Layout View</li> <li>• Working with Files: Create New Documents, Open Existing Documents, Save Documents to different formats, Rename Documents, Close Documents</li> <li>• Working with Text: Type and Insert Text, Highlight Text, Formatting Text, Delete Text, Spelling and Grammar, paragraphs, indentation, margins</li> <li>• Lists: Bulleted and Numbered Lists,</li> <li>• Tables: Insert Tables, Draw Tables, Nested Tables, Insert Rows and Columns, Move and Resize Tables, Moving the order of the column and/or rows inside a table, Table Properties</li> <li>• Page Margins, Gutter Margins, Indentations, Columns, Graphics, Print Documents,</li> <li>• Paragraph Formatting, Paragraph Attributes, Non-printing characters</li> </ul>

	<ul style="list-style-type: none"> <li>• Types of document files: RTF, PDF, DOCX etc</li> </ul>
3	<p><b>Office Automation-Worksheet Data Processing:</b></p> <ul style="list-style-type: none"> <li>• Spreadsheet Basics: Adding and Renaming Worksheets, Modifying Worksheets</li> <li>• Moving Through Cells, Adding Rows, Columns, and Cells, Resizing Rows and Columns, Selecting Cells, Moving and Copying Cells</li> <li>• Formulas and Functions: Formulas, Linking Worksheets, Basic Functions, Auto Sum, Sorting and Filtering: Basic Sorts, Complex Sorts, Auto-fill, Deleting Rows, Columns, and Cells</li> <li>• Charting: Chart Types, drawing charts, Ranges, formatting charts</li> </ul>
4	<p><b>Office Automation- Presentation Techniques and slide shows:</b></p> <ul style="list-style-type: none"> <li>• Create a new presentation, AutoContent Wizard, Design Template, Blank Presentation, Open an Existing Presentation, PowerPoint screen, Screen Layout</li> <li>• Working with slides: Insert a new slide, Notes, Slide layout, Apply a design template, Reorder Slides, Hide Slides, Hide Slide text, Add content, resize a placeholder or textbox, Move a placeholder or text box, Delete a placeholder or text box, Placeholder or Text box properties, Bulleted and numbered lists, Adding notes</li> <li>• Work with text: Add text and edit options, Format text, Copy text formatting, Replace fonts, Line spacing, Change case, Spelling check, Spelling options</li> <li>• Working with tables: Adding a table, Entering text, Deleting a table, Changing row width, Adding a row/column, Deleting a row/column, Combining cells, Splitting a cell, Adding color to cells, To align text vertically in cells, To change table borders, Graphics, Add clip art, Add an image from a file, Save &amp; Print, slide shows, slide animation/transitions.</li> </ul>
5	<p><b>Internet &amp; Applications:</b></p> <ul style="list-style-type: none"> <li>• Computer Network Types: LAN, PAN, MAN, CAN, WAN, Defining and describing the Internet, Brief history, Browsing the Web, Hypertext and hyperlinks, browsers, Uniform resource locator</li> <li>• Internet Resources: Email, Parts of email,</li> <li>• Protecting the computer: Password protection, Viruses, Virus protection software, Updating the software, Scanning files, Net banking precautions.</li> <li>• Social Networking: Features, Social impact, emerging trends, issues, Social Networking sites: Facebook, Twitter, linkedin, orkut, online booking services</li> <li>• Online Resources: Wikipedia, Blog, Job portals, C.V. writing</li> <li>• e-learning: e-Books, e-Magazines, e-News papers, OCW(open course wares): Sakshat (NPTEL) portal, MIT courseware.</li> </ul>
6	<ul style="list-style-type: none"> <li>• Cloud Computing Basics:</li> <li>• Introduction to cloud computing</li> </ul>

- |  |   |
|--|---|
|  | <ul style="list-style-type: none"><li>• Cloud computing models: SAS, AAS, PAS</li><li>• Examples of SAS, AAS, PAS (Drop Box, Google Drive, Google Docs, Office 365 Prezi, etc.)</li></ul> |
|--|---|

**Suggested Readings :**

1. TCI, "Introduction to Computers and Application Software", Publisher: Jones & Bartlett Learning, 2010, ISBN: 1449609821, 9781449609825
2. Laura Story, Dawna Walls, "Microsoft Office 2010 Fundamentals", Publisher: Cengage Learning, 2010, ISBN: 0538472464, 9780538472463
3. June Jamrich Parsons, Dan Oja, "Computer Concepts Illustrated series", Edition 5, Publisher Course Technology, 2005, ISBN 0619273550, 9780619273552
4. Cloud computing online resources

<b>AC-301(B): Cyber Security</b>	
	<p><b>Course Objectives:</b> To make students aware of different daily useful cyber security skills/rules.</p> <p><b>Learning Outcomes:</b> Students will be able to</p> <ul style="list-style-type: none"> <li>• Practice learned cyber security skills/rules in real life.</li> <li>• Provide guidance about cyber security skills/rules to their friends, parents and relatives.</li> </ul>
<b>Unit</b>	<b>Content</b>
1.	<p><b>Networking Concepts Overview:</b></p> <p>Basics of Communication Systems, Transmission Media, ISO/OSI and TCP/IP models, Network types: Local Area Networks, Wide Area Networks, Internetworking, Packet Formats, Wireless Networks: Wireless concepts, Advantages of Wireless, Wireless network architecture, Reasons to use wireless and Internet.</p>
2	<p><b>Security Concepts:</b></p> <p>Information Security Overview, Information Security Services, Types of Attacks, Goals for Security, E-commerce Security, Computer Forensics, Steganography.</p> <p>Importance of Physical Security, Biometric security &amp; its types, Risk associated with improper physical access, Physical Security equipments.</p> <p>Passwords: Define passwords, Types of passwords, Passwords Storage – Windows &amp; Linux.</p>
3	<p><b>Security Threats and vulnerabilities:</b></p> <p>Overview of Security threats, Hacking Techniques, Password Cracking, Types of password attacks, Insecure Network connections, Wi-Fi attacks &amp; countermeasures, Information Warfare and Surveillance.</p> <p>Cyber crime: e-mail related cyber crimes, Social network related cyber crimes, Desktop related cyber crimes, Social Engineering related cyber crimes, Network related cyber crimes, Cyber terrorism, Banking crimes etc.</p>
4	<p><b>Cryptography:</b></p> <p>Understanding cryptography, Goals of cryptography, Types of cryptography, Applications of Cryptography, Use of Hash function in cryptography, Digital signature in cryptography, Public Key infrastructure,</p>
5	<p><b>System &amp; Network Security:</b></p>

	System Security: Desktop Security, email security: PGP and SMIME, Web Security: web authentication, Security certificates, SSL and SET, Network Security: Overview of IDS, Intrusion Detection Systems and Intrusion Prevention Systems, Overview of Firewalls, Types of Firewalls, VPN Security, Security in Multimedia Networks, Fax Security.
6	<b>OS Security:</b> OS Security Vulnerabilities updates and patches, OS integrity checks, Anti-virus software, Design of secure OS and OS hardening, configuring the OS for security, Trusted OS.
	<b>Security Laws and Standards:</b> Security laws genesis, International Scenario, Security Audit, IT Act 2000 and its amendments.
<b>Suggested Readings :</b>	
<ol style="list-style-type: none"> <li>1. Skills Factory, Certificate in Cyber Security, Text Book Special edition, Specially published for KBC NMU, Jalgaon</li> <li>2. BPB Publication, “Fundamentals of Cyber Security”, Mayank Bhushan, Rajkumar Singh Rathore, Aatif Jamshed</li> <li>3. Create Space Independent Publishing Platform, “Cyber Security Basics”, Don Franke, ISBN-13: 978-1522952190 ISBN-10: 1522952195</li> <li>4. Online references</li> </ol>	

## AC-301C: Rain Water Harvesting

### Course Objectives:

- 1) To create an awareness about water resource.
- 2) To make a scientific view about the water cycle and availability of water resource.
- 3) To develop the ability and get solution on various problems related to the water resource and their conservation.

### Course Outcomes:

- 1) Acquire knowledge with importance of water resource.
- 2) Capability enhances towards various techniques of rain water harvesting.
- 3) Student will be aware about crucial problems of water scarcity and able towards solving the problem.

Unit No.	Units	Sub - Units	Lectures
		<ul style="list-style-type: none"> <li>• First 3 unit comprises theory for get the knowledge about course objectives.</li> <li>• Reading reference material for acquire new knowledge.</li> <li>• Unit 4 is practical based study (Case Study Project) made on the above knowledge.</li> <li>• Complete case study and submit project report during the semester end.</li> </ul>	
1	<b>Water Resource</b>	C) Water Resource - <ol style="list-style-type: none"> <li>VI. Definition of water resource.</li> <li>VII. Significance of water resource.</li> <li>VIII. Availability and distribution of water resource on the earth.</li> <li>IX. Water cycle.</li> <li>X. Precipitation.</li> </ol>	
2	<b>Rain Water Harvesting</b>	F) Groundwater – <ol style="list-style-type: none"> <li>i. Meaning</li> <li>ii. Significance of groundwater.</li> </ol> G) Rainwater Harvesting – <ol style="list-style-type: none"> <li>i. Concept</li> <li>ii. Rain water harvesting system</li> <li>iii. Purpose of rain water harvesting</li> <li>iv. Advantages of rain water harvesting</li> </ol>	
3	<b>Rain Water Harvesting Technology</b>	E) Rain water harvesting structure. F) Rain water harvesting technology in – <ol style="list-style-type: none"> <li>i. Built-up areas – roof top harvesting, temple tanks, wells and radiator wells, parking lot storage, recreational park ponds.</li> <li>ii. Open areas – percolation tanks, infiltration galleries, community wells, farm ponds, ducts, anicuts across the streams.</li> <li>iii. Rain water harvesting: calculation (Volume of water harvested)</li> </ol>	<b>30</b>

<b>4</b>	<b>Case study of Rain Water Harvesting and Report</b>	<ul style="list-style-type: none"> <li>• Each student carries out one case study of Rain Water Harvesting Project in their local area. Visit them, collect information/data, structure, system with all essential details related to the study.</li> <li>• Write a brief report on concerned Rain Water Harvesting technology with photographs, maps, diagrams and submit to the department.</li> <li>• Report should be minimum 15 pages including title page, certificate, acknowledgements etc.</li> <li>• Project report should be hand written or typographical form.</li> </ul>	
----------	---	---	--

Assessment Types	Marks
CA Internal (Actual Field visit , Preparation of Case Study Project Report, and Oral)	100
<b>Total Marks</b>	<b>100</b>

#### **Suggested Readings:**

- 1) Singh, J. S., Singh, S. P. and Gupta, S. R. 2014. Ecology, Environmental Science and Conservation. S. Chand Publishing, New Delhi.
- 2) Eldho, T. I. () : Lecture Series 1-10 : Watershed Management- Rain Water Harvesting, IIT Mumbai.
- 3) Kalimuthu, A. (2016) : A Practical Guide on Roof Top Rain Water Harvesting, World Vision, India.
- 4) Government of India (2002) : Rain Water Harvesting and Conservation- Manual, Central Public Work Department, Government of India, New Delhi.
- 5) Rain Water Harvesting (2015), Indian Railways Institute of Civil Engineering, Pune.
- 6) Rain Water Harvesting Handbook, African Development Bank.
- 7) Singh, Anupam & Eldho, T.I. & Prinz, D. (2002). Integrated watershed approach for combating drought in a semi-arid region of India: the case of Jhabua watershed. Water science and technology : a journal of the International Association on Water Pollution Research. 46. 85-92. 10.2166/wst.2002.0666.
- 8) [file:///C:/Users/docsc/Downloads/pdffox.com\\_rainwater-harvesting-rainwater-harvesting.pdf](file:///C:/Users/docsc/Downloads/pdffox.com_rainwater-harvesting-rainwater-harvesting.pdf)
- 9) <https://www.mwe.go.ug/sites/default/files/library/Rain%20Water%20Harvesting%20Handbook.pdf>
- 10) [https://www.ircen.gov.in/ircen/books\\_jquery/rain\\_water\\_harvesting.pdf](https://www.ircen.gov.in/ircen/books_jquery/rain_water_harvesting.pdf)
- 11) [https://www.pseau.org/outils/ouvrages/bafd\\_rainwater\\_harvesting\\_handbook.pdf](https://www.pseau.org/outils/ouvrages/bafd_rainwater_harvesting_handbook.pdf)

## AC-301 D- Geo-tourism

### Course objectives:

1. To understand the evolution of geographical sites and situations as concern to tourism.
2. To generalize the valuable contribution of geographical sites in global tourism activities
3. To study the major geo-tourist sites in India.
4. To help the students for preparation of competitive examinations as well as general knowledge about the region.
5. To elaborate the trends of tourism activities and geographical perspectives.

### Course Outcomes:

Through the study of this course, the student will be able to:

1. Distinguish and identify the potential geological sites of tourist interest.
2. Have a good knowledge on the spectacular (e.g. geomorphic landforms, structures, processes) as well as intrinsic sites, major time boundaries, fossil sites, geological sites etc.
3. Understand the economic aspects and develop ability to link the geo-spots with other tourist destinations in a theme.
4. Discussing relationship of geography with tourism activities and its relationships.

Unit No.	Units	Sub - Units	Lectures
<b>1</b>	<b>Introduction to Geo-Tourism</b>	A) Geo-tourism : Meaning, Concept, B) Nature and Scope of Geotourism C) Characteristics and international , national perspectives, Eco-tourism and Geo-tourism	<b>06</b>
<b>2</b>	<b>Aspects of Geo-tourism : values and threats</b>	A) Geology and Tourism B) Geo-diversity and Geo-heritage C) Geo-conservation and their relationship to geo-tourism, D) Geo-tourism and cultural heritage, E) The application of geographical information systems in geo-tourism	<b>06</b>
<b>3</b>	<b>Preparation of Geotourism Field Study</b>	A) Geotourism Site Selection B) Proper Planning for visits C) Precautions during visits D) Data/information Collection during the visits E) Project/Report writing steps and Stages	<b>06</b>
<b>4</b>	<b>Case Study and Project Report</b>	A) Each student carries out one case study as a Geo-tourism project. Field visit is mandatory, based on collection of information, data, structure, system with all essential details related to the study.	<b>12</b>

		<p>B) Write a brief report on concerned topic with photographs, map, and diagrams and submit to the department.</p> <p>C) Report should be minimum 15 pages including title page, certificate, acknowledgement etc.</p> <p>D) Project report should be hand written or computerized.</p>	
--	--	--	--

Assessment Type	Marks
CA Internal (Actual Field visit , Preparation of Project Report, and Oral)	100
<b>Total Marks</b>	<b>100</b>

### Suggested Readings:

1. The Principles of Geotourism, Anze Chen, Young C.Y. Ng, and Yunting Lu (Springer), (2015).
2. Global Geotourism perspectives, Dowling, R. K ., & Newsome, D. (Eds) USA: Good fellow Publishers Limited (2010).
3. Geotourism, Dowling, R. K ., & Newsome, D. (Eds) Elsevier Butterworth-Heinemann (2006).
4. Appreciating Physical Landscapes: Three Hundred Years of Geotourism, T.A .Hose (Ed.), Geological Society Special Publication No. 417, London (2016).
5. Geoheritage and Geotourism- a European Perspective, Thomas A . Hose (Ed) Boydell, Press Woodbridge, U K .
6. Handbook on Geotourism, Ross Dowling & David Newsome (Eds.) Edward Elgar Publishing (2018).
7. A monograph on National Geoheritage Monuments of India. Indian National Trust for Art and Cultural Heritage(IN T A C H) Natural Heritage Division, New Delhi (2016).
8. National Geological Monuments. Geological Survey of India, Kolkata, Special Publication, No.6 1 (2001).
9. Landscapes and Landforms of India, K ale, V. S. (ed) Springer, Dordrecht (2014).
10. History of Geo-conservation, C. V. Burek and C.D. Prosser (Eds.) Special Publication
11. Official Website of Geological Survey of India.
12. T.A. Hose (Ed.) (2016). Appreciating Physical Landscapes: Three Hundred Years of Geotourism, Geological Society Special Publication No. 417, London.
13. Thomas A. Hose (Ed.).Geoheritage and Geotourism- a European Perspective, Thomas A. Hose (Ed) Boydell Press Woodbridge, UK
14. Ross Dowling & David Newsome (Eds) (2018). Handbook on Geotourism, Edward Elgar Publishing

**Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon**  
**New Syllabus M.A./M.Sc. Geography**  
**Semester-IV (CBCS Pattern)**  
*Theory - Core-Course*

**Gg. 401: Geomorphology**  
**(With Effect from June 2022)**

**Total Marks-100**

**Credit Points- 04**

**Teaching Hours/Week: 04**  
**Clock Hours : 60**

**Course Objectives:**

1. This course introduces the students with basic knowledge of Earth surface processes.
2. The course provides an overview of landforms, its formation processes, and landscape evolution.
3. This course shed light on various landform formation processes and how these depend on climate, tectonic regimes, and time.
4. This course conveys an understanding of landform formation processes on different temporal and spatial magnitudes.

**Course Outcomes:**

1. The student can explain different theories and models for landscape evolution.
2. The student can understand the development of micro to mega scale landforms and their lifespans.
3. The student can assess the mode of formation, age and history for landforms.
4. The student can search and find relevant information to elucidate geomorphological problems.

Unit No.	Units	Sub-Units	Lectures
<b>1</b>	<b>Introduction</b>	A. Definitions, Nature and Scope B. Fundamental Concepts I. Uniformitarianism II. Geological structure III. Geomorphological processes C. Theories of Landform Development I. Theory of W. M. Davis II. Theory of W. Penck D. Geological Time Scale	<b>10</b>
<b>2</b>	<b>Earth Movements</b>	A. Continental Drift Theory B. Plate Tectonic theory C. Endogenic Forces I. Epiorogenic and Orogenic Movements II. Compression, Tension III. Folds, Types and Landforms	<b>10</b>

		IV. Faults, Types and Landforms	
3	<b>Weathering, Mass Movement and slopes</b>	<ul style="list-style-type: none"> <li>A. Meaning and concept of weathering</li> <li>B. Controlling factors of weathering</li> <li>C. Types of weathering processes <ul style="list-style-type: none"> <li>I. Physical weathering</li> <li>II. Chemical weathering</li> </ul> </li> <li>III. Biotic weathering</li> <li>D. Meaning and concept of mass movement</li> <li>E. Types of mass movement</li> <li>F. Meaning and concept of Slope</li> <li>G. Elements of Slopes <ul style="list-style-type: none"> <li>I. Convex Slope</li> <li>II. Free Face Slope</li> <li>III. Constant or Talus Slope</li> <li>IV. Concave Slope</li> </ul> </li> </ul>	12
4	<b>Fluvial Processes and Landforms</b>	<ul style="list-style-type: none"> <li>A. The Fluvial System</li> <li>B. Fluvial Erosion <ul style="list-style-type: none"> <li>I. Process of Erosion</li> <li>II. Erosional Landforms</li> </ul> </li> <li>C. Transportation by Rivers</li> <li>D. Deposition by Rivers <ul style="list-style-type: none"> <li>I. Deposition Process</li> <li>II. Depositional Landforms</li> </ul> </li> </ul>	10
5	<b>Coastal Processes and Landforms</b>	<ul style="list-style-type: none"> <li>A. Waves, tides, and currents</li> <li>B. Coastal processes</li> <li>C. Erosional coastal landforms <ul style="list-style-type: none"> <li>I. Cliffs</li> <li>II. caves</li> </ul> </li> <li>III. other erosional coastal landforms <ul style="list-style-type: none"> <li>A. Depositional coastal landforms <ul style="list-style-type: none"> <li>I. Beaches</li> <li>II. Bars</li> <li>III. Barriers</li> </ul> </li> <li>IV. other depositional coastal landforms</li> </ul> </li> </ul>	10
6	<b>Aeolian Processes and Landforms</b>	<ul style="list-style-type: none"> <li>A. Aeolian environments</li> <li>B. Erosional works of wind</li> <li>C. Erosional landforms</li> <li>D. Transportational works of wind</li> <li>E. Depositional work of wind</li> <li>F. Depositional landforms</li> <li>G. Fluvial desert landforms</li> </ul>	08

### **Weightage of Marks: Equal Marks to all Topics**

#### **Weightage**

<b>Marks</b>	
<b>Internal Assessment</b>	<b>40</b> marks
<b>External Assessment</b>	<b>60</b> marks

#### **Suggested readings:**

1. Savindra Singh (2005): "Geomorphology", Prayag Pustak Bhawan, Allahabad, India.
2. Thornbury, W.D. (1960) "Principles of Geomorphology", John Wiley and Sons, New York.
3. Chorley R. J., Schumm, S. A. and Sugden E.E. (1984): "Geomorphology", Methuen, London.
4. Kale V. S. and Gupta, A (2001); "Introduction to Geomorphology", Orient Longman, Calcutta.
5. Spark B.W. (1972): "Geomorphology", Longman, New York.
6. Ollier, C. D. (1981): "Tectonics and Landforms", Longman, London.
7. Strahler A. H. and Strahler, A.N. (1998): "Introducing Physical Geography", John Wiley and Sons, Inc. New York.
8. Wooldridge and Morgan (1959): "An outline of geomorphology: the physical basis of geography", Longman, New York.

**Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon**  
**New Syllabus M.A./M.Sc. Geography**  
**Semester-IV (CBCS Pattern)**  
*Theory - Core-Course*

**Gg. 402: Climatology**  
**(With Effect from June 2022)**

**Total Marks-100**

**Credit Points- 04**

**Teaching Hours/Week: 04**  
**Clock Hours : 60**

**Course Objectives:**

1. To acquaint the students with basic knowledge of atmosphere, weather and climate.
2. To know the fundamental concepts of climatology and the significance of weather.
3. To understand various weather phenomena.
4. To identify climatic differentiation on the earth.
5. To acquire the knowledge of weather forecasting.
6. The explain the factors determining climate and its changes

**Course Outcomes:**

On completion of the course the student should have the following learning outcomes defined in terms of knowledge, skills and general competence:

1. The students should be able to differentiate between weather and climate.
2. The student is able to interpret Structure and composition of atmosphere.
3. The students should be able to understand the horizontal and vertical distribution of temperature.
4. The students should be able to describe the relationship between air pressure and wind direction in cyclonic and anticyclonic movement.
5. The students should be able to describe tropical air masses and how they move and to describe what happens when different air masses meet.
6. The students should be able to explain how storms form, the relationship between jet stream position and storm movement, and make the distinction between warm fronts and cold fronts.

Unit No.	Units	Sub-Units	Lectures
<b>1</b>	<b>Introduction</b>	A) Weather and Climate i) Meaning and concept ii) Elements iii) Role of Climate in human life B) Definition, Nature and Scope of Climatology C) Sub-divisions of Climatology (Physical, Regional, Applied) D) Atmosphere – Structure and composition	<b>08</b>

2	<b>Insolation and Temperature</b>	<p>A) Insolation</p> <ul style="list-style-type: none"> <li>i) Meaning and definition of Insolation ,Solar constant and Albedo of the earth</li> <li>ii) Factors affecting the distribution of Insolation</li> <li>iii) Effects of atmosphere (Scattering, Diffusion, Reflecting and Absorption)</li> </ul> <p>B)Temperature</p> <ul style="list-style-type: none"> <li>i) Heating and Cooling of Atmosphere – <ul style="list-style-type: none"> <li>a)Conduction    b) Radiation    c) Convection</li> </ul> </li> <li>ii) Distribution of Temperature- Horizontal and Vertical</li> <li>iii) Factors affecting the distribution</li> <li>v) Inversion of Temperature</li> </ul>	16
3	<b>Atmospheric Pressure and Winds</b>	<p>A) Atmospheric Pressure</p> <ul style="list-style-type: none"> <li>i) Formation of pressure belts</li> <li>ii) Shifting of pressure belts and their effects</li> </ul> <p>B) Winds</p> <ul style="list-style-type: none"> <li>i) Pressure gradient force, Coriolis force, Geostrophic winds</li> <li>ii) Types of Winds <ul style="list-style-type: none"> <li>a. Planetary winds</li> <li>b. Local winds (Land and Sea breezes)</li> <li>c. Seasonal winds - monsoon</li> </ul> </li> </ul>	08
4	<b>Humidity and Precipitation</b>	<p>A) Humidity – Concept and types</p> <p>B) Process of evaporation, condensation &amp; precipitation</p> <p>C) Forms of precipitation - mist, fog, rain, snow, hail, sleet, etc.</p> <p>D) Types of rainfall - convectional, orographic and cyclonic</p>	8
5	<b>Air masses, Atmospheric Disturbances &amp; Climatic Classification</b>	<p>A) Air masses</p> <ul style="list-style-type: none"> <li>i) Definition, source regions</li> <li>ii) Classification</li> <li>iii) Modifications of Air masses (mechanical and thermodynamic)</li> <li>iv) Characteristics and types of fronts</li> </ul> <p>B) Atmospheric Disturbances-Cyclones and Anticyclones (Tropical &amp; Temperate), Thunderstorms, Jet Streams</p>	12

		C)Climatic classification- Koppen’s classification  ( Basis, types, merits and demerits)	
<b>6</b>	<b>Origin of Monsoon And climate change</b>	A) Asian monsoon- East and Southasian monsoon  i)classical theory of Indian monsoon  B)Climat change-i) Impacts of climate change on Environment and agriculture -special reference to India  ii)Government initiatives and public participation to mitigate climate change	<b>08</b>

### Weightage

Marks	
<b>Internal Assessment</b>	<b>40 marks</b>
<b>External Assessment</b>	<b>60 marks</b>

### Suggested readings:

1. Barura, A.K. (2005), “Climatology”, Dominant Publishers & Distributors, New Delhi.
2. Barry, R.G. and Chorley R.J., “Atmosphere, Weather and Climate”
3. Byers, R.H. (1974), “General Meteorology”, McGraw Hill, New York.
4. Critchfield, H.J. (1993), “General Climatology”, Prentice Hall, New Delhi, India
5. Critchfield, H.J, (2004) : Principles of Climatology; Prentice Hall, London.
6. Das, P.K (1991), “The Monsoon” , National Book Trust, New Delhi.
7. K. Siddhartha (2011), “Atmosphere Weather & Climate – A text book of Climatology”, Kisalaya Publications Pvt. Ltd., New Delhi.
8. Lal, D.S.(2011), “Climatology”, ShardaPustakBhawan, Allahabad.
9. Sing Savindra, (2015),Climatology, PravlikaPublications ,Allahbad.

**Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon**  
**New Syllabus M.A./M.Sc. Geography**  
**Semester-IV (CBCS Pattern)**  
*Theory Elective-Course*

**Gg. 403(A) : Geography of Rural Settlements**

(With Effect from June 2022)

**Total Marks-100**

**Credit Points- 04**

**Teaching Hours/Week: 04**  
**Clock Hours : 60**

**Course Objectives:**

1. To study the essential concepts of geography of rural settlement.
2. To understand the relationship between house types with relief, climate and building materials.
3. To study the distributional patterns of rural settlement.
4. To study the rural morphology and rural functions with special reference to India

**Course Outcomes:**

1. The present paper shall enhance the knowledge of students about the historical development, patterns, types and functional systems of rural settlements.
2. Students will understand why people settle in certain areas.
3. Students will understand the needs of humans and how these needs impact the physical environment.

Unit No.	Units	Sub -Units	Lectures
1	<b>Geography of Rural Settlements</b>	A) Definition and Concept of Rural Settlements B) Nature and Scope C) Evolution of rural settlements D) Significance and Development of Rural Settlements E) Approaches to Settlement Geography	8
2	<b>Growth and Distribution</b>	A) Site, Situation & Location a. Factors affecting distribution of Rural Settlements b. Dispersion and nucleation, factors affecting dispersion and nucleation B) Growth of Settlements: a. Factors affecting growth of settlements - System of land division, - water rights system of agriculture, - land occupancy system	10
3	<b>Factors of Rural Land</b>	A. Factors Affecting Rural Land Use a. Social, economic, and political	8

	<b>Use And Theory</b>	<ul style="list-style-type: none"> <li>b. Intensity of Land use</li> <li>c. Labour cost</li> <li>d. Marketing of product</li> </ul> <p>B. Theory:</p> <ul style="list-style-type: none"> <li>- Von Thunen- A Model of Agricultural Land Use</li> </ul>	
<b>4</b>	<b>Types and Pattern of Rural Settlements</b>	<ul style="list-style-type: none"> <li>A. Spatio-temporal Dimensions and Morphogenesis of Rural Settlement</li> <li>B. Site and Situation of Rural settlements</li> <li>C. Size and Spacing of Rural Settlement</li> <li>D. Types and Pattern of Rural Settlement</li> <li>E. Rural Settlements in Maharashtra: <ul style="list-style-type: none"> <li>a. House types</li> <li>b. Settlement patterns</li> </ul> </li> </ul>	<b>10</b>
<b>5</b>	<b>Morphogenesis, Transformation and Migration of Rural Settlements</b>	<ul style="list-style-type: none"> <li>A) Morphogenesis <ul style="list-style-type: none"> <li>a. Social</li> <li>b. Cultural</li> <li>c. Economic organization within villages</li> </ul> </li> <li>B) Transformation <ul style="list-style-type: none"> <li>a. Socio-economic transformation in rural areas.</li> </ul> </li> <li>C) Migration <ul style="list-style-type: none"> <li>a. Definition, Causes &amp; Consequence of migration in rural areas</li> <li>b. Seasonal Migration</li> </ul> </li> </ul>	<b>12</b>
<b>6</b>	<b>Rural Settlements in India &amp; Planning</b>	<ul style="list-style-type: none"> <li>A) Distribution and density of rural settlements in India</li> <li>B) Structure of house and building materials in India, special reference of Maharashtra</li> <li>C) Regional variations in rural settlement patterns in India</li> <li>D) Morphology of rural settlement in India</li> <li>E) Various Aspects of Rural Planning: <ul style="list-style-type: none"> <li>Land use,</li> <li>Transport,</li> <li>Amenities,</li> <li>Population,</li> <li>Market,</li> <li>Environment &amp;</li> <li>Agricultural policy</li> </ul> </li> </ul>	<b>12</b>

## Weightage

Marks	
Internal Assessment	40 marks
External Assessment	60 marks

### Suggested readings:

1. Deshpande, C. D. (2005): "Cities: A Geographical Study", Translated by V. G. Amrite, Manan Prakashan, Mumbai
2. Gharpure, V. (2013): "Nagari Bhugol", (Marathi) Pimpalpure and Company Publishers, Nagpur
3. Gharpure, V. (2013): "Vasti Bhugol", (Marathi) Pimpalpure and Company Publishers, Nagpur
4. Gharpure, V. (2017): "Manavi Bhugol", (Marathi) Pimpalpure and Company Publishers, Nagpur
5. Ghosh. S. (2015): "Introduction to Settlement Geography", Orient Blackswan Private Limited, Hyderabad
6. Jyptirmoy Sen (2007): "A Text Book of Social and Cultural Geography," Kalyan Publsiher, New Delhi.
7. Knowles, R and Wareing, J. (1996): "Economic and Social Geography", the Made Simple Series, Rupa & Co., Calcutta
8. Leong, Goh-Cheng and Morgan, G. (1994): "Human and Economic Geography", Oxford University Press, Oxford
9. Alam S. M. et. al. (1982): Settlement system of India, Oxford and IBH Publication New Delhi.
10. Doniel P. and Hopkinson M. (1982): The geography of settlement, Oliver & Byod, Edinburgh.
11. Hudson F. S. (1976): A Geography of Settlement, Macdonald and Evans, New York.
12. Rao R. N. (1986): Strategy for Integrated Rural Development, B.R. Publication, Delhi.
13. Rapoport A. (1969): House form and Culture, Prentice Hall, New Jersey.
14. Srinivas M.N. (1968): Village India, Asia Publication House, Bombay.
15. Wanmati S. (1983): Service Centres in Rural India, B.R. Publication, Delhi.
16. Singh R. L. Edt. (1975): Reading in Rural Settlement Geography.

**Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon**  
**New Syllabus M.A./M.Sc. Geography**  
**Semester-IV (CBCS Pattern)**  
*Theory – Elective - Course*

**Gg. 403(B) : Geography of Resources**

(With Effect from June 2022)

**Total Marks-100**

**Credit Points- 04**

**Teaching Hours/Week: 04**  
**Clock Hours : 60**

**Course Objectives:**

- 1) To introduce the students of the basic concepts in Geography of Resources.
- 2) To acquaint the students with fundamental concept of resources.
- 3) To aware the students about the problems and utilization of Resources.
- 4) To understand about conservation of resources for sustainable development.
- 5) To aware the students about use of resources with prudence.

**Course Outcomes:**

After Completion of this course the student will be able to,

- 1) To understand the concepts in Geography of Resources.
- 2) Student able to evaluate different models of resources utilization.
- 3) Student compare the how to use of different resources.
- 4) Student know the various problems of resources.

Unit No.	Units	Sub – Units	Lectures
<b>1</b>	<b>Introduction to Resource Geography</b>	1.1 Meaning and Concept of Resource Geography 1.2 Nature and Scope of Resource Geography 1.3 Concepts of Resources : Adequacy and Scarcity 1.4 Components of resources : Natural and Human 1.5 Importance of the Study of Resource Geography	<b>10</b>
<b>2</b>	<b>Classification of Resources</b>	2.1 Basis of classification of Resources a) Renewable Resources b) Non – Renewable Resources c) Biotic Resources d) Abiotic Resources	<b>8</b>
		3.1 Distribution and Production of	

<b>3</b>	<b>Renewable and Non Renewable Resources</b>	<p>Renewable and Non- Renewable Resources in India.</p> <p>a) Solar b) Wind c) Hydel power d) Mineral Oil e) Coal</p> <p>3.2 Problems and management of Renewable and non- renewable Resources</p>	<b>12</b>
<b>4</b>	<b>Biotic and Abiotic Resources</b>	<p>4.1 Distribution and Production of Biotic &amp; Abiotic Resources in India</p> <p>a) Forest b) Marine c) Water d) Minerals -Iron ore, Bauxite</p> <p>4.2 Problems and Management of Biotic and Abiotic Resources</p>	<b>10</b>
<b>5</b>	<b>Problems of Resource Appraisal</b>	<p>5.1 Population Pressure on Resources</p> <p>5.2 Models of Resource Utilization- Von-Thunen, M. Smith</p> <p>5.3 Resource Depletion and emerging issues:</p> <p>a) Desertification b) Loss of Biodiversity d) Water Scarcity and Conflicts e) Energy Crises</p>	<b>10</b>
<b>6</b>	<b>Conservation and Management of Resources</b>	<p>6.1 Concepts and Methods of conservation</p> <p>6.2 Conservation of Management of Resources in India i.e. Forest, Land and Water.</p> <p>6.3 Integrated Resource Development</p> <p>6.4 Sustainable Development and Conservation of Resources.</p>	<b>10</b>

### Weightage

Marks	
<b>Internal Assessment</b>	<b>40</b> marks
<b>External Assessment</b>	<b>60</b> marks

### **Suggested readings:**

- 1) Burton I. and Kates, R.W. (ed) Readings in Resource Management and Conservation, 1965.
- 2) Central Ground Water Board – <http://www.cgwb.gov.in/>
- 3) Dr. Vitthal Gharpure : “ Sadhansampatti Bhugol”, Pimpalapur and Company Publishers, Nagpur.
- 4) Ground Surveys and Development Agency – <https://gsda.maharashtra.gov.in/>
- 5) Holechek J.L. et al : Natural Resources : Ecology Economics and policy, prentice Hall, New Jersey, 2000.
- 6) Kates R.W. and Burton, I. (ed) : Geography Resources and Environment, Vol. II, University of Chicago press, Chicago, 1986.
- 7) Khullar D.R. (2017) India - A comprehensive Geography, kalyani publishers, New Delhi.
- 8) Mc. Laren D.J. and Skinnet, B.J. (ed) : Resources and World Development, John Wiley & Sons, New York, 1986.
- 9) Maharashtra Development Annual Report.
- 10) Mather A.S. and Chapman, K. : Environmental Resources, Longman Scientific and Technical, London, 1995.
- 11) Negi B.S. ( 1997): “ Geography of Resources”, Kedarnath Ramnath, Meerut.
- 12) Newson M.D. : Land, Water and Development, River basin Systems and Management, Rutledge London, 1991.
- 13) Prof. D.V. Patil and Sau Jayshri Patil : “ Sadhansampatti Bhugol.
- 14) Qwen S. and Qwens, P.L. : Environment, Resources and Conservation, Cambridge University Press, New York 1991.
- 15) Ramesh A: Resources Geography.
- 16) Ray S. ( 2008) : “ National Resources, Organization and Technology Linkages”.
- 17) Rees J. : Natural Resources : Allocation, Economics and Policy Methuen, London, 1988.
- 18) Redclift M. : Sustainable Development : Exploring the Contractions, Methuen London, 1987.
- 19) Simmons I.G. : Earth, Air and Water Resources and Environment In Late 20<sup>th</sup> Century, Edward Arnold, 1991.
- 20) Skinner, B.J. ( 1969) : “ Earth Resources”, Prentice Hall, Englewood Cliffs, N.J.
- 21) Thomas Alan et al : Environmental Policies & NGO Influence, Rutledge London, 1995.

**Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon**  
**New Syllabus M.A./M.Sc. Geography**  
**Semester-IV (CBCS Pattern)**  
*Theory - Elective-Course*

**Gg. 403(C) : Industrial Geography**

(With Effect from June 2022)

**Total Marks-100**

**Credit Points- 04**

**Teaching Hours/Week: 04**  
**Clock Hours : 60**

**Course Objectives:**

- 1) To acquaint the students with stages of economic process.
- 2) To introduce the nature, development and significance of manufacturing industries and its links with the world economy.
- 3) To understand the role of industries in the economic development of India.
- 4) To understand the location of major manufacturing activities with the support of various industrial location theories.
- 5) To produce skilled expert in the field of industry.
- 6) To impart knowledge on advances and challenges in Geographical challenges.

**Course Outcomes:**

After completion of this course, students will be able to-

- 1) Suggest locations of industries with the help of factors of industrial location.
- 2) Find out the advantages and related problems of industrialization.
- 3) Identify the industrial regions of selected countries.
- 4) Acquire knowledge about world selected industries.
- 5) Acquire knowledge about social media network and industries.

Unit No.	Units	Sub - Units	Lectures
1	<b>Introduction to Industrial Geography</b>	1.1 Definition and concept of Industrial Geography 1.2 Nature and Scope of Industrial Geography 1.3 Approaches to the study of Industrial Geography 1.4 Social media network and Industries	<b>10</b>
2	<b>Location of Industries</b>	Factors of Industrial location 2.1 Primary: Raw material, Labour, Transport, Market, Power. 2.2 Secondary: Government policy (Role), Capital, Infrastructure facilities & external economics, Proper industrial	<b>08</b>

		climate, Required site condition	
<b>3</b>	<b>Theories of Industrial location and classification of Industries</b>	3.1 Theories of Industrial location 3.1.1 Alfred Weber 3.1.2 August Losch 3.2 Classification of Industries: 3.2.1 Small Industries 3.2.2 Medium Industries 3.2.3 Large Industries	<b>10</b>
<b>4</b>	<b>World distribution of selected Industries</b>	4.1 Iron & steel Industry 4.2 Cotton Textile Industry 4.3 Information Technology Industry 4.4 Engineering Industry 4.4.1 Automobile Industry 4.4.2 Aircraft Industry 4.4.3 Defence Industry	<b>12</b>
<b>5</b>	<b>Industrial regions and Concepts</b>	5.1 Major Industrial regions in world 5.1.1 India 5.1.2 Japan 5.1.3 U.S.A. 5.2 Concepts 5.2.1 Location quotient 5.2.2 Index of concentration 5.2.3 Scatter diagram	<b>12</b>
<b>6</b>	<b>Advantages of Industrialization and related problems</b>	6.1 Advantages of industrialization 6.2 World industrial problems 6.2.1 Industrial problems in developed countries 6.2.2. Industrial problems in developing countries	<b>08</b>

### Weightage

Marks	
<b>Internal Assessment</b>	<b>40 marks</b>
<b>External Assessment</b>	<b>60 marks</b>

### **Suggested readings:**

1. Mather J. R.: Climatology (1974): Fundamentals and Application. McGraw Hill New York
- 2) Hobbs, John E (1980): Applied Climatology, Dawson West View Press.
2. Oliver, John E. (1973): Climate and Mavis Environment, John Wiley and Sons, New York.
- 4) Geiger, Rudolf, (1966): The climate near the Ground, Harvard University Press.
3. Lal M. (ed.) (1981): Climatology, Selected Application, V .H. Winston and Sons, London.
- 6) Alexander, J. W. (1998): Economic Geography, Prentice Hall, Englewood Cliffs.
4. Alexanderson, C. (1967): Geography of Manufacturing, Prentice Hall, Bombay.
5. Hoover, E.M. (1948): The Location and Space Economy, McGraw Hill, New York.
6. Isard, W. (1956): Methods of Regional Analysis, The Technology Press of M.I.T. & John Wiley & Sons, New York.
7. Miller, E. (1962): Geography of Manufacturing, Prentice Hall, Englewood Cliffs, New Jersey.
8. Weber, Alfred (1957) Theory of Location of Industries, Chicago University Press, Chicago.
9. Goh Cheng Leong (1997): Human and Economic Geography, Oxford University Press, New York.
10. Truman, A. Harishorn, John W. Alexander (2000) "Economic Geography", Prentice Hall of India Ltd., New Delhi.
11. Thoman, R. S., Conkling E. C. and Yeates, M. H. (1968): Geography of Economic Activity, McGraw Hill Book Company.
12. Siddharth K (2017): Economic Geography Kitab Mahal, Allahabad.
13. Husain M. (1994): Industrial Geography, Anmol Publications Pvt ltd. Daryaganj, New Delhi
14. Sadhukhan S.K (1994): Economic Geography S. Chand and company ltd. Ram nagar, New Delhi
15. A. P. Chaudhari., Archana Chaudhari (2011): Industrial Geography, Prashant publication, Jalgaon.
16. M. A. Khandave (1979): Industrial Geography. Continental Publication, Pune-30.

**Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon**  
**New Syllabus M.A./M.Sc. Geography**  
**Semester-IV (CBCS Pattern)**  
*Practical – Core - Course*

**Gg. 404 : Practical in Physical Geography**  
**(With Effect from June 2022)**

**(10 Students Per Batch.)**

**Total Marks-100**

**Credit Points- 04**

**Teaching Hours/Week: 08**  
**Clock Hours : 96**

**Course Objectives:**

5. To introduce the students with basic knowledge of techniques in physical geography.
6. To know the importance role of physical geography in applied research.
7. To prepare the students for better planning of watershed.
8. To understand and evaluate the spatial patterns and processes in physical geography.

**Course Outcomes:**

1. Enhance interpretative skills of the students about techniques in physical geography.
2. Identifying the natural phenomena with the help of techniques in physical geography.
3. This course will place a strong emphasis on practical experience about physical geography
4. This course will give you an integrated scientific understanding of the earth surface & climate.

Unit No.	Units	Sub-Units	Lectures
1	<b>Drainage Basin &amp; Catchment Area</b>	A) Delineation of Drainage Basin B) Delineation of Drainage network C) Measurement of drainage basin catchment area D) Drainage network hierarchy I. Strahler's stream ordering E) Longitudinal profile F) Cross Profile	<b>16</b>
2	<b>Morphometric Analysis: Linear Aspects</b>	A) Laws of drainage composition a) Law of stream order I. Measurement of order wise stream number II. Stream number v/s Stream order. (Preparation of graph) III. Bifurcation ratio b) Law of stream length I. Measurement of stream length and average stream length. II. Stream order v/s average stream length.	<b>16</b>

		(Preparation of graph) III. Length Ratio B) Sinuosity Indices I. S. A. Schumm's model II. J. E. Muller's model	
3	<b>Morphometric Analysis: Areal Aspects</b>	A) Geometry of Basin Shape I. Horton's form factor II. Stoddart's Ellipticity Index III. V. C. Miller's Circularity Index IV. S. A. Schumm's Elongation Ratio B) Calculation of Stream Frequency C) Calculation of Drainage Density	16
4	<b>Morphometric Analysis: Relief Aspects</b>	A) Relative Relief B) Dissection Index C) Slope Analysis D) Hypsometric curve	14
5	<b>Climatic Maps &amp; Diagrams</b>	A) Construction and interpretation of wind rose B) Construction and interpretation of climograph C) Construction and interpretation of Hythergraph D) Construction of Isohyets Map E) Construction of Isotherms Map	16
6	<b>Climatic Classification &amp; Calculations</b>	A) Calculation of Relative Humidity B) Calculation of Rainfall Intensity C) Estimation of Potential Evapotranspiration. (Thornwaite's Method.) D) To find out the mean rainfall for a given drainage basin by isohyetal method. E) Determination of climatic type by using Koppen's scheme of classification.	18

### Weightage

Marks	
<b>Internal Assessment</b>	<b>40 marks</b>
<b>External Assessment</b>	<b>60 marks</b>

### Suggested Readings :

1. Monkhouse F. J. & Wilkinson H. R. (1976): "Maps & Diagrams" Methune & Co. London.
2. King C. A. M. (1966): "Techniques in Geomorphology", Edward Arnold, London.

3. Savindra Singh (2005): "Geomorphology", Prayag Pustak Bhawan, Allahabad, India.
4. Savindra Singh (2005): "Climatology", Prayag Pustak Bhawan, Allahabad, India.
5. Singh Gopal (Rep. 2010): "Map Work and Practical Geography", Vikas Publishing House Pvt Ltd.
6. Singh L. R. (2011): "Fundamentals of Practical Geography", Sharda Pustak Bhawan.
7. Rana P. B. Singh, R.L. Singh (Rep. 2009): "Elements of Practical Geography", Kalyani Publisher.
8. P. Saha and P. Basu (2006): "Advanced Practical Geography", Books and Allied Publication, Kolkata, India

**Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon**  
**New Syllabus M.A./M.Sc. Geography**  
**Semester-IV (CBCS Pattern)**  
*Core - Course*  
**Gg. 405 : Project Work**  
**(With Effect from June 2022)**

**(10 Students Per Batch.)**

**Total Marks-100**

**Credit Points- 04**

**Teaching Hours/Week: 08**  
**Clock Hours : 60**

**Course Objectives:**

1. To motivate the students towards Research.
2. To understand the various problems in the field of Geography.
3. To develop the skill in statistical as well as cartographic techniques.
4. To enhance analytical thinking and report writing ability of the students.

**Course Outcomes:**

1. Students will acquire proficiency and skills in research techniques.
2. Students will aware about various problems related to geography through their critical thinking.
3. Students able to collect, analyse and interpret the primary as well as secondary data
4. Enhance capability and enthusiasm for self-improvement through continuous professional development and life-long learning.

<b>Project Work &amp; Report.</b>			
<b>Unit</b>	<b>Sub - Units</b>	<b>Marks</b>	<b>Lectures</b>
<p style="text-align: center;"><b>Project Work &amp; Report</b></p> <p>(Each student selects separate topic)</p>	<p>-The project report on various geographical topics (especially related to the problems in concerned local region i.e. village/Tahsil/district/khandesh level) will be a comprehensive work based on conceptual aspects, field work, analysis of primary and secondary data in the laboratory.</p> <p>-Students are required to select an exploratory topic of geographical importance based on empirical evidences of literature. They are expected to carry out fieldwork &amp; generate primary data or collect secondary data, analyze it &amp; prepare a Project Report to submit at the time of examination.</p> <ul style="list-style-type: none"> <li>• Project Work do with following steps-</li> </ul>	100	60

	<ul style="list-style-type: none"> <li>➤ Selection of the topic</li> <li>➤ Design study plan</li> <li>➤ Field work (if applicable)</li> <li>➤ Collection of data</li> <li>➤ Analysis and interpretation of data</li> <li>➤ Report writing</li> <li>➤ Submission etc.</li> </ul>		
--	---	--	--

#### **Internal Marks**

Attendance & Behaviour	10
Participation in Field Work/Data Collection	30
<b>Total Internal Marks</b>	<b>40</b>

#### **External Marks**

<b>Project Report</b>	<b>50</b>
<b>Presentation with PPT (Viva-Voce)</b>	<b>10</b>
<b>Total External Marks</b>	<b>60</b>

- **General Guide Lines for the Project Work, Writing Report& Submission of Project Work Report :-**

1. A student should individually carry out project work and prepare report on one topic.
2. Guide teacher guided to the students about research methodology for conduct the project work.
3. The final project report should cover the following aspects.
  - A. Title Pages-
    - i. Title Page
    - ii. Certificate
    - iii. Acknowledgement
    - iv. List of tables/maps/photographs etc.
    - v. Index
  - B. Main Text-
    - i. Introduction to the problem.
    - ii. Aims and objectives of the study.
    - iii. Methodology
    - iv. Analysis, description and interpretation.
    - v. Results

- vi. Conclusions
- C. End Matter
  - i. Bibliography
  - ii. Appendices

4. Every table, figure, maps, photograph should have a caption and with references.
5. The list of references should be given at the end and all the references should be complete in all respects (author(s)) name, year, title of the article or book, name of the journal, name of the publisher of the book and place of publication, volume of journal and page numbers).

**Example-**

Wagh, S. A. (2015) : Physical Geography, Atharva Publications, Jalgaon

Wagh, S. A. And Patil, M. B. (2019) : Gender Disparity in Maharashtra : A Geographical Analysis, Ajanta Research Journal, Vol. III, Issue I, January-March 2019, Pp. 55-63.

6. The total number of pages should be **minimum 30 and maximum 40**, including text, figures, tables, photographs, references and appendices.
7. The medium of writing will be **English** only. Project report should be submitting in **Computer typing with Spiral/Hard bounding**.
8. At the time of viva-voce presentation may be given with the help of equipments which are available in the respective department.

• **Important Notes :**

1. Assessment of the project by external examiner/guide teacher. One Copy of the Project and Sealed Mark list submit to the College Principal by external examiner/guide teacher after conducting viva-voce.
2. Allocate of Guide Teacher to the students at the start of Sem-IV by Head of the concerned department through discussion with all other teachers as per their area of specialization/ interest.
3. Allotted guide teacher should assist the students for selecting research problem, construct objectives and hypothesis and guiding on related topics from beginning of the Sem-IV.
4. Guide teacher is expected to guide the students for data collection, data interpretation and writing project report.
5. Introduce theory part related to research methodology within allotted regular periods.

• **Suggested Topic for Project Work :-**

Each student should have select one topic of their interest through discussion with his/her guide teacher. The following inventory is for the convenient only. A guide

teacher or student is free to choose any other topic related to Geography apart from the list given below.

- **Population Geography-**
  1. Sex Ratio
  2. Population Growth
  3. Population Distribution
  4. Population Characteristics
  5. Literacy
  6. Occupational Structure
  7. Social study
  8. Migration
  9. Tribal/Rural/Urban Population Problems
- **Agricultural Geography-**
  1. Land Use
  2. Crop Combination/Diversification
  3. Cropping Pattern
  4. Agricultural Production
  5. Irrigation System
  6. Agricultural Market
  7. Farming
  8. Soil
  9. Live stock Farming
- **Economic Geography-**
  1. Human Occupations
  2. Trade and Transport
  3. Globalization
  4. Agricultural Economy
  5. Regional Development
- **Settlement Geography-**
  1. Settlement Pattern
  2. Rural Settlement study
  3. Urban Settlement study
  4. Tribal Settlement study
  5. Rural Service Centre
  6. Urban Sprawl
  7. Problems of villages/cities
- **Human Geography-**
  1. Human Race
  2. Food Security
  3. Poverty
- **Geomorphology/Physical Geography-**
  1. Geomorphic study
  2. Watershed Management

3. Groundwater
4. Morphometric Analysis
5. Endogenic Forces
6. Exogenic Forces
- **Biogeography/Phytogeography-**
  1. Natural Vegetation
  2. Wildlife
  3. Forest
  4. Biodiversity
- **Medical Geography-**
  1. Health status
  2. Malnutrition
  3. Fertility/Mortality
- **Social and Cultural Geography-**
  1. Religion Composition
  2. Social Aspects
  3. Language
  4. Cultural Aspects
- **Environmental Geography-**
  1. Environmental Issues
  2. Global Warming
  3. Climate Change
  4. Ozone Depletion
  5. Hazards
  6. Pollution
  7. Natural Resources
  8. Water Scarcity
- **Remote Sensing and GIS-**
  1. Application of Remote Sensing in....
  2. .... Analysis with the help of GIS

**Suggested Readings :-**

1. Archer J.E. & Dalton T.H. (1968): The field work in Geography, E.t.BatsfordLtd.,London.
2. Dikshit, R. D. (2003) : The Art and Science of Geography: Integrated Readings. Prentice-Hall of India, New Delhi.
3. Johnes, P.A. (2008): Field Work in Geography, Longman.
4. Karlekar, S. N. (2006) : Research Techniques in Geography, Diamond Publications, Pune
5. Kothari C.R.(1996): Research Methodology, Vishwas Prakashan, New Delhi.
6. Misra R.P. (1991): Research Methodology in Geography, concept pub. New Delhi.

7. Ranjeet Kumar : Research Methodologya Step-By-Step Guide For Beginners, Sage Publication
8. Pandey,Prabhat &Pandey, Meenu Mishra : Research Methodology: Tools And Techniques, Bridge Center, 2015
9. Sudhir Bodhankar and Vivek Aloni (2007) : SamajikSanshodhanPaddhati, Sainath Prakashan, Nagpur
10. Pradip Aaglave- SamajikSanshodhanPaddhati

## Audit Course

### Semester - IV

#### Choose One out of

AC 401 (A) , AC 401 (B), AC 401 (C), AC 401 (D)

(Practical)

Total Marks-100 (Internal)

Credit Points- 02

Teaching Hours/Week: 02

Total Teaching Hours: 30

AC-401(A): Human Rights	
Unit	Content
	<p><b>Course Objectives:</b> To make students aware about human rights and human values.</p> <p><b>Learning Outcomes:</b> Students will be able to</p> <ul style="list-style-type: none"><li>• Practice the learned issues under human rights and human values in real life.</li><li>• Provide social justices to people around them and provide guidance about human rights to their friends, parents and relatives.</li></ul>
1.	<p><b>Introduction to Human Rights</b></p> <ul style="list-style-type: none"><li>• Concept of Human Rights</li><li>• Nature and Scope of Human Rights</li><li>• Fundamental Rights and Fundamental Duties</li><li>• Interrelation of Rights and Duties</li></ul>
2	<p><b>Human Rights in India</b></p> <ul style="list-style-type: none"><li>• Meaning and Significance of : 1) Right to Equality 2) Right to Freedom, 3) Right against Exploitation, 4) Right to Freedom of Religion, 5) Cultural and Educational Rights, and 6) Right to Constitutional Remedies.</li><li>• Constitutional Provisions for Human Rights</li><li>• Declaration of Human Rights</li><li>• National Human Rights Commission</li></ul>
3	<p><b>Human Values</b></p> <ul style="list-style-type: none"><li>• Meaning and Definitions of Values</li><li>• Importance of values in the life of Individual</li></ul>

	<ul style="list-style-type: none"> <li>• Types of Values</li> <li>• Programmes for conservation of Values</li> </ul>
4	<p><b>Unit 4: Status of Social and Economically Disadvantaged people and their rights</b></p> <ul style="list-style-type: none"> <li>• Rights of women and children in the context of Social status</li> <li>• The Minorities and Human Rights</li> <li>• Status of SC/ST and other Indigenous People in the Indian Scenario</li> <li>• Human rights of economically disadvantaged Society</li> </ul>
<p><b>Suggested Readings :</b></p> <ol style="list-style-type: none"> <li>1. Human rights education – YCMOU, Nasik</li> <li>2. Value education – SCERT, Pune</li> <li>3. Human rights reference handbook – Lucille whare</li> </ol>	

**AC-401(B): Current Affairs****Course Objectives:**

To make students updated about current affairs of India and world.

**Learning Outcomes:** Students will be able to

- Identify important issues currently/recently happening in India or world.
- Summarize current affairs regularly.

<b>Unit. No.</b>	<b>Title</b>	<b>Content</b>	<b>Hours</b>
<b>1.</b>	<b>Politics &amp; Economy</b>	<ul style="list-style-type: none"><li>• National &amp; International Political Activity, Organization.</li><li>• Economy &amp; Business, Corporate world</li></ul>	<b>08</b>
<b>2</b>	<b>Awards and recognitions</b>	<ul style="list-style-type: none"><li>• National &amp; International Awards and recognitions</li><li>• Books and authors</li></ul>	<b>07</b>
<b>3</b>	<b>Science &amp; Technology</b>	<ul style="list-style-type: none"><li>• Software, Automobile, Space Research</li><li>• New inventions and discoveries</li></ul>	<b>07</b>
<b>4</b>	<b>Environment &amp; Sports</b>	<ul style="list-style-type: none"><li>• Summit &amp; conference, Ecology &amp; Climate, Organization.</li><li>• National &amp; International Games, Olympics, commonwealth etc.</li></ul>	<b>08</b>

**Suggested Course Reading (Use recent years 'data and current literature) :**

1. India 2019, by Publications Division Government of India
2. Manorama Year Book by Philip Mathew,
3. India 2019, Rajiv Maharshi
4. Quick General Knowledge 2018 with Current Affairs Update, Disha Experts
5. General Knowledge 2018: Latest Who's Who & Current Affairs by RPH Editorial Board.

## AC-401 C: Green Audit

---

### Course Objectives: -

- 1) Understand the scope of audit.
- 2) Enable students to pursue knowledge with an insatiable thirst, discipline them to harness their energy for creative purposes.

### Course Outcomes: -

To become a green auditor employment opportunities are available for an auditor in various sectors.

Unit No.	Units	Sub-Units
1	<b>Introduction</b>	1.1 Green Audit – Definition, Concept and features 1.2 Objectives of Green Audit 1.3 Benefits of Green Audit
2	<b>Process of Green Audit</b>	Stage I – Pre-audit or planning stage Stage II – On-site or field audit Stage III – Post audit Stage IV – Follow up or Review stage
3	<b>Tools and Techniques used in Green auditing</b>	Checklist, Questionnaires, observation, Photographs, Research base.
4	<b>Assignment (Practical)</b>	Assignment to conduct the Green Audit to your institute / any institute/ any garden/ any place, prepare report & submit it at the time of Examination

Assessment Type	Marks
CA Internal Conduction of the Green Audit to your institute / any institute/ any garden/ any place, prepare report & submission of report at the time of Examination and oral.	100
<b>Total Marks</b>	<b>100</b>

**Suggested Readings :** - Green Audit reports of various institutes are available on Google

**Course Objectives:**

1. To introduce some basic of review of research paper to the students.
2. To develop interest of students in research.
3. To Promote students for reading of research articles and writing its review.
4. Students will acquire analytical thinking on the topic of interest.

**Course Outcomes:**

After completion of this course, the students will be able to,

1. Search and Describe scientific research articles.
2. Recognize and Write the contents of research paper in summarized form.
3. Develop comparative and analytical thinking in students.
4. Compile the scientific information on a topic, verify for similarity index or plagiarism.

Unit No.	Units	Sub-Units	Lectures
1	<b>Introduction of Literature review</b>	1.1 Types of literature reviews: A) Evaluative B) Exploratory C) Instrumental D) Systematic review. 1.2 Types of research article: A) scientific research articles B) Review articles C) Theoretical D) Case studies E) Application oriented etc. 1.3 Purpose of literature review	<b>30</b>
2	<b>Key steps of literature review</b>	2.1 Search for relevant literature 2.2 Evaluate and select sources 2.3 Identify themes, debates and gaps 2.4 Outline your literature review's structure	
3	<b>Other Aspects of literature review</b>	3.1 Reference styles 3.2 Use of bibliography/ reference/ citation managers and generators A) Reference Manager B) End Note C) Ref Works D) Mendeley E) Zotero etc. 3.3 Ethics of publication A) Approval and consent B) Data ethics C) Plagiarism and self-plagiarism	

		D Collaborative authorship E) Conflict of interest F) Legal consequences 3.4 Content similarity detection A) Use of anti-plagiarism services (Urkund, iThenticate, Turnitin, Copyscape, Grammarly, etc.)	
4	<b>Internal Assessment</b>	4.1 At least 02 review research papers writing by the students and submit to the college (handwritten or typographical form) 4.2 Write your literature review with following points to be covered: A) Abstract B) Introduction C) Body D) Discussion E) Conclusion F) References.	

<b>Weightage</b>	
<b>Internal Assessment</b> (At least 02 review research papers writing by the students and submit at the time of examination and oral	<b>100</b>

### **Suggested Readings:**

- 1) R. M. Desai (1988) : Strategy of food and agriculture – Bombay
- 2) Robinson H.A.A. -Geography of Tourism, MacDonald and Evans, London.
- 3) Seth: Tourism Management : Sustainable Tourism Development, Guide for Local Planners by WTO, Sterling Publishers Pvt. Ltd., New Delhi-110016
- 4) Smith, W. R. (1956). Product differentiation and market segmentation as alternative marketing strategies. *Journal of Marketing*. (Vol. 21, Issue 1, July). p3-8.

## Model Question Paper Format

For

### GG. 304 Practical in Remote Sensing-Interpretation of Aerial Photographs and Satellite Imageries.

**Note: All questions are compulsory.**

Que. 1 – Interpret the Aerial Photograph visually with the help of mirror stereoscope considering the following points. (12 Marks)

- (a)
- (b)
- (c)

Que. 2 Interpret the Satellite Image visually with the help of mirror stereoscope considering the following points. (12 Marks)

- (a)
- (b)
- (c)

Que. 3 Extraction and drawing of following natural or cultural features from the given photograph. (12 Marks)

- (a)
- (b)
- (c)
- (d)

Que. 4 A) Calculate the area measurement from aerial photograph as per oral instruction. (05 Marks)

B) Write short notes on chapter no 1, 2 & 3. (Any three out of five) (09 Marks)

Que. 5 a) Inspection of journal. (05 Marks)

b) Oral (05 Marks)

**Model Question Paper Format**

**For**

**GG-305 : Practical of Computerize Data Analysis Techniques in Geography**

**Note: All questions are compulsory.**

Que. 1 Solve Example: Chapter no-2 (10 Marks)

Que.2 Solve Examples: Chapter no-3 (Attempt A and B)  
(12 Marks)

(A)

(B)

Que.3 Solve Example: Chapter no-5 (12 Marks)

Que.4 (A) Solve Example: Chapter no-6 (08 Marks)

(B) Solve Example: Chapter no-1 &4 (08 Marks)

Que. 5 Journal (05 Marks)

Oral (05 Marks)

**Model Question Paper Format**  
**For**  
**Gg. 404: Practical in Physical Geography**

**Note: All questions are compulsory.**

Que. 1 Solve Example: Chapter no-2 (10 Marks)

Que.2 Solve Examples: Chapter no-3 (08 Marks)

Que.3 Solve Example: Chapter no-4 (10 Marks)

Que.4 (A) Solve Example: Chapter no-5 (08 Marks)

(B) Solve Example: Chapter no-6 (08 Marks)

(C) Write short notes on. (Chapter no- 1) (06 Marks)

1.

2.

Que. 5 Journal (05 Marks)

Oral (05 Marks)

\*\*\*\*\*