

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

॥अंतरी पेटवू ज्ञानज्योत॥



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

**SYLLABUS**

**For**

**F. Y. B. Sc- (Sem. I<sup>st</sup> and II<sup>nd</sup>)**

**Subject: Geography**

**Under**

***Choice Based Credit System***

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

## Semester-wise Course Structure of F. Y. B. Sc Geography

### Semester I

Course	Course Type	Course Title	Teaching Hours/ Week			Marks (Total 100)				Credits
			T	P	Total	Internal		External		
						T	P	T	P	
GG. -101	DSC Theory	INTRODUCTION TO LITHOSPHERE	3	--	3	40	--	60	--	2
GG.-102	DSC Theory	MORPHOLOGY OF LANDSCAPE	3	--	3	40	--	60	--	2
GG.103	DSC Practical	PRACTICAL GEOGRAPHY- CARTOGRAPHIC TECHNIQUES	-	4	4	40	-	60	-	2

### Semester II

Course	Course Type	Course Title	Teaching Hours/ Week			Marks (Total 100)				Credits
			T	P	Total	Internal		External		
						T	P	T	P	
GG. -201	DSC Theory	ATMOSPHERE	3	--	3	40	--	60	--	2
GG.-202	DSC Theory	HYDROSPHERE	3	--	3	40	--	60	--	2
GG.203	DSC Practical	PRACTICAL GEOGRAPHY- MAP PROJECTION	-	4	4	40	-	60	-	2

**Equivalences for old courses of F. Y. B. Sc Geography  
(Semester I and II)**

**Semester – I<sup>st</sup>**

<b>Old Courses (June 2017)</b>		<b>New Courses (June 2021)</b>	
<b>Code of Courses</b>	<b>Title of the courses</b>	<b>Code of Course</b>	<b>Title of the courses</b>
Gg.101	PHYSICAL GEOGRAPHY – I (LITHOSPHERE PART - I)	GG. 101	INTRODUCTION TO LITHOSPHERE
Gg.102	PHYSICAL GEOGRAPHY – II (ATMOSPHERE )	GG.102	MORPHOLOGY OF LANDSCAPE
Gg.103	PRACTICAL GEOGRAPHY- CARTOGRAPHIC TECHNIQUES	GG.103	PRACTICAL GEOGRAPHY- CARTOGRAPHIC TECHNIQUES

**Semester – II<sup>nd</sup>**

<b>Old Courses (June 2017)</b>		<b>New Courses (June 2021)</b>	
<b>Code of Courses</b>	<b>Title of the courses</b>	<b>Code of Courses</b>	<b>Title of the courses</b>
Gg.201	PHYSICAL GEOGRAPHY (LITHOSPHERE PART - II)	GG. 201	ATMOSPHERE
Gg.202	PHYSICAL GEOGRAPHY – II (HYDROSPHERE )	GG.202	HYDROSPHERE
Gg.203	PRACTICAL GEOGRAPHY- MAP PROJECTION	GG.203	PRACTICAL GEOGRAPHY- MAP PROJECTION

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**FACULTY OF SCIENCE AND TECHNOLOGY**

**New Syllabus F.Y.B.Sc. Semester- I (CBCS Pattern)**

**With effect from June- 2022**

**Gg.- 101: INTRODUCTION TO LITHOSPHERE**

**Total Credits: 02**

**Teaching Hours: 30**

**LEARNING OBJECTIVES:**

1. To study the basic concept of lithosphere.
2. To study the processes involve in the formation of various landforms.

**LEARNING OUTCOMES:**

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

1. To understand the geographical phenomena.
2. To understand the formation, types and importance of rocks and minerals.
3. To understand the landforms and their origin.
4. To know the external and internal forces that acting on the earth surface.

<b>Unit No.</b>	<b>Topic Name</b>	<b>Sub-Topic</b>	<b>Teaching Hours</b>
<b>I</b>	<b>Introduction to Physical Geography</b>	a) Definition, Nature and Scope of Physical Geography b) Branches of Physical Geography c) Meaning and Concept of Lithosphere d) First and Second order landforms	<b>06</b>
<b>II</b>	<b>Distribution of land and water</b>	a) Present distribution of land and water. b) The interior structure and composition of the Earth c) Theories regarding the present distribution of land and water – i) Wegner’s continental drift theory with criticism. ii) Theory of plate tectonics with criticisms.	<b>09</b>
<b>III</b>	<b>Rocks and Minerals</b>	a) Definitions of Rocks and Minerals b) Classification of rocks c) Characteristics of Igneous, Sedimentary & Metamorphic rocks. d) Distribution of Igneous, Sedimentary and Metamorphic rocks in India	<b>08</b>
<b>IV</b>	<b>Earth Movements</b>	a) Endogenetic and Exogenetic forces b) Classification of Diastrophic forces – Epeirogenic and orogenic forces. c) Nature, Definitions and types of folds	<b>07</b>

		and Faults. d) Sudden movements:- Earthquake and volcanic eruption (Definitions, causes, effects) e) Mass movement: Meaning, factors and types.	
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### Weightage

Unit No.	Marks
<b>I</b>	12
<b>II</b>	18
<b>III</b>	15
<b>IV</b>	15
<b>Internal Assessment (CA)</b>	<b>40</b>
<b>External Assessment (UA)</b>	<b>60</b>
<b>Total Marks</b>	<b>100</b>

### Suggested Reading:

1. Ahirrao.W.R. ,Alizad.S.S and Dhapte.C.S (1998) Morphology and landscape, Nirali prakashan Pune.
2. Bloom.A.L (1998) Geomorphology. A systemetic analysis of late cenozoic landforms, Pearsonn education (Singapore) Pvt.Ltd.
3. Chaudhary S.R., Patil V.J., and Badgujar A.A (2014) Physical geography Prashant publication, Jalgaon.
4. Bharmbe S.N., Dhake S.V, Patil. V.J.: Physical geography-Part-I (Lithosphere) Prashant Publication.
5. Suryawanshi D.S and Others. (2011) Geography (Lithosphere and Hydrosphere) Vrinda publication, Jalgaon
6. Trivarttha G.T. Elements of Physical geography (Mc. Graw hill)
7. Singh Savindra Physical geography (Eng. & Hindi)
8. Monkhouse F.J (1996) Principles of Physical Geography, Hodder and Stoughton, London.

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**FACULTY OF SCIENCE AND TECHNOLOGY**

**New Syllabus F.Y.B.Sc. Semester- I (CBCS Pattern)**

**With effect from June- 2022**

**Gg. - 102: MORPHOLOGY OF LANDSCAPE**

**Total Credits: 02**

**Teaching Hours: 30**

**LEARNING OBJECTIVES:**

1. To understand the processes that shapes the landforms around us.
2. To understand the denudation processes.
3. To understand the work of external forces.

**LEARNING OUTCOMES:**

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

1. To know the temporal changes in landforms.
2. To understand the geomorphological processes in detail.
3. To understand the role of geomorphic agents in sculpturing of the earth surface.

<b>Unit No.</b>	<b>Topic Name</b>	<b>Sub-Topic</b>	<b>Teaching Hours</b>
<b>I</b>	<b>Introduction to Morphology of Landscape and Work of Wind</b>	<b>A.</b> Introduction: Morphology and Landscape <ul style="list-style-type: none"><li>• Landscape: Meaning &amp; Definitions.</li><li>• Types of Landscape</li></ul> <b>B.</b> Mechanism of Wind Erosion and Deposition <ul style="list-style-type: none"><li><b>I.</b> Erosional Landforms:<ul style="list-style-type: none"><li>• Blowout</li><li>• Mushroom Rock</li><li>• Yardangs</li><li>• Zeugen</li><li>• Inselbergs</li></ul></li><li><b>II.</b> Depositional Landforms:<ul style="list-style-type: none"><li>• Ripplemarks</li><li>• Sand Dunes</li><li>• Barkhans</li><li>• Shifting Dune</li><li>• Loess</li></ul></li></ul>	<b>09</b>

<p style="text-align: center;"><b>II</b></p>	<p style="text-align: center;"><b>Work of River</b></p>	<p><b>A.</b> Mechanism of river erosion and deposition</p> <p><b>I.</b> Erosional Landforms:</p> <ul style="list-style-type: none"> <li>• Gorge</li> <li>• ‘V’ Shaped Valley</li> <li>• Rapids</li> <li>• Waterfall</li> <li>• Pot Holes</li> </ul> <p><b>II.</b> Depositional Landforms:</p> <ul style="list-style-type: none"> <li>• Meander</li> <li>• Ox-bow Lake</li> <li>• Flood Plain</li> <li>• Levee</li> <li>• Delta</li> </ul>	<p style="text-align: center;"><b>07</b></p>
<p style="text-align: center;"><b>III</b></p>	<p style="text-align: center;"><b>Work of Sea Waves</b></p>	<p><b>A.</b> Mechanism of Marine Erosion and Deposition</p> <p><b>I.</b> Erosional Landforms:</p> <ul style="list-style-type: none"> <li>• Sea Cliff</li> <li>• Wave Cut Platform</li> <li>• Sea Caves</li> <li>• Sea Arch</li> <li>• Sea Stack</li> </ul> <p><b>II.</b> Depositional Landforms:</p> <ul style="list-style-type: none"> <li>• Sea Beach</li> <li>• Spits</li> <li>• Lagoon</li> <li>• Barrier island</li> </ul>	<p style="text-align: center;"><b>07</b></p>
<p style="text-align: center;"><b>IV</b></p>	<p style="text-align: center;"><b>Work of Glacier</b></p>	<p><b>A.</b> Mechanism of Glacial Erosion and Deposition</p> <p><b>I.</b> Erosional Landforms:</p> <ul style="list-style-type: none"> <li>• Cirque</li> <li>• U-shaped valley</li> <li>• Hanging Valley</li> <li>• Roche Montano</li> <li>• Horn and Aerect</li> </ul> <p><b>II.</b> Depositional Landforms:</p> <ul style="list-style-type: none"> <li>• Moraines</li> <li>• Drumlin</li> <li>• Esker</li> <li>• Parched Block</li> <li>• Verve</li> <li>• Kames</li> </ul>	<p style="text-align: center;"><b>07</b></p>

### Weightage

Unit No.	Marks
I	18
II	14
III	14
IV	14
<b>Internal Assessment (CA)</b>	<b>40</b>
<b>External Assessment (UA)</b>	<b>60</b>
<b>Total Marks</b>	<b>100</b>

### Suggested Reading:

1. Ahirrao, W.R., Alizad, S.S. and Dhapte, C.S., (1998): Morphology and Landscape, Nirali Prakashan, Pune.
2. A. Guyot (2017): Physical Geography, Andesite Press, London.
3. Chaudhari S.R., V.J.Patil & Arvind Badgajar (2014): Physical Geography Prashant Publication, Jalgaon.
4. Husain, M., (2001): Fundamentals of Physical Geography, Rawat Publication, Jaipur.
5. Kale, V.S. and Gupta, A., (2001): Introduction to Geomorphology, Orient Longman, Calcutta.
6. Majid Husain (2016):Physical Geography, Rawat Publication, Jaipur.
7. Monkhouse, F.J., (1996): Principles of Physical Geography, Hodder and Stoughton, London.
8. Savindra Singh (2006):Physical Geography, Pravalika Publication, Allahabad.
9. Savindra Singh (2017): Physical Geography
10. S. N. Bharambe, S. V. Dhake, V. J. Patil, Physical Geography - Part 1(Lithosphere), Prashant Publication, Jalgaon
11. Strahler A. H., (2008): Modern Physical Geography(4<sup>th</sup>Edition), Wile
12. Suryawanshi D.S., & Others, (2011): Geography (Lithosphere & Hydrosphere), Vrinda publication, Jalgaon
13. Trewartha, G.T: Elements of Physical Geography) McGraw Hill



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**With effect from June- 2022**

**Gg.- 103: PRACTICAL GEOGRAPHY- CARTOGRAPHIC TECHNIQUES**

**(Each batch of 15 students with four teaching hours per week)**

**Total Credits: 02**

**Teaching Hours: 60**

**LEARNING OBJECTIVES:**

1. To acquaint the students with basic knowledge of cartography and maps.
2. To familiar students with types of map scales.
3. To understand the techniques of drawing graphs, diagrams and distributional maps showing physical, climatic, economic and social attributes of a region.
4. To enable the students to analyse the geographical data and understand the relationship between different geographical factors.

**LEARNING OUTCOMES:**

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

1. To understand various cartographic techniques used in geographical study.
2. To adopt the knowledge of drawing graphs, diagrams and distributional maps.
3. To analyse geographical data with the help of cartographic techniques.

Unit No.	Topic Name	Sub-Topic	Teaching Hours
<b>I</b>	<b>Introduction to Cartography</b>	<b>A. Cartography</b> i. Meaning and Concept ii. Importance of Cartography <b>B. Maps</b> i. Definition ii. Types- Physical and Cultural Maps <b>C. Map Scale</b> i. Definition. ii. Methods of Representing scales a) Verbal scale b) Numerical scale c) Graphical scale i. Conversion of scale: British and Metric system ii. Construction of following scales a) Simple Graphical Scale b) Time and Distance Scale (Only Metric System)	<b>15</b>
<b>II</b>	<b>Graphs</b>	<b>A. Definition and types of graphs</b> <b>B. Construction, uses, merits and demerits of the following Graphs</b> i. Simple Line Graph	<b>15</b>

		ii. Bar Graph iii. Combine Graph (Line & Bar Graph) iv. Climograph	
<b>III</b>	<b>Statistical Diagrams</b>	<b>A.</b> Concept and uses of Statistical Diagrams <b>B.</b> Construction, uses, merits and demerits of the following Diagrams i. Wind Rose/Star Diagram ii. Divided Circle iii. Proportional Circle	<b>15</b>
<b>IV</b>	<b>Distributional Maps</b>	Meaning and Types of Distributional Maps Construction, uses, merits and demerits of following Distributional Maps i. Dot Map ii. Choropleth Map iii. Isopleth Map	<b>15</b>

### Weightage

Unit No.	Marks
<b>I</b>	15
<b>II</b>	15
<b>III</b>	15
<b>IV</b>	15
<b>Internal Assessment (CA)</b>	<b>40</b>
<b>External Assessment (UA)</b>	<b>60</b>
<b>Total Marks</b>	<b>100</b>

### Suggested Reading:

1. Balbir Singh Negi: Practical Geography, Kedarnath Ramnath Publishers, Meerut Delhi.
2. Gopal Singh: Map Work and Practical Geography, Vikas Publishing House Pvt. Ltd.,
3. Mishra R. P. & Ramesh A.: Fundamental of Cartography, McMillan Co., New Delhi.
4. Monkhouse F. J. & Wilkinson H. R.: Maps and Diagram, Methuen & Co. Ltd. London. New Delhi.
5. Pal, S.K.: Statistics for Geoscientists — Techniques and Applications, Concept, New
6. Robert H. & Patrick M.: Quantitative Techniques in Geography, Oxford University Press.
7. Robinson, A.H. et al.: Elements of Cartography, John Wiley & Sons, U.S.A.
8. Sarkar A.K Practical Geography: A Systematic Approach, Oriental Longman, Calcutta.
9. Singh, R.L. and Dutt, P.K.: Elements of Practical Geography, Kalyani Publishers, New Delhi.
10. Singh L. R.: Fundamentals of Practical Geography, Sharda Pustak Bhavan, Allahabad.

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**FACULTY OF SCIENCE AND TECHNOLOGY**

**New Syllabus F.Y.B.Sc. Semester- II (CBCS Pattern)**

**With effect from June- 2022**

**Gg. - 201: ATMOSPHERE**

**Total Credits: 02**

**Teaching Hours: 30**

**LEARNING OBJECTIVES:**

1. To acquaint the students with basic knowledge of atmosphere, weather, climate and climatic elements.
2. To acquire the knowledge of applications of Climatology in the different field.
3. To understand the impact of atmosphere on agricultural, human settlements, health and commerce.

**LEARNING OUTCOMES:**

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

1. Identify the layers of earth's atmosphere.
2. Describe key features of each layer of the atmosphere
3. To interpret global energy budgets.
4. To understand the application of the climatology.

Unit No.	Topic Name	Sub-Topic	Teaching Hours
I	<b>Atmosphere : Introduction, Structure and Composition</b>	A) Meaning and Definition of Atmosphere, weather and climate B) Composition of Atmosphere i. The Gases ii. Water Vapor iii. Dust Particles C) Structure of Atmosphere i. Troposphere, ii. Stratosphere iii. Mesosphere iv. Thermosphere a) Ionosphere b) Exosphere	<b>07</b>
II	<b>Insolation and Temperature</b>	A) Meaning and Definition: Insolation, Isotherm, Solar Constant and Albedo of the Earth B) Distribution of Insolation: Factors affecting the distribution of Insolation C) Heat Budget of the Earth and Atmosphere D) Temperature: I. Factors affecting on distribution of temperature. II. Horizontal Distribution III. Vertical Distribution	<b>07</b>

<b>III</b>	<b>Atmospheric Pressure &amp; Winds</b>	<p>A) Atmospheric Pressure</p> <ol style="list-style-type: none"> <li>i. Isobars</li> <li>ii. Formation of Pressure Belts</li> <li>iii. Shifting of Pressure Belts and their Effects</li> </ol> <p>B) Winds</p> <ol style="list-style-type: none"> <li>I. Meaning &amp; Definition</li> <li>II. Factors affecting Winds               <ol style="list-style-type: none"> <li>a. Pressure Gradient</li> <li>b. Coriolis Force</li> <li>c. Friction Force</li> </ol> </li> <li>III. Classification of Winds               <ol style="list-style-type: none"> <li>a. Planetary Winds - Definition &amp; Types</li> <li>b. Monsoon Winds – Concept and Characteristics</li> <li>c. Periodical Winds - Land and Sea Breezes, Mountains &amp; Valley Breezes</li> </ol> </li> </ol>	<b>08</b>
<b>IV</b>	<b>Humidity &amp; Applications of Climatology</b>	<p>A) Definition &amp; Types of Humidity</p> <ol style="list-style-type: none"> <li>i. Absolute</li> <li>ii. Specific</li> <li>iii. Relative</li> </ol> <p>B) Forms of Condensation: Fog, Dew, Frost, Clouds &amp; Precipitation</p> <p>C) Forms of Precipitation: Rain, Drizzle, Snow, Sleet</p> <p>D) Types of Rainfall:</p> <ol style="list-style-type: none"> <li>i. Convictional</li> <li>ii. Orographic / Relief</li> <li>iii. Cyclonic or Frontal</li> </ol> <p>E) Applications of Climatology in the field of agriculture , health, trade &amp; transport</p>	<b>08</b>

### Weightage

Unit No.	Marks
<b>I</b>	14
<b>II</b>	14
<b>III</b>	16
<b>IV</b>	16
<b>Internal Assessment (CA)</b>	<b>40</b>
<b>External Assessment (UA)</b>	<b>60</b>
<b>Total Marks</b>	<b>100</b>

### **Suggested Reading:**

1. Aguado, E. and Burt, J.E. (2001): Understanding Weather and Climate, Printice Hall, Upper Saddal River, New Jersey.
2. Barry, R.G. & Chorly, R.J.(1995) : Atmosphere, Weather and Climate, Routledge, LondonAnd New York.
3. Critchfield, H. J.(2002) : General Climatology, Prentice Hall, New Delhi, India.
4. Das, P.K.(1968): Monsoon, National Book Trust, New Delhi.
5. Lal, D.S. (1986): Climatology, Chaitany Book Trust, New Delhi.
6. Lal, D.S. (2009): Climatology and Oceanography, Sharda Pustak Bhavan, Allahabad
7. Lutgents, F.K. & Tarbuck E.J. (2001): The Atmosphere, Prentice Hall, Upper Saddal RiverNew Jersey.
8. Majid Hussain: Climatology
9. Millar A. et.al. (1983): Elements of Meteorology, Merrill, Columbus
10. Siddharth, K. (2001): Atmosphere, Weather and Climate, Kisaliya Publications Pvt. Ltd.New Delhi.
11. Singh Savindra (2005): Climatology, PrayagPustak Bhawan, Allahabad.
12. Strahler, A.N. (1965): Introduction to Physical Geography, Willey, New York.
13. Stringer E.T.(1982) : Foundation of Climatology, Surjeet publications, Delhi.
14. Trewartha, G.T. (1980): An Introduction to Weather and Climate, McGraw Hill, NewYork.

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**With effect from June- 2022**

**Gg. - 202: HYDROSPHERE**

**Total Credits: 02**

**Teaching Hours: 30**

**LEARNING OBJECTIVES:**

1. To introduce the students to the basic concepts of Oceanography.
2. To introduce the origin and effects of Tsunami.
3. To give the knowledge of properties & movements of ocean water.
4. To know the nature & types of ocean coast.

**LEARNING OUTCOMES:**

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

1. To understand the basic concepts of Hydrosphere.
2. To explain the properties of different oceans.
3. To understand the concept of movement of ocean water.

<b>Unit No.</b>	<b>Topic Name</b>	<b>Sub-Topic</b>	<b>Teaching Hours</b>
<b>I</b>	<b>Introduction to Hydrosphere and Submarine Relief</b>	<b>A.</b> Meaning and Concept of Hydrosphere <b>B.</b> Importance of the Study of Hydrosphere in Modern Time <b>C.</b> Surface Configuration of Ocean Floor <b>D.</b> Submarine Relief of Indian and Atlantic Oceans:	<b>08</b>
<b>II</b>	<b>Properties of Ocean Water</b>	<b>A. Salinity:</b> Definitions & Meaning i. Composition of Salinity of Ocean Water ii. Factors Affecting the Distribution of Salinity of Ocean Water iii. Distribution of Salinity- Open Ocean, Partially Enclosed Sea, Inland Sea and Lakes <b>B. Temperature</b> i. Distribution of Ocean Water Temperature: a) Horizontal b) Vertical <b>C. Density</b> i. Definitions and Characteristics of Density of Ocean Water ii. Factors Controlling the Density of Ocean Water	<b>08</b>

<b>III</b>	<b>Movement of Ocean Water</b>	<p><b>A. Oceanic Waves</b></p> <ul style="list-style-type: none"> <li>i. Definitions, Nature and Characteristics of Waves.</li> <li>ii. Breaking of Waves</li> <li>iii. Tsunami waves: Definitions, Characteristics and Effects of Tsunami</li> </ul> <p><b>B. Ocean Currents</b></p> <ul style="list-style-type: none"> <li>i. Definition and Types of Ocean currents</li> <li>ii. Characteristics of Ocean currents</li> <li>iii. Causes of Origin of Ocean currents</li> <li>iv. Ocean Currents in the Atlantic and Indian Oceans.</li> <li>v. Effects of Ocean Currents</li> </ul> <p><b>C. Ocean Tides</b></p> <ul style="list-style-type: none"> <li>i. Definition and Meaning</li> <li>ii. Types: Spring and Neap Tides</li> <li>iii. Importance of Tides</li> <li>iv. Effects of Tides</li> </ul>	<b>09</b>
<b>IV</b>	<b>Ocean Coast</b>	<p><b>A. Ocean Coast</b></p> <ul style="list-style-type: none"> <li>i. Definition and Nature of Ocean Coast</li> <li>ii. Types of Ocean Coast <ul style="list-style-type: none"> <li>a. Submergence Coast</li> <li>b. Emergence Coast</li> </ul> </li> </ul>	<b>05</b>

### Weightage

Unit No.	Marks
<b>I</b>	12
<b>II</b>	16
<b>III</b>	20
<b>IV</b>	12
<b>Internal Assessment (CA)</b>	<b>40</b>
<b>External Assessment (UA)</b>	<b>60</b>
<b>Total Marks</b>	<b>100</b>

### Suggested Reading:

1. Ahirao, Alizad and Dhapate (2002): Climatology and Oceanography
2. Bharambe, Dhake and Patil, Physical Geography Part-II, Atmosphere and Hydrosphere.
3. Bhardwaj K, Physical Geography-Oceanography, Discovery publishing house New Delhi.
4. Davis Richard J.A., (1987): Oceanography- An introduction to the marine Environment, W.M.C.,Brooth Flow.
5. Garison T. (1998): Oceanography, Wards worth Company, USA
6. Khan Nizamuddin (2001): An Introduction to Physical Geography, Concept Publication Padma, Apartment New Delhi.
7. Majid Husain (2001): Fundamental of Physical Geography, Ravat Publication, Jaipur

8. Negi B.S., Climatology and oceanography, Kedarnath and Ramnath Publishing , Meerut.
9. Padey, P.N. (2002): Physical Geography, NiraliPrakashan, Pune
10. Ross D.A.(1988): Introduction to Oceanography, Prentice Hall, New Jersey.
11. Savindar Sing, Physical Geography, Prayagpustakbhavan, Alahabad.
12. Sharma R.C. and Vatal,(1970): Oceanography for Geographers, Chaitanya Delhi.
13. Siddhartha K. (2001): Oceanography A Brief Introduction, Kisalaya Publication Pvt. Ltd.
14. Tikha R.N., Physical Geography, Kedarnath and Ramnath and Co. Merrut.
15. Trewartha Robinson, Physical Elements of Geography, McGraw Hill Books Company, New Delhi.
16. Ummerkutty A. N. P. (1999), Science of the Oceans, National Book Trust, New



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**FACULTY OF SCIENCE AND TECHNOLOGY**

**New Syllabus F.Y.B.Sc. Semester- II (CBCS Pattern)**

**With effect from June- 2022**

**Gg.- 203: PRACTICAL GEOGRAPHY- MAP PROJECTION**

**(Each batch of 15 students with four teaching hours per week)**

**Total Credits: 02**

**Teaching Hours: 60**

**LEARNING OBJECTIVES:**

1. Acquaint the students with basic Projection and preparation of maps.
2. To enable the students with importance of various map projections.
3. To acquaint the students with the principles of Graticules
4. Basics of choice of map projections

**LEARNING OUTCOMES:**

After completion of this course, the students will be ...

1. Benefited with different kind of map projections & their importance.
2. Expert in drawing projections according to requirement.
3. Identify & choose map projections for different regions.
4. Enhance basics of latitudes, longitude & great circle among students.

Unit No.	Topic Name	Sub-Topic	Teaching Hours
I	<b>Introduction to Map Projections</b>	<b>A. Introduction to Map and Globe</b> i. Definitions of Map & Globe ii. Parallels of Latitudes iii. Meridians of Longitudes iv. Great Circle <b>B. Introduction to Map Projection</b> i. Definitions of Map Projection ii. Necessity of Map projection	<b>15</b>
II	<b>Classification of Map Projection</b>	<b>A. Classification of Map Projection on the basis of their development</b> i. Perspective Projections ii. Non-Perspective Projections iii. Conventional map Projections	<b>08</b>
III	<b>Construction of Map Projections</b>	<b>A. Construction of Map Projections by Graphical Methods</b> <b>a. Zenithal Projection:</b> i. Zenithal Polar Gnomonic projection. ii. Zenithal Polar Stereographic projection <b>b. Conical Projections:</b> i. Conical projection with one standard parallels. ii. Conical projection with two standard parallels iii. Bonne's projection.	<b>27</b>

		<b>c. Cylindrical Projections</b> i. Cylindrical Equal Area Projection ii. Mercator's Projection <b>d. Conventional map projections.</b> i. Sinusoidal projection. ii. Mollweide projection	
<b>IV</b>	<b>Choice &amp; Use of Map projections</b>	<b>A.</b> Choice of Map projections for different Purposes and regions <b>B.</b> Problems with the choice of map projection <b>C.</b> Distortion (shape, size, direction, area.)	<b>10</b>

### Weightage

Unit No.	Marks
<b>I</b>	15
<b>II</b>	12
<b>III</b>	25
<b>IV</b>	08
<b>Internal Assessment (CA)</b>	<b>40</b>
<b>External Assessment (UA)</b>	<b>60</b>
<b>Total Marks</b>	<b>100</b>

### Suggested Reading:

1. Gopal Singh: Mapwork and Practical Geography
2. R.P.Mishra & A.Ramesh Fundamental of Cartography.
3. R.C.Sing & Dutta: Elements of Practical Geography
4. James Alfred Steers, An Introduction to the Study of Map Projections, University of London Press,
5. Erwin Raisz Elements of Cartography: 12. Elements of Practical Geography: Robinson A.H.&Sleep R.D.
6. Kellaway, G.P., (1979): Map Projections, B.I. Publications, New Delhi
7. Monkhouse, F.J. and Wilkinson, H.R. 1980: Maps and Diagrams
8. Singh, R.L. and Singh, R.P.B. (1992): Elements of practical Geography.
9. Steers, J.A. (1954): An Introduction to the Study of Map Projections, University of, New York.
10. R. Sing & Kanaujia Map work and Practical Geography
11. F.J. Mankhouse & H.R. Wilkinson: Map & Diagrams
12. George Kallaway Map Projection: London Press, London.