

North Maharashtra University,
Jalgaon



B.Sc First Year (Geography)
Semester I & II

Choice Based Credit System (CBCS)
With effect from June 2018

North Maharashtra University,

Jalgaon

B.O.S. in Geography

Skeleton of Choice Based Credit System

w.e.f. 2018-19

For Theory	1 Credit	1 Hour
	1 Credit	15 Hours/Semester
	2 Credits	30 Hours/Semester
	2 Credits	45 Lectures of 40 Minutes/Semester
For Practical	1 Credit	2 Hours
	2 Credits	60 Hours/Semester
	2 Credits	90 Lectures of 40 Minutes/Semester

North Maharashtra University
 BOS in Geography (Proposed Structure)
 For CBCS System
 For Theory 1 Credit=1Hours
 For Practical 1 Credit= 2Hours
 For F. Y. B.Sc
 Each Lecture is of 40 Minutes

Semester	Core Course	Paper No	Name of Course	No. of Credits	No. of Hours per Week	No. of Lectures per Week
I	CC-A - I	Paper - I (Section A) Gg. 101	Physical Geography (Lithosphere Part I)	2	2	3
		Paper - II (Section B) Gg. 102	Physical Geography (Atmosphere)	2	2	3
		Paper - III (Section A & B Lab.) Gg. 103	Practical Geography (Cartographic Techniques)	2	4	6
II	CC A - II	Paper - I (Section A) Gg. 201	Physical Geography (Lithosphere Part II)	2	2	3
		Paper - II (Section B) Gg. 202	Physical Geography (Hydrosphere)	2	2	3
		Paper - III (Section A & B Lab.) Gg. 203	Practical Geography (Map Projection)	2	4	6
			Total Credits	12		

North Maharashtra University
 BOS in Geography (Proposed Structure)
 For CBCS System
 For Theory 1 Credit=1Hours, For Practical 1 Credit= 2Hours
 For S. Y. B.Sc.
 Each Lecture is of 40 Minutes

Semester	Paper Code	Paper No	Name of Course	No. of Credits	No. of Hours in terms of Credit	No. of Lectures per Week
III	CC-A III	Paper - I (Section A) Gg. 301	Environmental Geography (I)	2	2	3
		Paper - II (Section B) Gg. 302	Physical Geography of India	2	2	3
		Paper - III (Section A & B Lab.) Gg. 303	Practical Geography	2	4	6
	SEC - 1	Gg.	Fundamental Concept of Surveying	2	2	3
IV	CC-A IV	Paper - I (Section A) Gg. 401	Environmental Geography (II)	2	2	3
		Paper - II (Section B) Gg. 402	Economic Geography of India	2	2	3
		Paper - III (Section A & B Lab.) Gg. 403	Practical Geography	2	4	6
	SEC - 2	Gg.	Fundamental Concept of GIS	2	2	3
			Total Credits	16		

North Maharashtra University
 BOS in Geography (Proposed Structure)
 For CBCS System
 For Theory 1 Credit=1Hours, For Practical 1 Credit= 2Hours
 For T. Y. B.Sc
 Each Lecture is of 40 Minutes

Semester	Paper Code	Paper No	Name of Course	No. of Credits	No. of Hours in terms of Credit	No. of Lectures per Week
V	DSE- A I	Paper - I (Section A) Gg. 351	Geomorphology	2	2	3
		Paper - II (Section B) Gg. 352	Climatology	2	2	3
		Paper –VIII (Section A & B Lab.) Gg. 358	Practical Geography Paper I & II	2	4	6
	DSE- A II	Paper - III (Section A) Gg. 353	Water Resource Management	2	2	3
		Paper - IV (Section B) Gg. 354	Disaster Management	2	2	3
		Paper - IX (Section A & B Lab.) Gg. 359	Practical Geography	2	4	6
	DSE- B I	Paper V (Section A) Gg. 355	Theory Course	2	2	3
		Paper VI (Section B) Gg. 356	Theory Course	2	2	3
		Paper X (Section A & B) Gg. 360	Geography Practical	2	4	6
	SEC - 3	Gg. 357	Basic of Aerial Photography	2	2	3

North Maharashtra University
 BOS in Geography (Proposed Structure)
 For CBCS System
 For Theory 1 Credit=1Hours, For Practical 1 Credit= 2Hours
 For T. Y. Bsc.
 Each Lecture is of 40 Minutes

Semester	Paper Code	Paper No	Name of Course	No. of Credits	No. of Hours in terms of Credit	No. of Lectures per Week
VI	DSE-A IV	Paper - I (Section A) Gg. 361	Soil Geography	2	2	3
		Paper - II (Section B) Gg. 362	Biogeography	2	2	3
		Paper –VIII (Section A & B Lab.) Gg. 368	Practical Geography Paper I & II	2	4	6
	DSE- A -V	Paper - III (Section A) Gg. 363	Economic Geography	2	2	3
		Paper - IV (Section B) Gg. 364	Agricultural Geography	2	2	3
		Paper - IX (Section A & B Lab.) Gg. 369	Practical Geography	2	4	6
	DSE- B II	Paper V (Section A) Gg. 365	Theory Course	2	2	3
		Paper VI (Section B) Gg. 366	Theory Course	2	2	3
		Paper X (Section A & B) Gg. 370	Geography Practical	2	4	6
	SEC - IV	Paper VII Gg. 367	Statistical Method in Geography	2	2	3

North Maharashtra University, Jalgaon

Faculty of Science and Technology

F. Y. B. Sc, Geography Semester I & II, Theory and Practical Syllabus

As per Guidelines of UGC Choice Based Credit System

W.E. From June 2018

Based on Core Subject

CBCS: Pattern for Geography

Semester: I

Gg. 101: physical Geography I (Lithosphere Part I)

Gg.102: Physical Geography II (Atmosphere)

Gg.103 Practical in Geography

Semester: II

Gg.201: Physical Geography I (Lithosphere Part II)

Gg. 202: Physical Geography II (Hydrosphere)

Gg.203: Practical in Geography

Year: I Core Subject (DSC) Structure of F.Y. Bsc Under CBCS

W. E. F. June 2018

Year	Semester	Paper	Code	Title	Marks		Credits	Lectures/ Semester
					Ext.	Int		
I	I	I	Gg.101	Physical Geography I (Lithosphere Part I)	60	40	2	45
		II	Gg.102	Physical Geography II (Atmosphere)	60	40	2	45
		III	Gg.103	Practical in Geography (Lab. I)	60	40	2	90
	II	I	Gg.201	Physical Geography I (Lithosphere Part II)	60	40	2	45
		II	Gg.202	Physical Geography II (Hydrosphere)	60	40	2	45
		III	Gg.203	Practical in Geography (Lab. II)	60	40	2	90

NORTH MAHARASHTRA UNIVERSITY, JALGAON

F.Y.B.Sc. Semester – I

Gg.101: Physical Geography-I (Lithosphere-Part-I)

(With effect from June 2018)

Silent features:

- The basic concepts of Physical Geography.
- The study of processes and patterns in the natural environment..

Utility:

- To understand the surface of the Earth and the processes by which it is shaped, both at the present as well as in the past.

Learning Objective:

- To acquaint the students with utility and applications of Physical Geography in different areas and environment.

Pre-requisites:

- Maps – Charts – Models – Audio – Visual aids etc.

Unit	Topic	Sub-topics	Lectures	Marks
1	Introduction to Physical Geography	a. Introduction & Definition of Physical Geography b. Definition of Lithosphere c. Nature of Physical Geography d. Scope of Physical Geography e. Branches of Physical Geography	10	15
2	Origin and distribution of Continent and Oceans	a. Origin and distribution of Continent and Oceans b. Theories Regarding the present distribution of land & water i) Wegener's Continental Drift Theory-Description, Evidences & Criticism. ii) Theory of Plate Tectonics Description & Criticism. c. Interior of the earth-structure and composition	13	15
3	Introduction to Identification of Rocks and Minerals	a. Definitions of Rocks and minerals b. Classification of rocks on the basis of formation c. Characteristics of Igneous, Sedimentary & Metamorphic Rock with Indian examples. d. Economic Importance of Rocks Marble, Sandstone, Granite, Coal, Clay.	12	15
4	Forces Affecting the	A. Endogenetic and Exogenetic Forces,	10	15

	Earth's Crust	i) Diastrophic Forces – Eperiogenetic and Orogenetic Forces. a. Folds- Definitions, types and landforms associated with folds b. Faults- Definitions, types and landforms associated with faults ii) Sudden forces - a. Earthquake- Definition, Causes, effects and preventive measures		
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Reference Books :

1. Ahirrao, W.R., Alizad, S.S. and Dhapte, C.S., 1998. Morphology and Landscape, NiraliPrakashan, Pune
2. Bloom, A.L., 1998. Geomorphology. A Systematic Analysis of Late Cenozoic Landforms. Pearson Education (Singapore) Pte. Ltd.
3. Chaudhari S.R., V.J. Patil & Arvind Badgujar (2014) : Physical Geography Prashant Publication, Jalgaon
4. Chorley R. J. (ed.), 1972: Spatial Analysis in Geomorphology, Harper and Row.
5. Christopher son, R.W. 2000, Geo-systems, Prentice Hall, INC. USA
6. Hamblin, W.K., 1989. The Earth's Dynamic Systems, Macmillan Publishing Company, New York.
7. Husain, M., 2001. Fundamentals of Physical Geography, Rawat Publication, Jaipur.
8. Kale, V.S. and Gupta, A., 2001. Introduction to Geomorphology, Orient Longman, Calcutta.
9. Monkhouse, F.J., 1996. Principles of Physical Geography, Hodder and Stoughton, London.
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 Edition), Wile
12. Singh, Savindra : Physical Geography (Eng./Hindi)
13. Suryawanshi D.S., & Others, 2011. Geography (Lithosphere & Hydrosphere), Vrindapublication, Jalgaon
14. Trewartha, G.T: Elements of Physical Geography) McGraw Hill

NORTH MAHARASHTRA UNIVERSITY, JALGAON

F.Y.B.Sc. Semester – I

Gg 102: Physical Geography-II (Atmosphere)

(With effect from June 2018)

Silent features:

- The basic concepts of Physical Geography.
- Basic knowledge of Atmosphere, Weather & Climate.

Utility:

- To understand different Characteristics and Processes of Atmosphere.

Learning Objective:

- To understand various applications of Climatology.
- To acquaint the basic knowledge of elements of Processes in Atmosphere.

Pre-requisites:

- Maps – Charts – Models – Audio – Visual aids etc.

Unit No.	Unit	Sub-Unit	Lectures	Marks
I	Introduction to Atmosphere	A. Definitions of Atmosphere B. Meaning and Definition of Climate & Weather C. Composition of Atmosphere i. Gases, ii. Water Vapor iii. Dust Particles) D. Structure of Atmosphere I. On the basis of Chemical Composition: i. Homosphere ii. Heterosphere II On the basis of physical properties: i. Troposphere ii. Stratosphere iii. Thermosphere iv. Mesosphere a. Ionosphere b. Exosphere	12	15
II	Insolation & Temperature	A. Meaning & Definition of Insolation, Solar Constant and Albedo of the Earth B. Distribution of Isolation- Factors Affecting the Distribution of Insolation C. Distribution of Temperature. I. Vertical Distribution II. Horizontal Distribution	11	15
III	Atmospheric Pressure & Winds	A. Atmospheric Pressure i. Formation of Pressure Belts ii. Shifting of Pressure Belts and their Effect	12	15

		<p>B. Winds</p> <p>I. Factors Affecting on Winds</p> <p>a. Pressure Gradient</p> <p>b. Coriolis Force</p> <p>c. Frictional Force</p> <p>II. Classification of Winds</p> <p>a. Planetary Winds- Definition &Types</p> <p>b. Periodical Winds: land & Sea Breezes)</p> <p>c. Monsoon Winds – Concept & Types</p>		
IV	Humidity & Applications of Climatology	<p>A. Definition & Types of Humidity</p> <p>i. Absolute ii. Specific and</p> <p>iii. Relative Humidity</p> <p>B. Forms of Condensation: Fog, Dew, Frost ,Clouds& Precipitation</p> <p>C.Forms of Precipitation: (Rain, Drizzle, Snow, Sleet.)</p> <p>D. Types of Rainfall</p> <p>i. Convectonal</p> <p>ii. Orographic / Relief</p> <p>iii. Cyclonic or Frontal</p> <p>E. Applications of Climatology in the field of – Agriculture , Settlement, Health, Trade & Transport</p>	10	15

Reference Books:

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, London And 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 River, New 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, New York.

NORTH MAHARASHTRA UNIVERSITY, JALGAON
F.Y.B.Sc. Semester – I
Gg.103: PRACTICAL GEOGRAPHY (CARTOGRAPHIC TECHNIQUES)
(With effect from June 2018)

Silent features:

- Geography is an amalgam of physical as well as social sciences.

Utility:

- Students to go through laboratory exercises
- Particularly the techniques of drawing cartograms showing physical, climatic and scientific attributes of a region.

Learning Objective:

- To understand the concept of scale at the initial stage.
- To know how to draw the maps on various scale.

Pre-requisites:

- Maps & Statistical data – Charts – Models – Audio – Visual aids etc.

Unit No.	Topic	Sub Topic
I	Scale	1. Definition of scale 2. Methods of Representing scales a) Verbal scale b) Numerical scale c) Graphical scale 3. Conversion of scale (British and Metric system) 4. Construction of following scales a) Simple Graphical scale b) Time and Distance Scale (Only Metric System)
II	Graphs	1. Types of Graphs i. Simple Line Graph ii. Bar Graph iii. Combine Graph (Line & Bar Graph) iv. Climograph 2. Merit and Demerits of graphs
III	Statistical Diagram	1. Construction of the following Diagrams i. Wind Rose/Star Diagram ii. Divided Circle iii. Proportional Circle
IV	Distributional Maps	1. Meaning of Distributional Maps 2. Types of Distribution Maps i. Dot Map ii. Choropleth Map iii. Isopleth Map

REFERENCE BOOKS:

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
4. Monkhouse F. J. & Wilkusion 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.

North Maharashtra University, Jalgaon

F.Y.B.Sc. – Semester- II

Gg.201: PHYSICAL GEOGRAPHY (LITHOSPHERE- PART-II)

Silent features:

- Basic concepts, principles and geographical processes.
- Knowledge of Physical Environment.

Utility:

- To study landforms associated with these forces.
- To understand impact of human activities on environment.

Learning Objective:

- To study external forces operating on the Earth surface.
- To enable students to acquire knowledge of their physical environment.

Pre-requisites:

- Maps – Charts – Models – Audio – Visual aids etc.

Sr. No.	Topic	Sub Topic	Lectures	Marks
I	WEATHERING	a) Definition of weathering b) Types of weathering with examples: i. Mechanical ii. Chemical iii. Biological c) Weathering and Soil Formation	09	12
II	WORK OF RIVER	a) Mechanism of river erosion and deposition b) Features associated with the work of river i. Erosional features: ‘V’ shaped valley, Gorge, Rapid ,Waterfall, Pot holes. ii. Depositional features: Meander, Ox-bow lake, Flood Plain & levee, Delta	12	14
III	WORK OF WIND	a) Mechanism of Wind Erosion and Deposition. b) Features associated with the work of wind i) Erosional Features : Blowout, Mushroom Rock, Yardangs, Zeugen, Inselbergs. ii) Depositional Features :RipplemarksSand dunes, Barkhans, Shifting dune , Loess.	12	16
	WORK OF SEA	a) Mechanism of Marine erosion and	12	18

IV	WAVES	deposition b) Land forms associated with the work of seawaves: i. Erosional features: Sea cliff, Wave-cut platform, Sea caves, Sea arch, Sea stack. ii. Depositional features: Beaches, Offshore bar, Spit, Lagoon, Mudflat, Salt marshes.		
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Reference Books

- 1) [Savindra Singh](#) (2017) Physical Geography
- 2) [A Guyot](#) (2017) Physical Geography
- 3) MajidHusen (2016) Physical Geography,
- 4) Suryawanshi D.S., &Others(2011) Geography (Lithosphere & Hydrosphere)
- 5) Alan Strahler (2011) Introducing Physical Geography John Wiley &son ,New York
- 6) H. J. DeBlij& Peter O Mullar. (2004): Physical Geography III Edit Johan Wiley and Sons, New York.
- 7) K.Siddhartha : (II Edt. 2007) The Earth's Dynamic Surface, A Text on London Press, Ltd.
- 8) Monkhouse J. (1971) : Principles of Physical Geography, University of Oxford University Press.
- 9) StrahlerA.N.,&A.H.Strahler: Modern Physical Geography, (1978)
- 10) TrewarthaRobinsin (1967) Physical Elements of Geography, Hammond
- 11) [Richard H Bryant](#) (1 Sep 1973)Physical Geography
- 12) [Savindra Singh](#) (2006,) Physical Geography (Hindi)
- 13) Dr.ShaishkumarWagh, SiddharthSonawane (2015) Physical Geography (Marathi)

North Maharashtra University, Jalgaon
F. Y. B. Sc. Semester - II
Gg.202: PHYSICAL GEOGRAPHY (HYDROSPHERE)
(With effect from June, 2018)

Silent features:

- Basic concepts regarding Hydrosphere.
- Information regarding Marine Deposits and Coral reefs

Utility:

- To understand properties and movement of ocean water.

Learning Objective:

- To introduce the students to the basic concepts of Oceanography.
- To introduce the origin and effects of Tsunami.
- To make the student aware about the application of Oceanography in different areas.

Pre-requisites:

- Maps – Charts – Models – Audio – Visual aids etc.

UNIT	TOPIC	SUB TOPIC	Lectures	Marks
I	Introduction to Hydrosphere and Submarine Relief	(a) Meaning and concept of Hydrosphere (b) Importance of the study of Hydrosphere in modern time (c) Surface configuration of ocean floor. (d) Submarine relief of following oceans: i) Atlantic ii) Indian Ocean	10	12
II	Properties of ocean water	(A) Salinity i) Definitions ii) Composition of salinity of ocean water according to Ditmar's research. iii) Factors affecting the distribution of salinity of ocean water. iv) Distribution of salinity- open ocean, partially enclosed sea, inland sea & lakes B) Temperature i) Distribution of Ocean water temperature: a) Horizontal b) Vertical. C) Density i) Definitions and characteristics of density of ocean water. ii) Factors controlling the density of ocean water.	12	16

III	Movement of Ocean Water	<p>(A) Oceanic Waves</p> <p>i) Definitions, Nature and Characteristics of Waves.</p> <p>ii) Breaking of waves</p> <p>iii) Tsunami waves: Definitions, characteristics and effects of Tsunami.</p> <p>(B) Ocean Currents</p> <p>i) Definition and types.</p> <p>ii) Characteristics.</p> <p>iii) Causes of origin.</p> <p>iv) Ocean currents in following oceans.</p> <p> a) Atlantic Ocean b) Indian Ocean</p> <p>v) Effects of ocean currents.</p>	12	16
IV	Marine Deposits and Coral Reefs	<p>(A) Marine Deposits.</p> <p>i) Meaning of marine deposit.</p> <p>ii) Classification based on the Sources of Origin.</p> <p> a) Terrigenous b) Biogenous c) Hydrogenous d) Cosmogenous (Only Meaning and examples)</p> <p>iii) Types of Ooze a) Calcareous Ooze b) Siliceous Ooze.</p> <p>(B) Coral Reefs.</p> <p>i) Definition and formation of Coral Reefs.</p> <p>ii) Types of Coral Reef:</p> <p> a) Fringing Reef b) Barrier Reef c) Atolls d) Table Reef e) Patch Reef.</p>	11	16

Reference Books

- 1) Ahirao, Alizad and Dhapate (2002): Climatology and oceanography
- 2) B Harambe, Dhake and Patil, Physical Geography Part-II, Atmosphere and Hydrosphere.
- 3) Bhartwaj 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) K. Siddhartha (2001): Oceanography A Brief Introduction, Kosalaya Publication Pvt. Ltd. Padma Apartment New Delhi.
- 7) Khan Nizamuddin (2001): An Introduction to Physical Geography, Concept Publication Company, New Delhi.
- 8) Majid Husain (2001): Fundamental of Physical Geography, Ravat Publication, Jaipur
- 9) Negi B.S., Climatology and oceanography, Kedarnath and RamnathPublishing , Meerut.
- 10) Padey, P.N. (2002): Physical Geography, NiraliPrakashan, Pune
- 11) Ross D.A.(1988): Introduction to Oceanography, Prentice Hall, New Jersey.
- 12) Savindar Sing, Physical Geography, Prayagpustakbhavan, Alahabad
- 13) Sharma R.C. and Vatal,(1970): Oceanography for Geographers, Chaitanya Delhi.
- 14) Tikha R.N., Physical Geography, kedarnath and ramnath and co. Merrut
- 15) Various websites of internet.

North Maharashtra University, Jalgaon
F. Y. B. Sc. Semester –II
Gg.203: PRACTICAL GEOGRAPHY (MAP PROJECTION)
 (With effect from June, 2018)

Silent features:

- To enable the students to use various Projections.

Utility:

- Acquaint the students with basic Projection and preparation of maps.

Learning Objective:

- To acquaint the students with the principles of Classification and Choice of map projections.

Pre-requisites:

- Maps – Charts – Models – Audio – Visual aids etc.

Unit No.	Topic	Sub Topic
I	Map Projections	(a) Introduction to Map Projection: (i) Definition of Map and Globe (ii) Parallels of Latitudes (iii) Meridians of Longitudes (iv) Great Circles (b) Definition of Map Projections (c) Necessity of Map projection
II	Classification of Map Projection	Classification of Map Projection on the basis of their development a) Perspective Projections b) Non Perspective Projections c) Conventional
III	CONSTRUCTION OF MAP PROJECTIONS	Construction of Map Projections by Graphical Methods only. (i) Zenithal Projection: 1) Zenithal Polar Gnomonic projection. 2) Zenithal Polar stereographic projection (ii) Conical Projections: 1) Conical projection with one standard parallels. 2) Bonne's projection. (iii) Cylindrical Projections

		1) Cylindrical Equal Area Projection 2) Mercator's Projection (iv) Conventional map projections. 1) Sinusoidal projection.
IV	Choice of Map projections	a) Usefulness of all projections. b) Problems with the choice of map projection. c) Choice of Map projections for different Purposes and Regions. d) Distortion (shape, size, direction, area)

Reference Books:

- 1) R.P.Mishra&A.Ramesh Fundamental of Cartography:
- 2) James Alfred Steers, An Introduction to the Study of Map Projections, University of London Press,
- 3) Erwin Raisz Elements of Cartography: 12. Elements of Practical Geography :Robbinson A.H. & Sleep R.D.
- 4) Kellaway, G.P., 1979: Map Projections, B.I. Publications, New Delhi
- 5) Monkhouse, F.J. and Wilkinson, H.R. 1980: Maps and Diagrams
- 6) Singh, R.L. and Singh, R.P.B. 1992: Elements of practical Geography.
- 7) Steers, J.A.1954: An Introduction to the Study of Map Projections, University of, New York.
- 8) R.Sing&Kanaujia :Map work and Practical Geography
- 9) R.C.Sing& Dutta : Elements of Practical Geography
- 10) F.J.Mankhouse&H.R.Wilkinson :Map & Diagrams
- 11) Gopal Singh: Map work and Practical Geography
- 12) George Kallawy Map Projection: London Press, London. Publications Private Limited, New Delhi. 36